

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON APRIL 15, 2020
FROM:	KELLY SCHERR, P. ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING SERVICES AND CITY ENGINEER AND ANNA LISA BARDON, CPA, CGA MANAGING DIRECTOR, CORPORATE SERVICES AND CITY TREASURER, CHIEF FINANCIAL OFFICER
SUBJECT:	WATER SERVICE AREA FINANCIAL PLAN UPDATE

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services & City Engineer and the Managing Director, Corporate Services & City Treasurer, Chief Financial Officer, the updated Water Service Area Financial Plan for the City of London **BE APPROVED** as per the requirements of O. Reg 453/07 of the Safe Drinking Water Act, it being noted that this financial plan is consistent with Council approved financial policies and information provided through the 2020-2023 Water Multi-Year Budget process.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Updated Water Service Area Financial Plan, May 5, 2015, Civic Works Committee
- Water Budget, March 2, 2020 - Council

2019-2023 STRATEGIC PLAN

This report supports the Strategic Plan in the following areas:

- Building a Sustainable City:
 - Infrastructure is built, maintained and operated to meet the long-term needs of our community; and
 - Growth and development is well planned and sustainable over the long term.
- Leading in Public Service:
 - Trusted, open, and accountable in service of our community; and
 - Leader in public service as an employer, a steward of public funds, and an innovator of service.

BACKGROUND

Purpose

As part of the Municipal Drinking Water Licensing Program, municipalities are required to prepare and approve Financial Plans for their drinking water system in accordance with Ontario Regulation 453/07 under the Safe Drinking Water Act. A condition of London's Drinking Water Licence is to update the Financial Plan and include it with the application for licence renewal by May 19, 2020. This report is intended to seek Council approval of the Financial Plan as stipulated by the regulation.

The Drinking Water Licence renewal will be completed administratively and does not specifically require Council approval.

Context

In 2007 the Ministry of the Environment, Conservation, and Parks issued Ontario Regulation 453/07 Financial Plans under the Safe Drinking Water Act, 2002. The regulation and accompanying guideline prescribes the requirements for Financial Plans to be prepared as part of the Municipal Drinking Water License Program set out in Part V of the Safe Drinking Water Act. This regulation was designed by the province in response to Justice Dennis O'Connor's Walkerton Inquiry recommendations. The intent is to ensure that municipalities plan for the long-term financial sustainability of their drinking water systems to ensure the safety and reliability of their drinking water systems in the future. This report and the Financial Plan have been prepared to comply with the requirements of O. Reg. 453/07.

Previous Financial Plans were submitted to the Ministry of Municipal Affairs and Housing in 2010, 2011, and 2015. Updating and re-submission of the Financial Plan is required when changes to the plan are substantive, as occurred in 2011, or at the time of licence renewal, which is the reason for this re-submission.

DISCUSSION

The Financial Plan summarizes operational and capital programs, rate increases, and financing that will ensure adequate monetary resources for financial stability and sustainability in the "near" term (five to seven years).

This Financial Plan has been prepared based on the financial information presented in the approved 2020-2023 Water Multi-Year Budget. It also outlines the various financial principles and practices that are utilized to ensure the financial health of London's water utility. Specifically, the Financial Plan details the financing principles utilized to fund the Water capital and operating plans, reserve fund policies to ensure adequate reserve funds are maintained, and strategies for the management and appropriate use of debt financing. It is worth noting that the financial principles and practices utilized by the Water utility are consistent with the Corporation's overall financial principles and best practices.

The financial statements included in the Financial Plan project six years into the future. It should be noted that the City of London bases infrastructure needs on a 20 year analysis and maintains a financial model that projects 20 years into the future. The Regulation requires updated plans to be submitted as part of the application process for water utility licence renewal (every five years).

The capital programs described in the plan have a strong focus on renewal of aging infrastructure. It identifies the funding requirements to ensure a safe and sufficient water supply, while meeting all regulatory compliance requirements. It is a commitment to continue renewing infrastructure as it approaches the end of its useful life and prior to failure, thereby minimizing maintenance and repair costs, social disruption and water loss, as well as ensuring inter-generational equity. Adherence to the plan will result in the lowest water charges to the City's ratepayers in the long term.

Following approval of the plan by City Council, it will be available for review by the public on the City's website and also available in hard-copy for our customers. The Ministry of Municipal Affairs and Housing requires confirmation that the availability of the plan has been advertised in the media and that the plan has been uploaded to our website.

CONCLUSIONS

In accordance with Ontario Regulation 453/07 under the Safe Drinking Water Act, municipalities are required to prepare and approve Financial Plans for their drinking water system. As stipulated in O. Reg 453/07, the Financial Plan must be approved by the Owner of the London Water System, the Corporation of the City of London, before it can be submitted to the Ministry of Municipal Affairs and Housing. The fully developed and implemented Financial Plan will maintain a high quality, abundant and reliable water supply at affordable rates, allowing future generations to prosper as we have.

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The Corporation of the City of London
Environmental and Engineering Services

Water Service Area

Financial Plans

O. Reg. 453/07 under Safe Drinking Water Act, 2002

April 3, 2020

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1. Introduction

In 2007, the Ministry of the Environment (MOE) issued Ontario Regulation 453/07 *Financial Plans* under the *Safe Drinking Water Act, 2002 (SDWA)*. The regulation and accompanying guideline prescribes the requirements for Financial Plans to be prepared as part of the Municipal Drinking Water Licensing Program set out in Part V of the SDWA. This regulation was designed by the MOE in response to Justice Dennis O'Connor's Walkerton Inquiry recommendations. The intent is to ensure that municipalities plan for the long-term financial sustainability of their drinking water systems and ensure the safety of their drinking water systems into the future. This report has been created to comply with the requirements of O. Reg. 453/07 and covers the public portion of the City of London's water supply system which includes all pipes, valves, treatment systems, pumping stations and reservoirs. The financial statements included in this report project 6 years into the future. It should be noted however that the City of London bases infrastructure needs on a 20 year analysis and maintains a financial model that projects costs 20 years into the future. Long-term infrastructure needs have also been assessed using 75 and 100 year outlooks to determine if financial sustainability achieved in the near term will support future long-term needs. Assuming revenue and expenditure forecasts meet projections, it is the expectation of the Water Service Area that future needs can be met.

The Plan outlined in this document, and its associated appendices and reference reports, will maintain a safe, secure and reliable water supply for this and future generations of Londoners through sound financial planning. The Financial Plan represents a balanced approach to the installation of new infrastructure in conjunction with the City's growth needs, and the investment and renewal required to sustain existing infrastructure. System improvements are also contemplated to improve the customer experience. Reliable infrastructure and performance of the water system are key elements to not only economic development but also quality-of-life and safety in the community. Efforts continue

to further enhance and protect water quality and reliability. Utilities are continually faced with the renewal needs of aging infrastructure and inflationary pressures. Re-thinking past practices and investing in new approaches, while ensuring the reliability of the service, have become fundamental to the daily delivery of clean water.

The Financial Plan is a summary of various capital and operational programs already approved by Council for the current budget year (2020) with an outlook of projected expenditures to 2026.

Previous plans were approved by Council in 2010, 2011, and 2015. This plan was updated as part of the Water Operating Authority's license renewal requirements.

1.1. Service Context

The supply of drinking water is a very important service to the City of London. Residents and businesses expect to be able to turn on their tap at any time and be able to trust that the water coming out is safe to drink and of adequate pressure and volume to meet their needs. The City of London owes a duty of care to residents and businesses to ensure that water is available, clean and safe and it is this responsibility that guides staff in their day to day operations, long term planning and recommendations to Council. Below is a description of the objectives and financial principles of the Water Service Area as well as a description of the organizational structure of the three groups involved in supplying clean water within the Water Service Area.

1.1.1. Water Service Area Objectives and Financial Principles

Below are the broad objectives and financial principles for the Water Service Area that were adopted by City of London Council in November 2008. The report detailing these principles is attached as Appendix B. These principles continue to apply as they did in 2008 (wording updated to reflect current situation).

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- i. Growth pays for growth (with the exception of various development charges incentives and Regional Water System expansions, which are currently funded by water ratepayers),
 - ii. Pay-as-you-go financing for operating and routine life cycle expenditures,
 - iii. Strive for inter-generational equity to avoid burdening future generations in order to benefit current ratepayers,
 - iv. Use debt to smooth out funding requirements for large, infrequent life cycle or system improvement projects,
 - v. Build reserve funds to provide funding for emergency repairs and/or moderate funding requirements for intermittent medium-sized projects,
 - vi. Use reserve funds to balance annual revenue fluctuations resulting from weather,
 - vii. Set rates to achieve and maintain financial,
 - viii. Address funding requirements for new legislation-driven improvements at the time that they are known and use reserve funds or debt as appropriate,
 - ix. Commit to life cycle infrastructure renewal needs, irrespective of water usage trends, since pipe deterioration is generally insensitive to the amount of water consumed,
 - x. Commit to life cycle infrastructure renewal needs, since it is less expensive to renew infrastructure that is approaching failure than to attempt to maintain and repair it.

Since the first Financial Plan was prepared in 2010, the following rate increases were enacted which allowed the water utility to move towards financial sustainability by 2016.

Year	Water Rate Increase
2010	8%
2011	0%
2012	8%
2013	8%
2014	8%
2015	7%
2016	3%
2017	3%
2018	3%
2019	3%
2020	2.5%

Going forward, it is anticipated that the capital and operational needs of the Water Service Area can continue to be achieved with smaller annual water rate increases like those seen since 2016 as advised by the Corporate Asset Management Plan.

1.1.2 Corporate Asset Management Plan

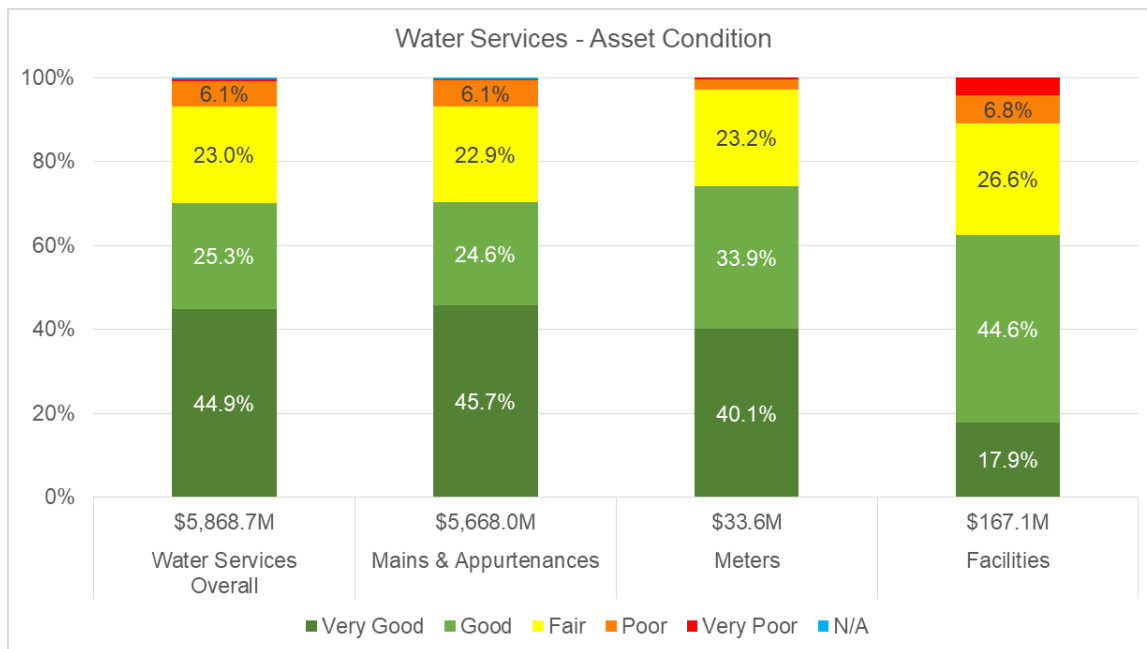
The Corporate Asset Management Plan is the culmination of efforts from staff across the city who are involved with managing municipal infrastructure assets, including finance and technical service areas and operations staff. The process of developing and updating the comprehensive plan was sophisticated and required multiple meetings and workshops. Currently, the City of London owns and maintains approximately \$5.9 billion worth of water assets. The following

table summarizes the value of the water system 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

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 services. The 20 year plan for water was updated as part of the 2020-2023 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 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. The full Corporate Asset Management Plan can be found of the City of London website.



1.2. Background Information

1.2.1. Historical Overview

The residents of the City of London first voted to establish a public water supply system in the 1870's. At that time the preferred source of water was the natural springs that exist in present day Springbank Park on the banks of the Thames River. The water was collected in ponds and then pumped by a water powered pump (at the river) up nearby Reservoir Hill where it was stored in a reservoir. The elevation of the reservoir was high enough to supply the entire city at the time. This hill is still the location of most of the City's distribution reservoirs. In 1910, the City had outgrown the Springbank Park source and started developing wells to augment the supply. In the following 50 years it became clear that it was not sustainable to continue to rely on drilling new wells to keep up with the demand of London's growing population. In 1967 the province connected London to a treated source of water from Lake Huron and the City quickly moved to using 100% Lake Huron water in that same year. In 1995, the City also connected to a

source of water from Lake Erie that supplies water to the south end of the City. The current split in supply to the City is approximately 85% from the Lake Huron Primary Water Supply System and 15% from the Elgin Area Primary Water Supply System.

1.2.2. Water Operations

Water Operations provides continuing maintenance of the water supply system in the City of London to ensure that water can be conveyed to the residents of London. They are responsible for the treatment, operation and control of all valves, pumping stations, disinfection equipment, reservoirs and any other element of the system that needs control. They also are responsible for both preventative and unplanned maintenance on these elements as well as watermains, hydrants and any other aspect of the system requiring maintenance.

1.2.3. Water Engineering

Water Engineering is responsible for long range planning, design and construction of a large portion of the capital projects that fall under the Water Service Area. This division's work includes growth-related projects, life cycle renewal of watermains, expansion or refurbishment of pumping stations, and system improvements to enhance water quality or increase pressure. Water Engineering is also responsible for maintaining the city-wide distribution system hydraulic model, product approval and water efficiency/demand management/conservation programs.

1.2.4. Regional Water Supply

Regional Water Supply is an independent body that is responsible for operating and maintaining the water treatment plants located at Grand Bend on Lake Huron and east of Port Stanley on Lake Erie and the transmission of treated water to the City of London as well as to the other municipal customers they serve within the Regional system.

The respective Joint Boards of Management for the Lake Huron and Elgin Area Primary Water Supply Systems own and govern the area water systems using the City of London as the Administering Municipality. Accordingly, the City of London provides all associated administrative and management services on behalf of the Joint Boards.

Approximately 5,000 square kilometres of the greater London area of Southwestern Ontario is supplied by these two systems:

The Lake Huron Primary Water Supply System (LHPWSS) services the communities of London, Lambton Shores, North Middlesex, South Huron, Bluewater, Middlesex Centre, Lucan-Biddulph and Strathroy-Caradoc from a water treatment plant located north of the village of Grand Bend in South Huron. The water treatment plant has a rated supply capacity of 340 million litres per day and serves a population of approximately 375,000 people.

The Elgin Area Primary Water Supply System (EAPWSS) services the communities of St. Thomas, London, Aylmer, Bayham, Central Elgin, Malahide, Southwold and Dutton Dunwich from a water treatment plant located east of the village of Port Stanley in Central Elgin. The water treatment plant has a rated supply capacity of 91 million litres per day and serves a population of approximately 130,000 people.

The lake supplies are the source of all water the City of London uses during normal conditions and the City pays a volumetric water rate to each board for this treated water. The City of London has seats on both regional boards, giving the City an ownership stake in both systems. As an owner of these systems, the Board's debt is partially carried by the City of London, affecting the borrowing capacity of the City. This debt is reflected in the Financial Plans for Regional Water. Regional Water Supply's Financial Plans are stand-alone documents and are not included in this report.

1.2.5. Water By-law

The City of London has a by-law that governs the water system, the responsibilities of the public, that of the City, and specifies the rates to be charged for Water Services. The aim of the by-law is to achieve full cost recovery through a user-pay approach. The water by-law can be found on the City's website and is called Water By-law W-8.

2. Water System Needs and Revenue Requirements

In 2019, the City of London's water distribution system was comprised of 9 pumping stations, 5 reservoirs, over 1,600 km of water mains, 13,619 valves, 7,041 hydrants, 119,152 water services, and 117,384 meters. The average age of water distribution system components is under 35 years old with some individual components over 100 years old.

The expenditure needs of the system evolve over time as infrastructure components have different life spans. Over 94% of the asset replacement value is related to buried pipe infrastructure which has a relatively long service life and high replacement cost. The City has actively replaced aging pipes for over 40 years. In the last two decades, it has become apparent that water pipes reach the end of their useful life at different ages. From field data, it has been demonstrated that the failure frequency of all cast iron watermains is continuing to increase, and generally 1950's and 1960's vintage pipes are breaking more rapidly than older pipes. Recently it has been identified that some copper water service pipes are failing in less than 10 years.

The Water Service Area reviews these infrastructure needs annually and establishes priorities for renewal of existing infrastructure or construction of new infrastructure.

This section of the plan provides a summary of some of the needs and requirements that constitute the priorities of Water Service Area programs and

the 2020-23 Water Budget. These are Council approved programs which are ongoing in many cases or have a firm completion date. These programs form key components which drive the Financial Plan to maintain infrastructure at serviceable levels and meet the growth needs of the City.

2.1. Capital

Capital needs in the City of London are categorized as infrastructure life cycle renewal (asset management), service improvements and growth.

The City of London undertakes five capital activities to mitigate maintenance problems, health concerns, performance deficiencies and firefighting deficiencies, including:

1. Watermain replacement to address watermain breaks and corrosion degradation;
2. Watermain replacement to address undersized mains – inadequate system-wide capacity or local fire flows;
3. Watermain rehabilitation (i.e. clean and reline) to address excessive hydraulic roughness and/or structural weakness as an alternative to replacement;
4. Replacement of lead water services; and
5. Rehabilitation/replacement of watermains to address other performance deficiencies (i.e. excessive velocities and/or pressure loss)

2.1.1. Asset Management (Lifecycle Infrastructure Renewal)

Several capital programs are at the centre of renewal and the efforts to maintain the infrastructure at an appropriate level of service. These programs use different tools depending on the condition of an asset: either extending the life of the current asset or replacing it.

1. The Watermain Cleaning & Relining Program structurally relines watermains where the structural condition of a watermain is not acceptable and there are no other planned works by other service areas on the street. Relining is avoided in areas with lead services. This program has been primarily used on 1950's and 1960's watermain since there are no lead services and the sewers on these streets are typically still in good condition. Cleaning and relining restores water quality and improves fire flow, while extending the life of a watermain that would otherwise have to be replaced at a much higher cost. This also reduces social impacts and disruption by utilizing trenchless technologies.
2. The Watermain Replacement Program ensures that the distribution system remains reliable and cost effective. This program is coordinated with Wastewater and Transportation to undertake complete City blocks of infrastructure renewal.
3. Watermain Condition Inspection and Monitoring - Since 2006 there has been a recognition that the watermain renewal programs (rehabilitation and replacement described above) have functioned well, but have not considered large diameter watermains because of their history of few problems. Several pilot projects were undertaken from 2007 to 2012, including the installation of over 15 km of fibre optic cable in the City's largest watermain to monitor the pipeline in real time for stress failures. This program currently has an annual budget amount and inspects several watermains annually.
4. The Cathodic Protection Program is the installation and replacement of anodes on watermains around the City. This program has been particularly beneficial in extending the life of ductile iron and steel watermains. The amount spent on this program has increased with the 2020 budget and going forward to ensure we are keeping up with all our eligible mains.

Some anticipated outcomes of maintaining these programs are a reduction in water quality complaints, extended service life of watermains (before replacement is required), reduction in the number of watermain breaks, reduction in water losses and non-revenue water used for flushing, and a reduction in risk of private property damage and traffic disruption.

To prioritize the replacement and relining of watermains, Water Engineering uses a custom program called Water Condition Assessment Program (WCAP). This program takes the information from all the watermains in the City and rates them based on several attributes determined by staff. The attributes include factors such as age, number of breaks, pipe material, presence of lead services, hydraulics and importance factors. Once the Water renewal priorities are established, consultations are held with Transportation and Wastewater staff so that the timing of the renewal work can be coordinated to save on construction costs and minimize social disruption.

The Water Service Area keeps abreast of the newest technological innovations in both watermain reconstruction and rehabilitation and is always looking for ways to apply these to reduce the costs of asset management of the distribution system in the long-term and reduce impacts on the environment and our customers, such as:

Trenchless Technologies

The Water Service Area has been utilizing trenchless technologies since 1995 and continues to expand their use. Compared to open cut excavation and surface restoration techniques, trenchless methods minimize the amount of excavation required to install watermain, minimize damage to surface structures, cause less disruption of traffic and other social inconveniences on and around job sites. This technology allows installations to be made in areas where open cut excavation is significantly more costly and disruptive. Trenchless procedures are also more environmentally friendly because they produce less construction pollutants and noise. The Water Service Area has been successfully

implementing trenchless rehabilitation for 20 years and continues to evaluate and pilot test new methods and materials as they become available, including horizontal directional drilling, structural lining, spray-in-place lining, hydro vacuum excavation equipment, etc.

2.1.2. System Improvements

While it is important to maintain the system in working condition, it also at times becomes necessary or desirable to improve the system. Some of these improvements are driven by senior government legislation while others are driven by customer needs at the local level.

Lead Mitigation Program

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 watermain 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 watermain 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. The Water Budget continues to support this multi-pronged, long-term lead mitigation program, which can be readily adjusted and modified to meet future regulatory changes.

Water Efficiency, Conservation and Outreach

The City of London has actively promoted water conservation since the late 1980's when water consumption approached the supply capacity of the water system. Since 2010, the City's Water Service Area has made a significant change to the water and wastewater rate structure, developed an artificial intelligence driven asset management model, explored and piloted leak detection technologies, launched free in-home water audits with real-time flow monitoring devices, implemented a toilet retrofit program for low-income properties, partnered with the Thames Valley District School Board to teach local environmental and engineering topics in the classroom, and continued to promote conservation and awareness "out and about" in the community. The Province has also continued to support conservation initiatives through frequent reviews and changes to the Ontario Building Code and the passing of the Water Opportunities (and Conservation) Act. Since 2010, the residential per-capita consumption of water in London has been reduced by 16 percent. Water conservation and efficiency improvements are important aspects of the long-term strategy for creating additional supply capacity to support growth and keeping future rate increases affordable by avoiding costly system expansion. The City is in the process of updating its water efficiency strategy that was last completed in April 2015.

Legislation which Impacts Service Improvements

The "Licensing of Municipal Drinking Water Systems" (O. Reg. 188/07) requires 5 components:

1. A Drinking Water Works Permit (DWWP)

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2. An Accepted Operational Plan
 3. Accreditation of the Operating Authority
 4. A Financial Plan (*This Document*)
 5. A Permit to Take Water (PTTW).

The requirement for a Drinking Water Quality Management System (DWQMS) and related implementation requirements have been implemented. The City of London's Operational Plan was initially submitted and approved by Municipal Council in 2009. The Drinking Water Works Permit and the Municipal Drinking Water Licence (accreditation limited scope) were received December 17, 2010. The external audit of the Operational Plan was completed in 2013, at which time the Operating Authority received full accreditation.

The City received its most recent reaccreditation on September 5, 2019, and the Operational Plan was most recently endorsed by Municipal Council on November 27, 2019.

2.1.3. Growth

Development Charges (DCs) play an important part in how growth infrastructure is financed in London. Each new house, commercial centre, educational facility, and/or manufacturing plant requires infrastructure and servicing in order to function efficiently and effectively. DCs are fees that are paid by new development to fund growth infrastructure and services constructed throughout the City.

In Ontario, the Provincial government regulates the setting of DC rates through the *Development Charges Act* (DCA). The purpose of DCs is to collect funds from new development to finance capital works supporting current and future growth. DCs are calculated and collected at the time of building permit issuance. At least every five years, as required by the DCA, the City of London conducts a DC Background Study to forecast the City's future residential and non-residential

growth to determine infrastructure needs and costs. This information is used to calculate the amount of money that new development needs to pay in order to support growth infrastructure and services. The DC Background Study for Water was most recently completed in 2019 and may be found on the City of London's website.

The costs of water projects related to growth are funded from various sources but divided into two main groups, growth and non-growth. Growth is generally the larger of the two and is funded through Development Charges (DC). Non-growth implies that benefits accrue to existing customers and therefore is funded through the Water Service Area budget, meaning these costs are funded by the ratepayers and directly impact this Financial Plan.

2.2. Operations and Maintenance

The budget for operations and maintenance is used to keep the system operating and safe as well as to perform the necessary testing, maintenance and repairs to keep the water distribution system functioning reliably. A major component of this budget is the bulk purchase of water from the Regional Water Supply Systems. Water Operations uses staff resources as well as other necessary expenditures; these can include power to operate pumps and equipment as well as chlorine to ensure that chlorine residual is kept at an acceptable and safe level. Maintenance is generally divided into two major categories, preventative maintenance and unplanned maintenance. These two categories are described in more detail below.

2.2.1. Preventative Maintenance

Preventative maintenance represents a proactive approach to maintaining the water distribution system. Preventative maintenance activities often address issues before they cause a major problem or breakdown and can result in significant cost savings. To ensure effectiveness, many preventative

maintenance programs make use of GIS technology to track progress and reported problems. Below are some of the key programs that fall under this heading.

- Water main flushing to maintain water quality in the distribution system (disinfection residual and aesthetic parameters).
- Hydrant maintenance is conducted and is comprised of two components: 1) annual maintenance, and 2) frost checks during freezing months.
- Valves are exercised to ensure functionality and identify deficiencies.
- Air release and vacuum valves, appurtenances, and chambers are inspected and maintained.
- The Supervisory Control and Data Acquisition (SCADA) system equipment and station pumps undergo life cycle maintenance based on manufacturers' specifications or as required by the regulations.
- Reservoir inspections are performed by contracted divers, at a minimum frequency of every 5 years. Reservoir cleaning is scheduled based on these inspections.
- Enhancement of the leak detection monitoring program is currently underway. Benefits will include increased detection of leaks and reduction of non-revenue water, increased reliability of infrastructure and avoidance of failures.

2.2.2. Unplanned Maintenance

Unplanned maintenance typically consists of repairing leaks or other deficiencies (e.g. damaged hydrants) that are reported by the public, other utilities, or London staff. For facilities, required maintenance work may be identified by Operators during regular visits to the facilities. Often unplanned maintenance can be costly and disruptive for the customers, which is why significant effort and focus is put on preventative maintenance.

3. Financial Model and Budget Process

3.1. Financial Model

The Water Service Area maintains a financial model to aid in long-term forecasting and budget consultations, on which this Financial Plan is based. The model has been used in budget development and deliberations since 2009 and has proven to be a very useful tool in assessing the financial health of the water system.

3.2. Budget Process

The Municipal Act, 2001 authorizes a municipality to prepare and adopt a budget covering a period of two to five years. The City of London has chosen to utilize a four year period. Rather than approving a budget annually, Council approves budgets for four years, subject to annual re-adoption, to establish funding. The last year of the multi-year budget is subject to reconfirmation by the new term of Council.

Water rate increases are often approved ahead of the balance of the budget so they can be implemented on January 1st. Council approved the 2020 Water rates on November 26, 2019. The 2.5% increase for Water rates was effective January 1, 2020. The 2020-2023 Multi-Year Budget for Water was then discussed at open houses and public meetings in January 2020, a Public Participation meeting on January 23, 2020, and then deliberated by Council on multiple dates in later January and throughout February. Final Council approval was March 2, 2020.

Water Service Area costs can be broken into two broad types of expenditures, Capital and Operating.

3.2.1. Operating Budget

Operating costs are generally those costs that relate to the operational issues of supply, distribution, and purchase of water for the current year including the staff, supplies and other costs required for management and maintenance of meters, pumping stations, pipes, and reservoirs. These expenditures do not increase the value of the system or the life of the system but are required to ensure the reliable delivery of safe clean water to the community and realize the anticipated life of the infrastructure components. It is generally accepted that due to the immediate benefit and short term impact of operating expenditures, they will be funded through the collection of user rates within the year the costs are incurred.

3.2.2. Capital Budget

Capital costs are those expenditures which increase the value of the system, expand the system, improve the system, replace existing assets and/or extend the lifespan of existing assets.

3.2.3. Revenues and Rates

London's water rate structure was overhauled in 2013 to incentivize water conservation while protecting the long term financial sustainability of the water system. The rate structure includes a significant fixed portion which stabilizes revenue and recognizes the value of having water available for use and fire protection. To promote conservation, the highest rate in the structure is set for a water use tier that would represent above average use in order to provide an incentive for conservation.

While our rate structure has helped stabilize revenue, fluctuations in water consumption can still have a significant on our revenue and represent a risk. Water consumption is significantly dependent 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 system, water 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 provide 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.

4. Capital Financing

The expenditures required to renew, improve and expand the water supply and distribution system represent approximately 40-45% of the total revenues collected from water rates. There are several financing strategies used by the Corporation. The discussion in the rest of this chapter describes how these strategies are applied specifically within the Water Service Area.

4.1. Financing Options

The Water Capital Plan has been divided into three categories described in Section 2.1:

- Lifecycle Infrastructure Renewal
- System Improvements
- Growth

There are a number of available sources of financing for capital works as summarized in the table below.

Financing Options for Capital Categories					
Category	Pay-As-You-Go	Water Service Area Reserve Fund	Debt	Development Charges	Sr. Government Funding
Lifecycle	Yes - Preferred	Yes	No ⁽¹⁾	No	Yes, if eligible
System Improvements	Yes	Yes	Yes	No	Yes, if eligible
Growth	No	Yes ⁽²⁾	Yes	Yes	Yes, if eligible

Notes:

1. Could be considered if the asset to be renewed is a major expenditure with long life (e.g. reservoir).
2. Utilizes water reserve fund for non-eligible growth related works and/or non-growth component of project.

Financing decisions for capital works are based on a number of considerations including:

1. *Is it an Asset Management (Lifecycle Renewal) project?*

- The preferred funding source for Lifecycle Renewal works is pay-as-you-go. This funding is from the current year's revenues. This ensures that the taxpayers who are benefiting most are paying for the works.

2. *Does this project create capacity necessary for growth in the City?*

- When additional water supply capacity is created, allowing for future growth in the City, Development Charges should fund a corresponding portion of the works.

3. *What is the life span of the project?*

- When a project has a significant life span and funding is not otherwise available it may be appropriate to issue debt, thereby transferring costs to future benefitting generations.

4. *Are there available funds from other levels of government?*

- From time to time senior levels of government will invite applications for funding. These funding sources often have stringent criteria for eligibility and timing of works. Alternatively, ongoing funding is provided through some programs such as the Federal Gas Tax although given the relative good health of the water utility and low debt levels, London Council has chosen to allocate very little Federal Gas Tax funds to water infrastructure.

5. *Does the project benefit specific residents?*

- Some works are undertaken which benefit residents of a particular street or neighbourhood. Examples of this type of work would be new sidewalks, water supply or sanitary sewer collection. In some cases

the residents will contribute to the funding of those works through Local Improvement Charges or Area Rate Charges enacted through municipal by-laws.

4.2. Inter-Generational Equity

A guiding principle for financing decisions is the concept of inter-generational equity for municipal capital works intended to equitably distribute the costs across present and future taxpayers. This means that the generation which will receive the most benefit of the works should bear the majority of the cost of the works. Furthermore, the current benefitting generations have received the assets in relatively good condition and should pass them on to the next generations in similar condition. Some of the means to achieve this include:

- Paying for replacement and renewal works through pay-as-you-go financing,
- Issuing debt only for large scale projects with significant future years of benefit.

4.3. Reserve Funds Policy

Reserve Funds assist in smoothing out rates for water users by creating a funding source for future larger, intermittent projects and fluctuating revenue streams. Capital Budgets can vary significantly year over year and large non-recurring projects can create funding needs that are best funded over time. The Water Service has maintained Reserve Funds for over 40 years allowing the utility to remain essentially debt free. It is the intent to target a minimum reserve fund balance of \$29 million for the New Capital Water Reserve Fund, which is the primary discretionary reserve fund of the Water Service Area. This represents approximately 0.5% of the \$5.9 billion asset replacement value of the system; noting that this is subject to further review in 2020. As of 2018 the City has also started building a Water Budget Contingency Reserve that is intended to mitigate

unforeseen events or one-time unanticipated revenue losses and expenses in order to stabilize water rates.

The Water Service Area maintains a number of reserves and reserve funds, which are held for specific purposes. These include:

Reserve / Reserve Fund	Reserve Fund Balance (projected year-end)				
	2019	2020	2021	2022	2023
New Capital Water Reserve Fund	\$39,426	\$39,357	\$43,083	\$49,168	\$21,373
City Services Water Levies Reserve Fund – Development Charges collected to fund growth works	\$15,085	\$12,088	\$10,017	\$1,232	\$6,091
Capital Asset Growth - Industrial DC Incentive Program Water Reserve Fund	\$5,225	\$5,007	\$4,784	\$4,556	\$4,324
Lead Service Replacement Program Reserve Fund – To fund the Lead Service Replacement Program, assisting homeowners with the replacement of the private portion of lead services	\$106	\$106	\$107	\$107	\$108
Water Customer Assistance Reserve Fund – Customer assistance charges collected in excess of customer assistance expenditures incurred, used to fund future customer assistance initiatives or reduce future customer assistance monthly charges	\$430	\$307	\$313	\$319	\$326
Efficiency, Effectiveness & Economy Water Reserve – The equivalent of 90 days’ savings on most Water position vacancies are contributed to this reserve, which is used to fund initiatives recommended by the Senior Leadership Team	\$1,941	\$2,178	\$2,414	\$2,651	\$2,888
Water Budget Contingency	\$2,986	\$2,986	\$2,986	\$2,986	\$2,986

4.4. Growth Pays for Growth

The prime guiding principle of the Development Charges (DC) By-law is that growth should pay for growth. As such, the 2019 Development Charges study identified all water growth related supply works within the City over the next twenty years, and identified all non-growth benefits and any post period amounts. Notwithstanding this concept, Council has also directed a number of exemptions for industrial, institutional, residential and commercial growth in order to stimulate economic development within the City. These portions of water supply system growth are not paid for by DC's but are supported by the water rate.

4.5. Debt Management

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. Further debt financing will ultimately be used exclusively to fund large, extraordinary works, or to mitigate the impact of larger than average total capital budget.

The Water Service has minimal debt and the Water system has largely been maintained using pay-as-you-go capital financing. As of 2020, the total net debt outstanding was approximately \$500,000. Debt servicing costs in 2020 will be approximately \$400,000. Future debt may be issued for projects that represent significant capital investments spanning several generations.

The water budget also carries debt associated with the City's share of debt issued by the Joint Boards. This is approximately \$12.3 million at the end of 2019 and is factored into the City's overall borrowing capacity. Debt payments tied to the City's share of the Joint Board debt are made indirectly as the part of the purchase of water charged to the City by the Joint Boards and are estimated to be approximately \$2.5 million in 2020.

4.6 Senior Government Funding

Federal Gas Tax

The Water Service Area will receive approximately \$5.7 million in Federal Gas Tax funding between 2020 and 2023, which will be used to fund several Water capital projects and assist in managing the infrastructure gap.

5. Financial Statements

Format

In June 2006, the Public Sector Accounting Board (PSAB) approved PS3150, requiring municipalities to report Tangible Capital Assets (TCA) in their Statement of Financial Position, effective January 1, 2009. This change required the inclusion of tangible capital assets, related accumulated amortization, elimination of capital fund and reserve and reserve fund statements and introduction of accumulated surplus including all reserve and reserve funds balances. The attached forecasted financial statements have been prepared under these requirements. The “forward-looking” financial statements are for 6 years, from 2020 to 2026 as required by the Water Operating Authority licence renewal process (*Safe Drinking Water Act, O.Reg 453/07, section 3.2*).

Financial Information

The financial information in the Water Service Financial Plan has not been audited. The 2018 values for Water Services are derived from amounts included within the audited City of London consolidated financial statements and the 2019 values are derived from preliminary unaudited financial information contained in the financial system. The future year assumptions originate from the Financial Model for Water, which includes elements from the 2020-2023 Council-approved Water Capital Budget and Forecast, Water Operating Budget and Forecast, and 2019 Development Charges Background Study.

Glossary

Tangible Capital Assets

Tangible capital assets are non-financial assets having physical substance that:

- a) are held for use in the production or supply of goods and services, for rental to others, for administrative purposes or for the development, construction, maintenance or repair of other tangible capital assets;*
- b) have useful economic lives extending beyond an accounting period;*

c) are used on a continuing basis; and

d) are not for resale in the ordinary course of operations. (PS 3150.05)

Some examples of tangible capital assets for the Water Services area include watermains, hydrants, and water meters.

Amortization

Amortization is the attribution of the historical cost of TCA across the useful life of the specific asset (Annual Amortization = Historical Cost / Life of Asset). The amortized cost is an expense on the Statement of Operations and the historical cost of the TCA is reduced by the same amount on the Statement of Financial Position. This process roughly allocates the costs of the TCA into the years of benefit.

The amortization of the costs of tangible capital assets should be accounted for as expenses in the statement of operations. (PS 3150.23)

The amortization period of a water asset varies from 3 years to 60 years, depending on the categorization of the asset.

Annual Surplus (Deficit)

The Water annual surplus (deficit) is essentially derived from the difference between the Amortization and the actual spending on capital as well as the increase in reserve and reserve funds within the year.

Accumulated Surplus (Deficit)

This balance is reported as part of the Statement of Financial Position. It represents the accumulation of prior and current surpluses and deficits and reflects the net economic resources of the Water Service. The Water Service accumulated surplus is comprised primarily of the lifetime total cost of Tangible Capital Assets minus the Amortization that has occurred to date in addition to the reserve and reserve fund balances.



5.1. Statement of Operations

City of London Water Service - Statement of Operations

	Unaudited				Forecast			
	2019	2020	2021	2022	2023	2024	2025	2026
REVENUES								
User Charges - Water Consumption	49,899,995	52,722,721	54,371,958	56,274,568	58,260,884	59,339,718	60,438,654	61,557,666
Capital Renewal	26,809,682	27,592,395	28,560,031	29,561,562	30,599,295	31,301,072	32,018,320	32,751,683
Fire Protection	3,533,431	2,949,228	3,053,388	3,161,283	3,272,901	3,348,664	3,426,112	3,505,383
Customer Assistance	329,300	332,361	335,686	339,041	342,432	345,856	349,315	352,808
Miscellaneous User Charges	1,261,431	1,007,690	1,032,632	1,058,198	1,084,403	1,143,966	1,158,260	1,172,734
Other Municipal Revenues	69,495	134,350	134,708	135,077	135,453	121,817	132,281	131,867
Provincial Transfers ⁽¹⁾	1,920,731	429,124	0	0	0	0	0	0
Federal Transfers ⁽¹⁾	4,802,463	1,444,000	1,425,000	1,425,000	1,425,000	1,425,000	1,425,000	1,425,000
Investment income	1,613,903	890,728	921,420	1,014,231	794,873	622,722	623,373	656,902
Development Charges (transfer from City Services Reserve Fund) ⁽²⁾	1,308,515	1,727,842	1,514,845	1,613,984	1,774,361	1,690,069	1,664,220	1,651,496
Developer Contributions of Tangible Capital Assets ⁽³⁾	5,968,049	6,732,736	5,426,978	6,508,093	5,759,096	6,313,365	6,327,768	6,342,170
Total Revenues	97,516,995	95,963,175	96,776,647	101,091,037	103,448,698	105,652,249	107,563,303	109,547,710
EXPENSES								
Purchase of Water	26,159,233	27,187,540	28,257,487	29,363,182	30,503,680	31,688,476	32,919,291	34,197,912
Personnel Costs	8,689,271	9,686,708	9,931,089	10,162,949	10,408,965	10,617,100	10,829,400	11,046,000
Administrative, Other & Recovered Expenses	2,857,458	3,050,467	3,098,910	3,148,969	3,198,877	3,275,650	3,354,266	3,434,768
Billing & Customer Service	2,230,352	2,283,300	2,283,300	2,283,300	2,283,300	2,283,300	2,283,300	2,283,300
Purchased Services	2,595,737	3,029,630	3,087,820	3,152,170	3,214,620	3,291,771	3,370,773	3,451,672
Materials & Supplies	2,580,646	2,602,890	2,642,090	2,676,090	2,704,840	2,769,756	2,836,230	2,904,300
Equipment & Rentals	1,861,721	1,607,656	1,651,963	1,685,724	1,730,238	1,771,764	1,814,286	1,857,829
Financial Expenses - Other	74,843	74,290	74,290	74,290	74,290	76,073	77,899	79,768
Customer Assistance	201,118	332,361	335,685	339,041	342,432	345,856	349,315	352,808
Interest Expense	33,752	23,674	12,124	7,325	2,748	0	0	0
Loss on Disposal of Tangible Capital Assets ⁽⁴⁾	605,932	685,837	485,043	582,052	543,807	580,534	575,455	553,378
Non TCA Expenditures ⁽⁵⁾	1,981,033	4,312,232	4,062,270	4,596,692	7,025,301	5,295,114	5,214,194	3,806,485
Amortization ⁽⁶⁾	16,926,361	17,881,340	18,771,031	19,716,362	20,716,640	21,707,971	22,776,206	23,905,501
Employee future benefit liability ⁽⁷⁾	147,044	98,139	86,282	120,996	112,242	112,940	106,120	107,716
Total Expenses	66,944,501	72,856,064	74,779,383	77,909,141	82,861,980	83,816,306	86,506,734	87,981,438
NET SURPLUS (DEFICIT)	30,572,494	23,107,111	21,997,263	23,181,896	20,586,719	21,835,943	21,056,569	21,566,272

Footnotes and assumptions:

- (1) - represents capital revenue from provincial and federal grants. Does not include debenture financing, transfers from operating or reserve funds. Estimate based on 2020-2023 multi-year budgeted amounts.
- (2) - transactions recorded directly to reserve funds must be accounted for through the operating or capital fund. This includes recognition of development charge levies earned in the year.
- (3) - contributed tangible capital assets are tangible capital assets that become the ownership of the City when a subdivision is assumed by the City. These assets are recognized at fair market value during the year of assumption. Estimate based on 5 year average of actuals from 2014 - 2018.
- (4) - when an asset is replaced prior to the end of its useful life, an adjustment must be made to expense the remaining book value. Amount fluctuates from year to year. Estimate based on 5 year average of actuals from 2014 - 2018.
- (5) - for PSAB purposes, expenses not considered to be part of the cost of a tangible capital asset are expensed as operating expenses although funded through capital. Estimated based on 9.92% of capital expenditure budget, based on 2018 actuals.
- (6) - represents the annual writedown of the tangible capital assets over the useful life of the asset. Estimated annual increase based on 2014 - 2018 actuals.
- (7) - represents the annual change in the estimated future costs of employee benefits. Estimate based on 5 year average of actuals from 2014 - 2018.



5.2. Statement of Financial Position

City of London Water Service - Statement of Financial Position

	Unaudited	Forecast						
	2019	2020	2021	2022	2023	2024	2025	2026
Financial Assets								
Cash and Investments	101,565,352	77,570,075	74,260,096	60,432,372	37,644,583	24,267,431	20,659,311	21,676,115
Accounts Receivable and Other Receivables	6,568,271	6,902,694	6,908,699	6,729,598	6,792,597	6,780,372	6,822,792	6,806,812
Total Financial Assets	108,133,623	84,472,769	81,168,796	67,161,970	44,437,179	31,047,803	27,482,103	28,482,926
Financial Liabilities								
Accounts Payable and Accrued Liabilities	1,621,267	1,745,760	1,848,657	1,398,464	1,542,999	1,631,429	1,633,462	1,611,002
Deferred Revenue	24,613,002	12,098,000	10,027,000	1,242,000	6,101,000	2,804,682	8,405,218	4,218,522
Employee Future Benefit Payable	4,073,446	4,171,585	4,257,866	4,378,862	4,491,104	4,604,044	4,710,164	4,817,880
Long-term Liabilities	878,668	547,379	211,378	107,082	-	-	-	-
Total Financial Liabilities	31,186,383	18,562,724	16,344,901	7,126,408	12,135,103	9,040,156	14,748,844	10,647,404
Net Financial Assets	76,947,240	65,910,045	64,823,895	60,035,562	32,302,077	22,007,647	12,733,259	17,835,522
Non-Financial Assets								
Prepaid Expenses	13,156	15,617	17,142	18,428	18,428	16,554	17,234	17,557
Inventories	378,323	298,296	307,880	311,086	315,255	322,168	310,937	313,465
Tangible Capital Assets	785,684,655	837,787,866	879,631,203	927,313,302	996,345,976	1,050,179,281	1,103,296,996	1,143,663,654
Accumulated Amortization	(267,894,037)	(285,775,377)	(304,546,408)	(324,262,769)	(344,979,410)	(366,687,381)	(389,463,588)	(413,369,089)
Total Non-Financial Assets	518,182,097	552,326,403	575,409,817	603,380,046	651,700,250	683,830,622	714,161,579	730,625,588
Accumulated Surplus	595,129,337	618,236,448	640,233,712	663,415,608	684,002,326	705,838,269	726,894,838	748,461,110



5.3. Statement of Cash Flow

City of London Water Service - Statement of Cash Flows

	Unaudited	Forecast						
	2019	2020	2021	2022	2023	2024	2025	2026
Cash provided by (used in)								
Operating Activities								
Annual Surplus	30,572,494	23,107,111	21,997,263	23,181,896	20,586,719	21,835,943	21,056,569	21,566,272
Items not involving cash								
Loss on disposal of tangible capital assets ⁽⁵⁾	605,932	685,837	485,043	582,052	543,807	580,534	575,455	553,378
Amortization ⁽³⁾	16,926,361	17,881,340	18,771,031	19,716,362	20,716,640	21,707,971	22,776,206	23,905,501
Change in employee future benefit	147,044	98,139	86,282	120,996	112,242	112,940	106,120	107,716
Developer Contributions of Tangible Capital Asset	(5,968,049)	(6,732,736)	(5,426,978)	(6,508,093)	(5,759,096)	(6,313,365)	(6,327,768)	(6,342,170)
Change in non-cash assets and liabilities								
Accounts Receivable and Other Receivables	285,449	(334,423)	(6,005)	179,101	(62,998)	12,225	(42,420)	15,980
Prepaid Expenses	14,641	(2,461)	(1,524)	(1,286)	(0)	1,874	(680)	(323)
Inventories	(97,633)	80,027	(9,584)	(3,206)	(4,169)	(6,913)	11,231	(2,528)
Accounts Payable and Accrued Liabilities	520,422	124,493	102,897	(450,193)	144,534	88,431	2,032	(22,460)
Deferred Revenue	3,719,158	(12,515,002)	(2,071,000)	(8,785,000)	4,859,000	(3,296,318)	5,600,536	(4,186,696)
Net change in cash from operating activities	46,725,818	22,392,325	33,927,424	28,032,629	41,136,678	34,723,322	43,757,281	35,594,670
Capital Activities								
Purchase of Tangible Capital Assets	(25,565,773)	(46,056,313)	(36,901,401)	(41,756,058)	(63,817,385)	(48,100,474)	(47,365,401)	(34,577,866)
Net change in cash from capital activities	(25,565,773)	(46,056,313)	(36,901,401)	(41,756,058)	(63,817,385)	(48,100,474)	(47,365,401)	(34,577,866)
Financing Activities								
Proceeds of Long-term Debt	-	-	-	-	-	-	-	-
Repayment of Long-term Debt	(311,082)	(331,289)	(336,001)	(104,296)	(107,082)	-	-	-
Net change in cash from financing activities	(311,082)	(331,289)	(336,001)	(104,296)	(107,082)	-	-	-
Net change in cash and investments	20,848,962	(23,995,277)	(3,309,978)	(13,827,725)	(22,787,789)	(13,377,152)	(3,608,120)	1,016,804
Cash and investments, beginning of year	80,716,389	101,565,352	77,570,075	74,260,096	60,432,372	37,644,583	24,267,431	20,659,311
Cash and investments, end of year	101,565,352	77,570,075	74,260,096	60,432,372	37,644,583	24,267,431	20,659,311	21,676,115



5.4. Changes in Net Financial Position

City of London Water Service - Change in Net Financial Position

	Unaudited				Forecast			
	2019	2020	2021	2022	2023	2024	2025	2026
Annual Surplus	30,572,494	23,107,111	21,997,263	23,181,896	20,586,719	21,835,943	21,056,569	21,566,272
Acquisition of Tangible capital assets	(25,565,773)	(46,056,313)	(36,901,401)	(41,756,058)	(63,817,385)	(48,100,474)	(47,365,401)	(34,577,866)
Developer contributions of tangible capital assets	(5,968,049)	(6,732,736)	(5,426,978)	(6,508,093)	(5,759,096)	(6,313,365)	(6,327,768)	(6,342,170)
Amortization of tangible capital assets	16,926,361	17,881,340	18,771,031	19,716,362	20,716,640	21,707,971	22,776,206	23,905,501
Loss on disposal of tangible capital assets	605,932	685,837	485,043	582,052	543,807	580,534	575,455	553,378
	(14,001,529)	(34,221,871)	(23,072,306)	(27,965,738)	(48,316,034)	(32,125,333)	(30,341,508)	(16,461,157)
Change in Prepaid Expenses	14,641	(2,461)	(1,524)	(1,286)	(0)	1,874	(680)	(323)
Change in inventories of supplies	(97,633)	80,027	(9,584)	(3,206)	(4,169)	(6,913)	11,231	(2,528)
	(82,992)	77,565	(11,108)	(4,492)	(4,169)	(5,039)	10,551	(2,851)
Change in net financial assets	16,487,973	(11,037,195)	(1,086,150)	(4,788,333)	(27,733,485)	(10,294,430)	(9,274,388)	5,102,263
Net Financial Assets, beginning of year	60,459,267	76,947,240	65,910,045	64,823,895	60,035,562	32,302,076	22,007,647	12,733,259
Net Financial Assets, end of year	76,947,240	65,910,045	64,823,895	60,035,562	32,302,076	22,007,647	12,733,259	17,835,522

Appendix A

**Council Resolution Approving Water Financial Plan
(To be added following Council Approval)**

Appendix B

November 2008 Financial Principles Report

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CHAIR AND MEMBERS ENVIRONMENT AND TRANSPORTATION COMMITTEE MEETING ON NOVEMBER 24, 2008	
FROM:	PAT McNALLY, P.Eng. ACTING GENERAL MANAGER OF ENVIRONMENTAL AND ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	WATER 20 YEAR FINANCIAL MODEL

RECOMMENDATION

That, on the recommendation of the Acting General Manager of Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN**:

- (a) the following principles **BE ADOPTED** to guide staff in the completion of the 20 year Water Financial Plan and the preparation of the legislated Financial Plan by July 2010:
 - i. growth pays for growth (with the exception of industrial development charges and Regional Water System expansions which are currently funded by water rate payers),
 - ii. pay-as-you-go for operating and routine life cycle expenditures,
 - iii. strive for inter-generational equity to avoid burdening future generations in order to benefit current rate payers,
 - iv. use debt to smooth out cash requirements for large infrequent life cycle or system improvement projects,
 - v. build reserve funds to provide cash for emergency repairs and/or moderate cash requirements for intermittent medium sized projects,
 - vi. use reserve funds to balance annual revenue fluctuations resulting from weather,
 - vii. set rates to achieve financial sustainability in the "near" term (target 7 year time frame),
 - viii. address cash requirements for new legislation driven improvements at the time that they are known and use reserve funds or debt as appropriate,
 - ix. commit to life cycle infrastructure renewal needs irrespective of water usage trends since pipe deterioration is generally insensitive to the amount of water consumed,
 - x. commit to life cycle infrastructure renewal needs since it is less expensive to renew infrastructure that is approaching failure than to attempt to maintain and repair it;

- (b) the financial model **BE ADOPTED** utilizing moderate rate increases (Scenario # 3) as the preferred long term planning tool to ensure sustainability of the water supply system while continuing to close the infrastructure gap, it **BEING NOTED THAT** that the model will be used to monitor progress and updated and rerun on a regular basis as input data is refined;

- (c) it **BEING NOTED THAT**, budgets will be approved annually by City Council.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

The reports noted below can be found at <http://www.london.ca/Council/meetingpackages.htm> :

- Infrastructure Deficit, January 28, 2008, Environment and Transportation Committee, Agenda Item #11,
- Water System Risk Management Exercise and Evaluation, April 23, 2007, Environment and Transportation Committee, Agenda Item #3,
- Water Distribution System Needs Update/Final Report – Project EW 3802, August 30, 2004, Environment and Transportation Committee, Agenda Item #4.

BACKGROUND

Purpose

The purpose of this report is to present to Committee and Council the 20 year financial plan for the City's water supply system that confirms our commitment to eliminating the water infrastructure gap and achieves sustainability of the system in the years to come. The financial plan identifies the funding requirements to ensure a safe and sufficient water supply, while meeting all regulatory compliance requirements. It is a commitment to continue renewing infrastructure as it approaches the end of its useful life, prior to failure, thereby minimizing maintenance and repair costs, social disruption and water loss and ensuring inter-generational equity.

The model was developed to incorporate real world factors which influence the operation of the water utility. It can be used for scenario evaluation (what if analysis), as well as exploring unforeseen changes that may arise. It can and will be used as a key tool in annual budgeting and planning for sustainability. The proposed principles put limits on acceptable inputs and ultimately the outcomes. The model is a key step in fulfilling the regulatory requirement for a financial plan, required by the Ministry of the Environment by July 2010.

A fully developed and implemented financial plan will maintain **London's Advantage** over other municipalities providing a high quality, abundant water supply at affordable rates and **securing tomorrow**, allowing future generations to prosper as we have.

Executive Summary

Over the last 8 years (the post-Walkerton era), City staff have worked to better understand what achieving a sustainable water system means and what effort would be required. Zero percent rate increases in the early part of this period seemed to be justified as consumption and reserves grew. A "needs" study four years ago identified that we were lagging behind the deterioration rate of our pipe and water meter infrastructure. As a result, funding was put in place in an effort to close the gap. Recent legislation has added significant additional cost to the supply for safe drinking water to our customers. The most recent legislation requires that a financial plan be prepared and submitted to the Ministry of the Environment, as part of the new Drinking Water Licence requirements to ensure that water systems are adequately funded.

Principles have been suggested to help in the development of the financial plan. An interactive financial model has been developed over the last 4 years to assist Administration with the understanding of financial implications of capital needs, inflation, water consumption and the stability of reserve funds. The model presented in this report is intended to be used as a tool to assess different situations which might occur over time, with the recognition that it will be updated regularly.

Renewal of our underground piping will continue to be required to replace aging infrastructure, irrespective of water consumption. Declining revenues resulting from reduced consumption are putting additional pressure on budgets to try to close the gap that has arisen over the last several years. Rising costs to purchase water combined with construction cost increases exceeding the Consumer Price Index require increased revenue through London's water rates.

Accumulated debt repayment is a fixed cost and therefore insensitive to water consumption. Although the City has essentially no debt on the water distribution system, the Regional Water systems, through the Joint Boards, are carrying debt from the original transfer order and it is expected that new debt may be added in future years to address their longer term capital works needs. Debt held by the Joint Boards is apportioned to member municipalities in relation to their consumption.

Three scenarios were outlined to address the need for increased funding. Scenario 3, which introduces an 8% annual rate increase over the next four years (2009-2012) and then declines to the assumed inflation rate by 2015, is recommended to support the level of funding required to maintain **London's Advantage – securing tomorrow** by achieving a safe, sufficient and sustainable water supply and distribution system.

Context

City staff have developed a 20 year water financial model, which has been refined to best represent the long term funding requirements for London's water infrastructure. A 75 year outlook was also considered to determine if, in the longer term, the 20 year plan would lead us to long term sustainability. The model was originally created to help validate assumptions and assess the magnitude of the infrastructure gap identified in the 2004 Water Needs Study, undertaken by R.V. Anderson Consultants. The model has been refined and updated over the last few years to accurately represent future financial needs. The model is based on underlying assumptions of our assets remaining life, population and water consumption trends, and inflation factors. The model is premised on the long term renewal needs of the water assets (approximately \$1.8 billion of pipes, pumping stations and reservoirs) and predicts funding requirements to renew that infrastructure prior to its failure, while maintaining an adequate capital reserve fund. The goal of the financial plan is to achieve sustainability of the water supply system. For purposes of this discussion, **sustainability** is defined as the point when annual rate increases can be maintained at or near the annual inflation rate based on a combination of the Consumer Price Index and the Construction Cost Index.

Legislative Context

The 20 year financial water model is a key step in preparing for completion of the legislated requirements noted below as component "4 Financial Plan" of the new Municipal Drinking Water Licence program. The intent of the legislation is to ensure that water utilities are adequately funded to eliminate health risks to the public and are financially sustainable over the long term.

In the Part Two Report of the Walkerton Inquiry, Justice O'Connor recommended that *"the MOE should require owners of municipal water systems to obtain an owner's licence for the operation of their waterworks"*. The MOE has implemented this recommendation through the new Municipal Drinking Water Licensing Program. A Municipal Drinking Water Licence will be issued once the City of London has the following in place:

1. A Drinking Water Works Permit (DWWP)
a permit to establish or alter a drinking water system; which, together with a licence, will replace the current certificate of approval
2. An Accepted Operational Plan
the plan will be based on the MOE Drinking Water Quality Management Standard (DWQMS) and will document the City of London's Quality Management System (QMS) and must be submitted by January 1, 2009 (tentative Council approval December 1, 2008)
3. Accreditation of the Operating Authority
a successful third-party audit of London's QMS will be the basis for accreditation prior to January 1, 2010
4. A Financial Plan
as required under the Financial Plans Regulation (O. Reg. 453/07 of the SDWA), the City of London will be required to submit a Financial Plan that satisfies the regulation prior to July 1, 2010
5. A Permit to Take Water (PTTW)
the existing PTTW Program will not be altered as a result of the new Licensing Program, but the City of London is required to submit all current PTTW numbers as part of the Licence application. The Joint Boards of Management hold the PTTWs for the Regional Water Supply Systems, while London holds the PTTWs for the emergency well systems.

While the legislative requirements noted above are reasonably well spelled out and the implications of increased labour and financial resources are clear, there will undoubtedly be future legislation which will add to the City's resource and financing needs. When the details of the future legislation are known, Administration will bring this information forward to advise Committee and Council what impacts there may be (if any) on the financial plan and water rates.

An additional aspect of the legislative context in the post-Walkerton era is the extra cost that has been applied to the operation of the water system. While we welcome the risk reduction measures brought through legislation, these measures have increased the annual operating and capital costs by approximately \$2 million (approximately 4% of budget) which puts water rates under further stress. Examples of initiatives to respond to the legislation over the last 8 years include:

- Source Water Protection
- Municipal Drinking Water Licence (detailed above)
- Corrosion control and lead mitigation
- Disinfection enhancements at the Regional Water treatment plants and City pumping stations
- Operator Certification revisions
- Enhanced water quality testing
- Compliance reporting
- PSAB implementation
- Occupational Health and Safety requirements
- Abandoned well decommissioning
- Engineer's reports and related modifications to facilities

Water Financial Principles

The 20 year financial plan is founded on the following principles, some of which may need to be balanced against one another to achieve the most appropriate end result:

- growth pays for growth (with the exception of industrial development charges and Regional Water System expansions which are currently funded by water rate payers),
- pay-as-you-go for operating and routine life cycle expenditures,
- strive for inter-generational equity to avoid burdening future generations in order to benefit current rate payers,
- use debt to smooth out cash requirements for large infrequent life cycle or system improvement projects,
- build reserve funds to provide cash for emergency repairs and/or moderate cash requirements for intermittent medium sized projects,
- use reserve funds to balance annual revenue fluctuations resulting from weather,
- set rates to achieve financial sustainability in the "near" term (target 7 year time frame),
- address cash requirements for new legislation driven improvements at the time that they are known and use reserve funds or debt as appropriate,
- commit to life cycle infrastructure renewal needs irrespective of water usage trends since pipe deterioration is generally insensitive to the amount of water consumed,
- commit to life cycle infrastructure renewal needs since it is less expensive to renew infrastructure that is approaching failure than to attempt to maintain and repair it.

Infrastructure Gap

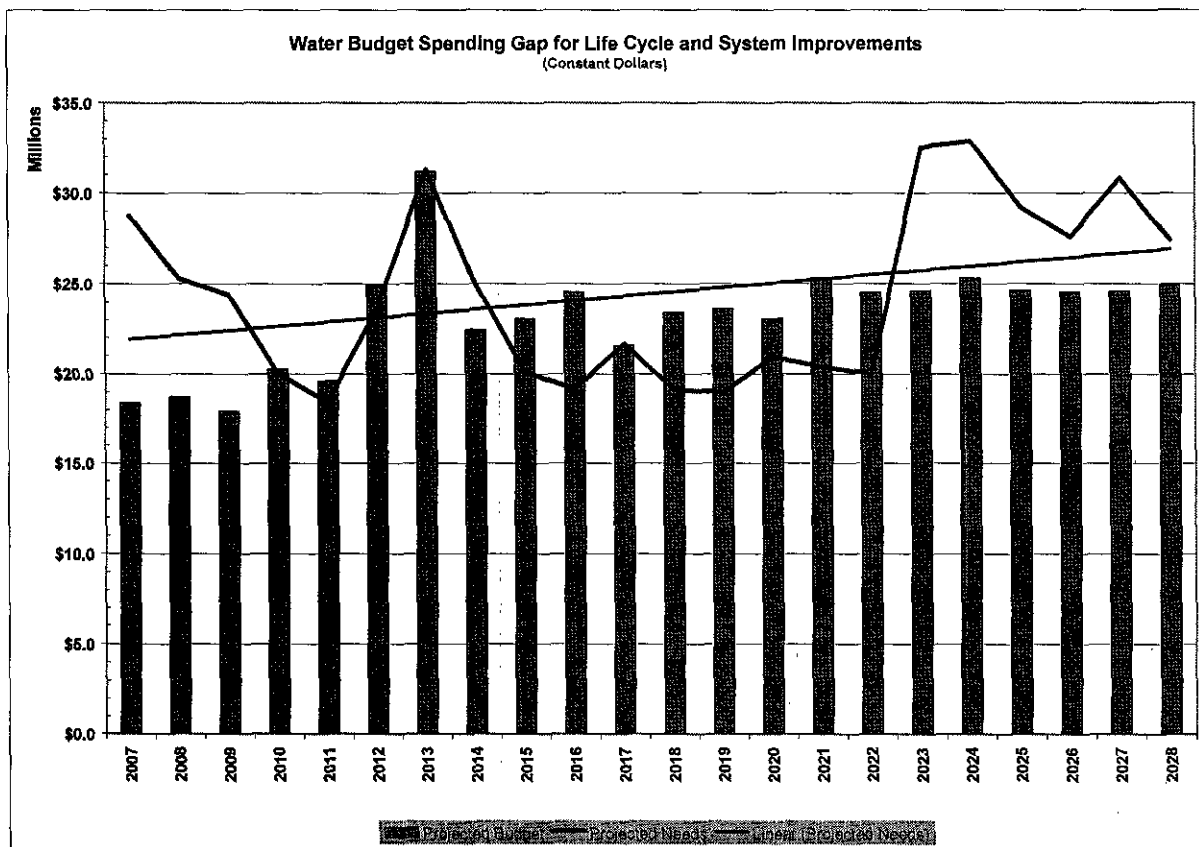
A large portion of the water infrastructure is very old and in need of renewal. A January 28, 2008 ETC report estimated the water infrastructure deficit for London at \$220 million. This is an indication that more funding is required to renew aging infrastructure to ensure water reliability, quality, and financial sustainability in the future. Capital funding necessary to close the gap and address new growth falls under three headings in the City's water budget:

- life cycle infrastructure renewal
- system improvements
- rate supported growth

The infrastructure needs in any one year vary due to many factors; hence the annual funding requirements are not smooth. Each of the three budget components will be discussed in more detail below. The graph entitled "Water Budget Spending Gap for Life Cycle and System Improvements" illustrates the infrastructure gap, which from 2004 is steadily being closed as budgets are increased. The graph compares capital needs (the ragged line) and the projected budget (the vertical bars). Inspection of the graph demonstrates that there are large gaps between the need and the budget in 2007 to 2009 and 2023 to 2028. Sustainability is achieved in 2015, when water rate increases are at or near the assumed inflation rate, as illustrated on the reserve fund chart near the back of the report. The gap near the end of the period, emerges

as need outstrips available budget and the trend line for "need" is slightly above the budgeted amount. Appropriate use of innovative technologies, reserve fund, debt and rate increases all play a factor in closing the apparent gap.

The gap which emerges at the end of the period might be reason for concern, until we look beyond 20 years. Appendix "A" includes a similar graph, which has been extended to 75 years. From 2030 to 2045, projected budgets exceed projected needs for renewal which allows the gap in 2023 to 2029 to be made up. Based on our best current knowledge, significant gaps in funding will appear in and around 2050 and 2060, as major assets such as the City's reservoirs and pumping stations need to be replaced as they approach 100 years of service life. While the 75 year outlook is not as accurate the 20 year outlook, it demonstrates long term sustainability is feasible by utilizing the financial principles along with marginal budget increases (0.5% per year excluding inflation). This slight increase in annual budget would actually result in water rate increases less than inflation, since consumption and revenue is assumed to be growing at 1% per year after the initial 20 year period. Additional operating and maintenance costs associated with the expanded system have not been considered in this analysis beyond 20 years.

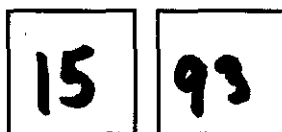


Life Cycle Infrastructure Renewal:

Appendix "B" includes charts which identify watermain material type and age. It is noted that over 43% of all watermains in the City of London are cast iron, which were installed in London between 1880 and 1969. Ironically, it is the younger cast iron watermains that are experiencing a shorter life expectancy than cast iron mains installed before World War II, in part, due to a thinner pipe wall thickness. System renewal became a routine program of the City's water group (the former PUC) in the 1970's. City staff must remain proactive in understanding failure mechanisms and innovative technologies to be used in the watermain renewal program to ensure that water supply to Londoners remains reliable.

The 20 year model and the 75 year outlook are based on extensive data, historical monitoring, and North American and local research to predict future infrastructure needs for infrastructure renewal. There are some key assumptions used in the model, e.g. pipe life, that require regular review and updating as new research and our own experiences will indicate.

In 2005, Council approved a plan that would add \$500,000 per year to ramp up the renewal program by \$10 million over 20 years. The additional renewal budget has been split between replacement and rehabilitation, utilizing clean and reline trenchless technologies to extend the life of the older cast iron watermains another 15 to 20 years at a fraction of the cost of replacement with significantly less social disruption.



In 2006, Council approved increases to the meter management program to allow the use of improved technology and new meters to minimize revenue leakage because of inaccurate meters. Part of the funding is also required to respond to change in the electricity market place with London Hydro's switch to Smart Electric Meters. More details are provided in the Meter Management Strategy report to be submitted to ETC this fall.

In 2006, Council approved \$1.5 million to upgrade the 40 year old obsolete electrical components at the Arva Pumping Station.

In 2008, Council approved increases to the lead service replacement program of \$1.5 million in 2008 and \$750,000 for the next 17 years to accelerate the replacement of "public side" lead services.

As previously noted, lifecycle renewal is funded under a "pay-as-you-go" principle, whereby renewal projects in a given year are paid entirely by water rates collected in that year. This eliminates the need to borrow funds (debt) or drawdown the reserve fund. The effectiveness of these programs will need to be regularly re-evaluated and adjusted in scope, as necessary, within the financial model.

System Improvements:

System improvements, for the most part, are not a significant component of the capital replacement works. The chart below indicates a high expenditure during the year 2013 for replacement, water quality improvement and expansion of one of the three cells at the Springbank Reservoir complex (thereby qualifying it for inclusion in all three capital categories, but it is currently identified as a life cycle project in the budget document). This work, which has an anticipated 80 to 100 year life, will be funded through a debt issuance which allows this type of infrequent, long-life project to be completed without requiring cutbacks to other necessary renewal works. Other system improvements (such as enhanced security or increased water pressure) are funded by the water rate payers on a "pay-as-you-go" basis or through reserve fund drawdowns.

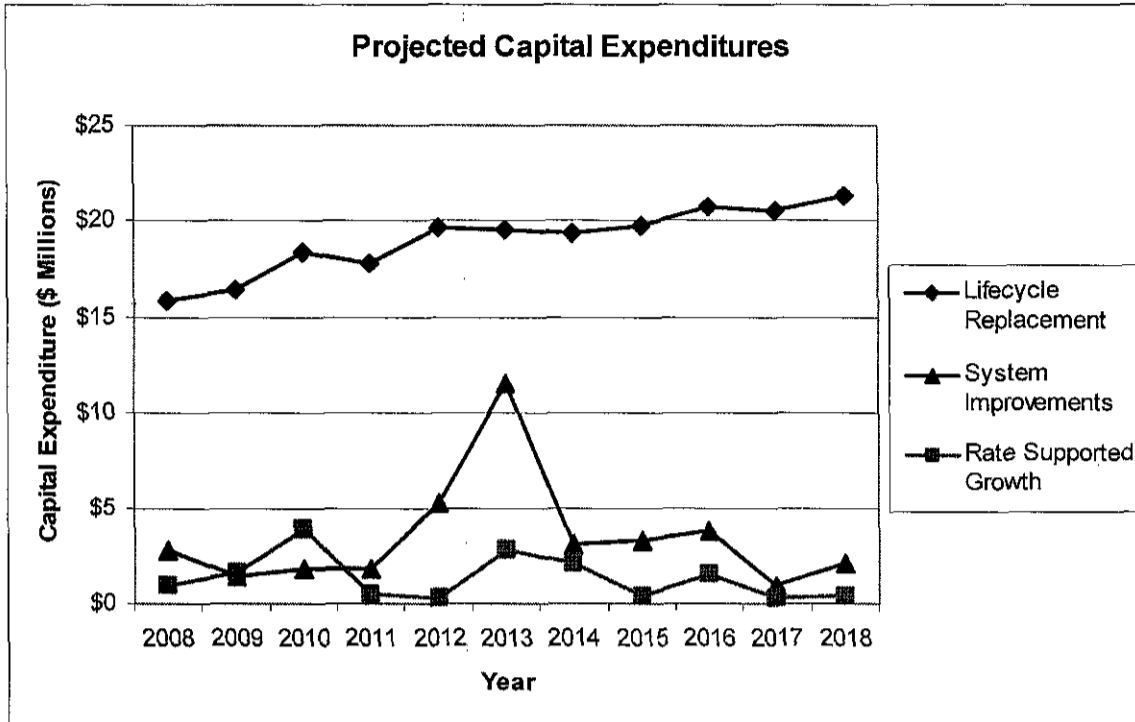
Growth:

Rate supported growth projects are not a significant factor in the financial model over the long term as in most circumstances, the majority of the system capital expansion costs will be paid through the Development Charges reserve fund. Water rate supported growth expenditures include industrial growth related projects and other growth projects which have a portion of the work improving service to existing customers, such as reliability or pressure improvements.

Growth within the Regional Water Supply System is currently paid through water rates, although there is a proposal to include Regional growth projects in the new Development Charges By-law for 2009. Debt adopted by the Regional Water Systems through the Joint Boards of Management is apportioned to the member municipalities in proportion to their percentage of flow from each system. So, while Regional system debt only indirectly impacts City water rates, it does have a direct impact on London's ability to borrow for other infrastructure projects.

All growth related projects in the model are based on the Water Master Plan, the Growth Management Implementation Strategy (GMIS) and the resulting Development Charges study that is currently underway. The water growth projects have been coordinated with infrastructure projects for transportation and wastewater. It is important to note that the future ongoing operating and maintenance costs of the expanded system are expected to be funded from water rates based on the consumption of these new customers and operational efficiencies. Any revenues which may accrue from the future Regional Water Development Charge have not been recognized in the model at this time, but if passed by Council in 2009, will help to reduce future rate increases.

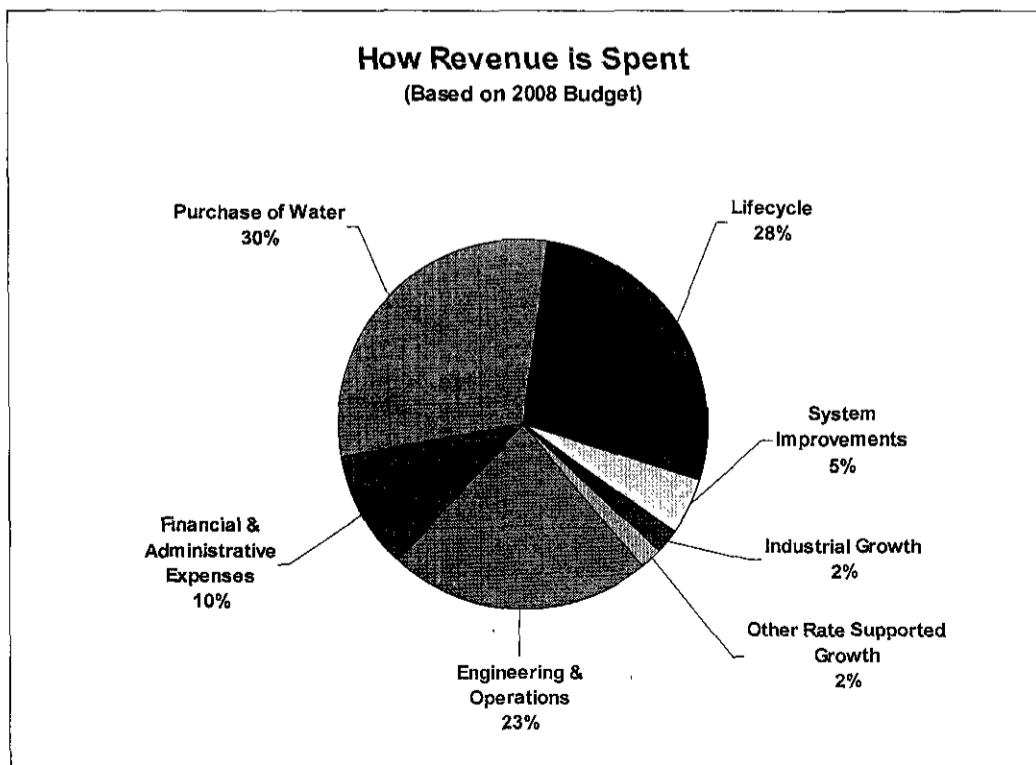
The Projected Capital Expenditures chart below (shown in constant dollars) illustrates the relative importance of these three budget components as inputs to the financial model. It is noted that lifecycle renewal accounts for over 80% of all capital expenditures. Occasional large system improvements can also have significant impacts, as noted by the proposed Springbank Reservoir improvements scheduled for 2013. Minor fluctuations in rate supported growth will not adversely affect the financial model projections unless there is a significant industrial component to be supported.



Recent Trends Impacting Revenue

City staff have noted a number of trends related to the revenue that is generated from the water rate payers. This revenue is sensitive to a number of factors which include population growth, water consumption practices, and weather patterns. These will be explored in more detail in the text below.

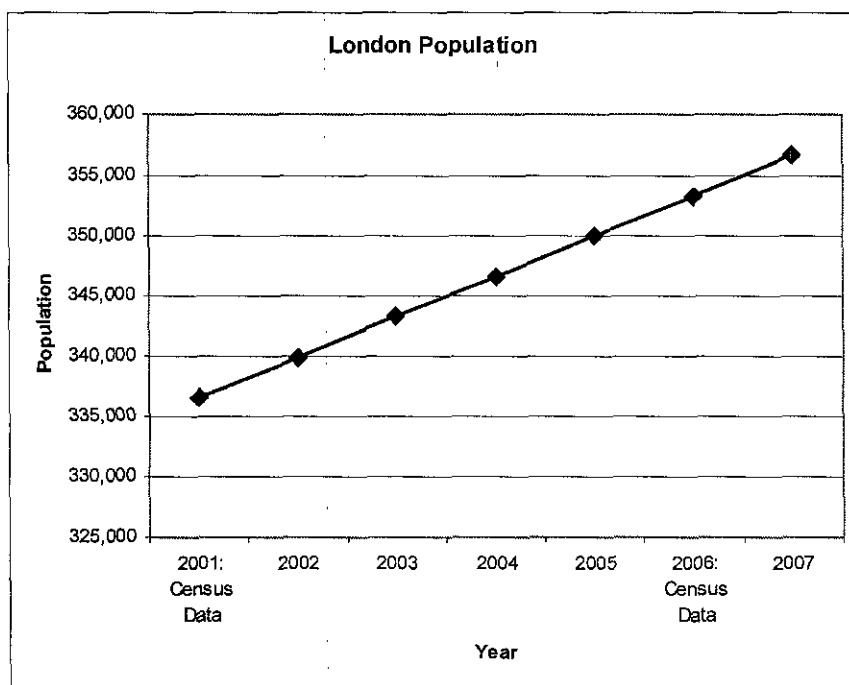
The pie chart below identifies how revenue is spent within the City of London. Capital works accounts for 37% of revenue (this includes lifecycle which represents 80% of the capital requirements, system improvements, and growth projects). It should be noted that Operations includes capital expenditures for material purchase and equipment rental. Another 30% is spent solely on water purchase from Lake Huron Water Supply and Elgin Area Water Supply Systems. Regional water rates include capital, operating, maintenance and debt servicing costs.



Increases in the cost to purchase water from the Regional Systems increases the retail rate that the City charges its customers. While the City has managed to operate and maintain the water system with essential zero debt, it must be remembered that the Regional systems still hold significant debt through the Joint Boards of Management, some being issued in 1998 upon the acquisition of those systems. The Regional systems, through their own financial plans, have projected moderate rate increases over the next several years to replace aging infrastructure; the majority of which is over 40 years old, and to service the remaining debt.

Population:

London's population growth is on a slow, but steady incline at approximately 1% growth per year. This 1% annual growth has been very consistent over the past 15 years and is expected to follow the same trend in upcoming years. Census data from 2001 and 2006 verifies the population growth trend.

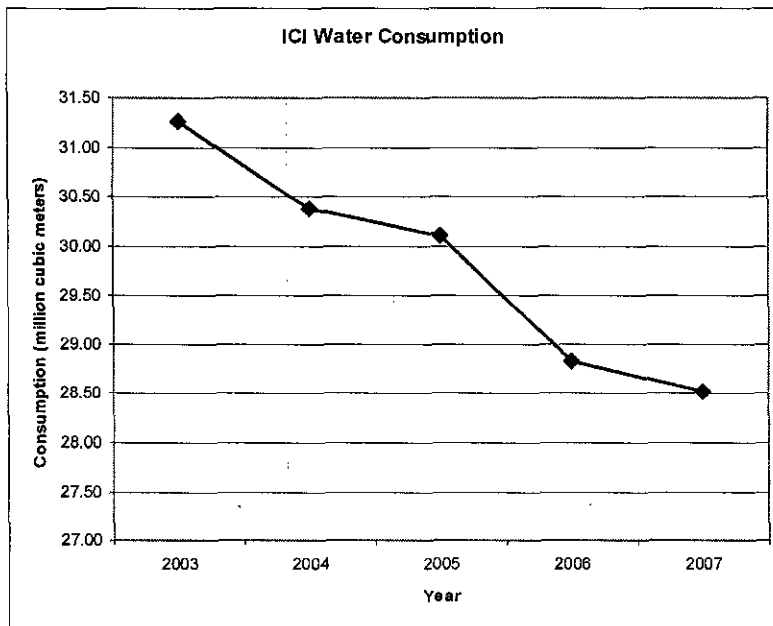
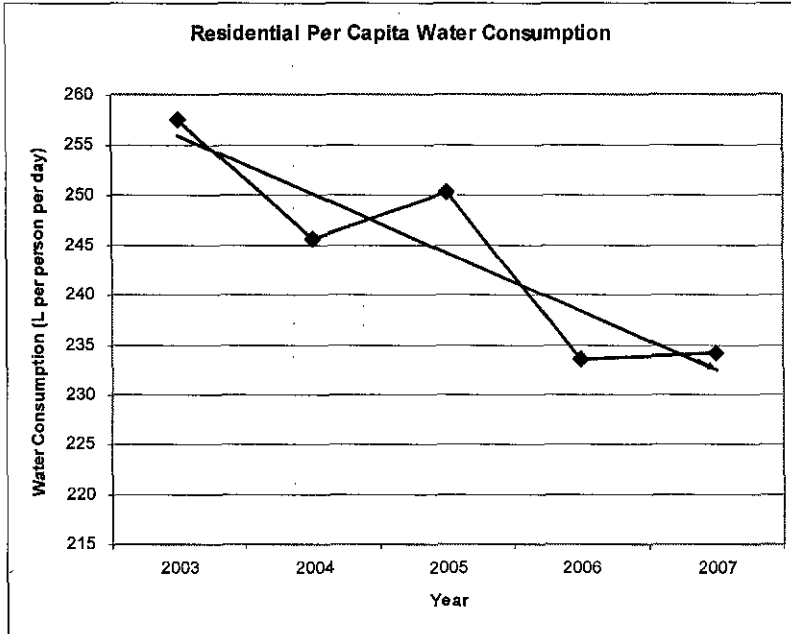


Consumption:

Unlike population growth, a downward trend has been noted for both the residential per capita consumption and consumption by Industrial, Commercial and Institutional (ICI) sector in the City of London. Factors affecting consumption include weather, economy (especially noticeable with industries that use water in their process), and increased efficiency measures (low flow showerheads, low volume flush toilets, front loading washing machines, etc). The minor rise in population growth has been insufficient to offset the resultant lower per capita consumption in recent years. While this decreased consumption can be viewed as a positive influence in long term planning and financing of the system, the short term reality is that a strain is placed on current available revenue to support operating and maintenance of an expanded system, and capital renewal. ICI water consumption, which represents approximately 57% of overall consumption, has dropped 9.6% over the past 5 years. This translates into approximately a \$2 million reduction in revenue in 2007 dollars attributed to ICI alone, in terms of the ability to fund pipe replacement and repair. Despite population growth, residential water consumption, which represents approximately 43% of overall consumption, remains at or below previous years levels. City Staff has predicted a 2% combined drop in consumption for 2008 for modelling purposes along with a projected 2.5% drop for 2009. Beyond 2009, growth in water demand is assumed to remain slightly negative for approximately 10 to 12 years, reflecting the anticipating reductions from the proposed "efficient use of water" program described in more detail in a companion ETC report. It is noted that growth in demand is one of the key variables in the model and must be monitored on an ongoing basis and regularly updated.

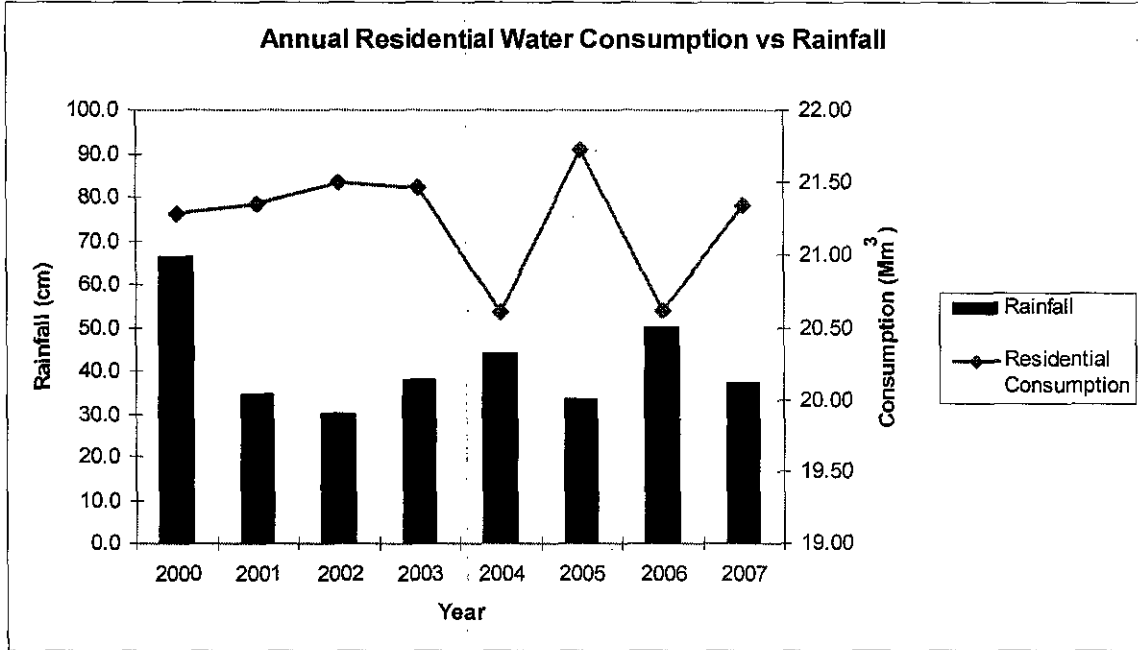
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Weather:

Weather plays a significant role in the volume of water consumed from year to year, which is identified in the chart below. Fluctuations in temperature and rainfall intensity, frequency and volume from one year to the next can result in significant residential revenue variations of up to 5%. Note the correspondingly low water consumption during wet summers (2004 & 2006) and high consumption during dry summers (2003, 2005 & 2007). It is therefore important that, during a wet summer, the City has the available means to follow through with planned capital expenditures to avoid deferring projects. It is noted that the aim of the water capital infrastructure replacement program is to operate under a "pay-as-you-go" principle, whereby capital projects for a given year are paid for by revenues generated in that same year. Debt issuance is not recommended to acquire funds required for shortfalls in revenue generation. During periods of reduced revenue due to weather, contributions to the reserve fund are reduced. Fluctuations in revenue resulting from variances in weather reinforce the need for reserves that are maintained at a sufficient level to provide adequate funding for capital thereby providing a buffer for operational shortfalls.



Capital Reserve Fund and Reserves Apportionment

The water supply system has benefited from a reserve fund for over 40 years. It is the intention of City Staff to target a minimum reserve fund balance of \$8 - \$10 million (0.5% of the total \$1.8 billion asset value) to address weather induced consumption fluctuations, unforeseen failure events, future spikes in capital expenditures, and costs associated with legislative changes. The following chart indicates the proposed reserve fund minimum targets:

Required Expenditure	Amount
Annual Weather Induced Consumption Fluctuations	\$1.5M
Intermittent Funding Needs	
a) Catastrophic Failure	\$2M
b) Planning for Future Capital Expenditures	\$4.5 - \$6.5M
c) Costs Associated with Legislative Changes	-

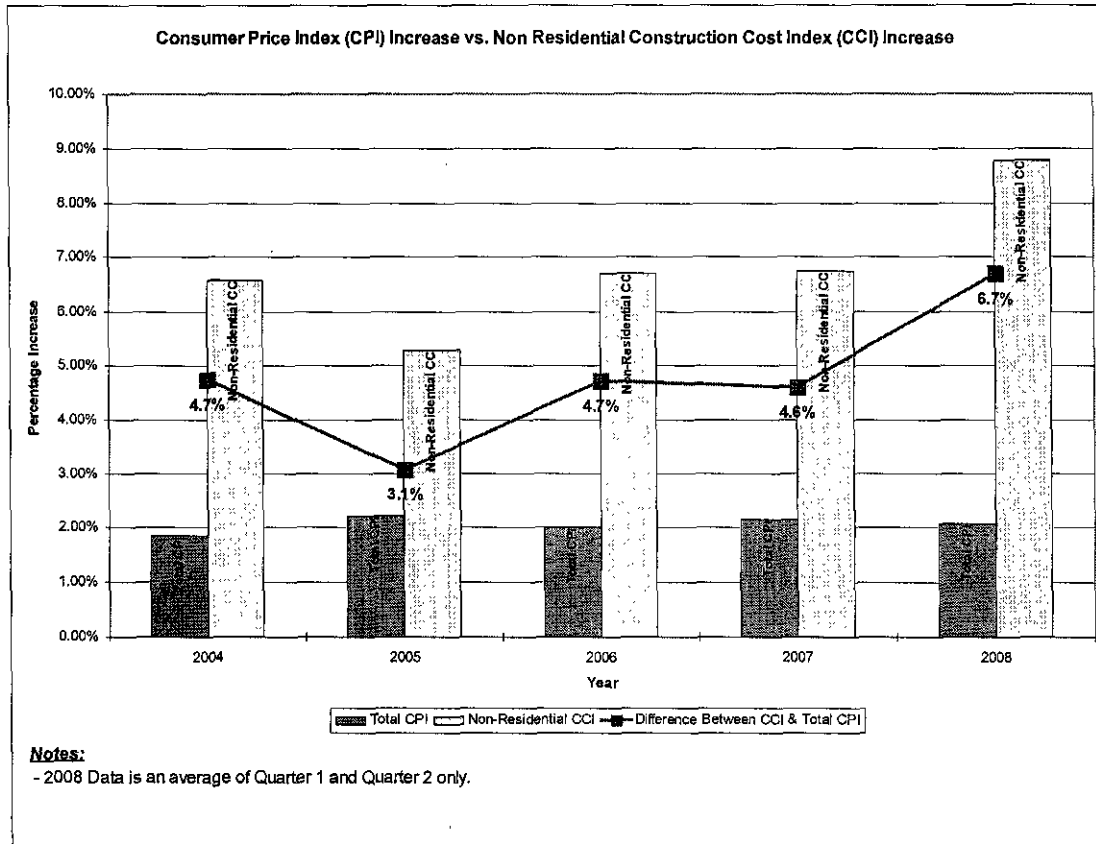
Total: \$8M - \$10M

The reserve fund acts as a buffer to allow for these unforeseen and planned periodic expenditures so that needed capital works projects may proceed, ensuring service delivery and reducing maintenance costs. As identified in the principles, the reserve fund would be allowed to build, exceeding the minimum for known moderate sized periodic capital projects. The 20 year financial model is a useful tool to project reserve fund balances over the long term planning horizon with the goal of using the fund to stabilize water rates in the future.

The growth related Development Charges Reserve Fund is unrelated to this discussion and does not impact water rates.

Stabilization of Capital Reserve Fund

Under various funding scenarios within the financial model, it is apparent that water rate increases similar to anticipated inflation, based on the Consumer Price Index (CPI), cannot provide the level of funding required in future years to maintain the water supply and distribution network. A number of factors, including the age of the infrastructure, backlog of work, reduction in water demand and a Construction Cost Index (CCI) which has risen at a much higher rate than the CPI, contribute to this funding shortfall. The graph below identifies the gap between CPI and CCI over the past five years. The CCI over this time period has been, on average, 4.8% higher than the CPI. The impact on the water utility is a blend of CPI and CCI, since the budget expenditures include both capital construction and labour costs.



CPI Source Data: Bank of Canada; CCI Source Data: Statistics Canada

Modelling Scenarios:

Three modelling scenarios, outlined below, were considered to stabilize the reserve fund, to achieve sustainability and to reduce the infrastructure gap, while attempting to meet the principles outlined in this report. They are as follows:

Scenario #1 - One time significant rate increase (20%)

Windsor, Ontario implemented an 86% water rate increase in 2007 to help generate funds to replace aging water mains. It is noted that prior to this increase, Windsor's water rates were among the lowest in Ontario. Although a high one time rate increase in London would achieve the need for increased cash flow and influx of funds into the capital reserve fund, it is anticipated that this could overburden London rate payers and give an overall negative public opinion. It also does not eliminate the need for rate increases in subsequent years. The scenario outlined below models a 20% increase in 2010, followed by 3% annual increases thereafter. Large one year rate increases creates uncertainty for businesses in their budgeting process and is subsequently not recommended.

Scenario #2 - Low annual rate increases (3%)

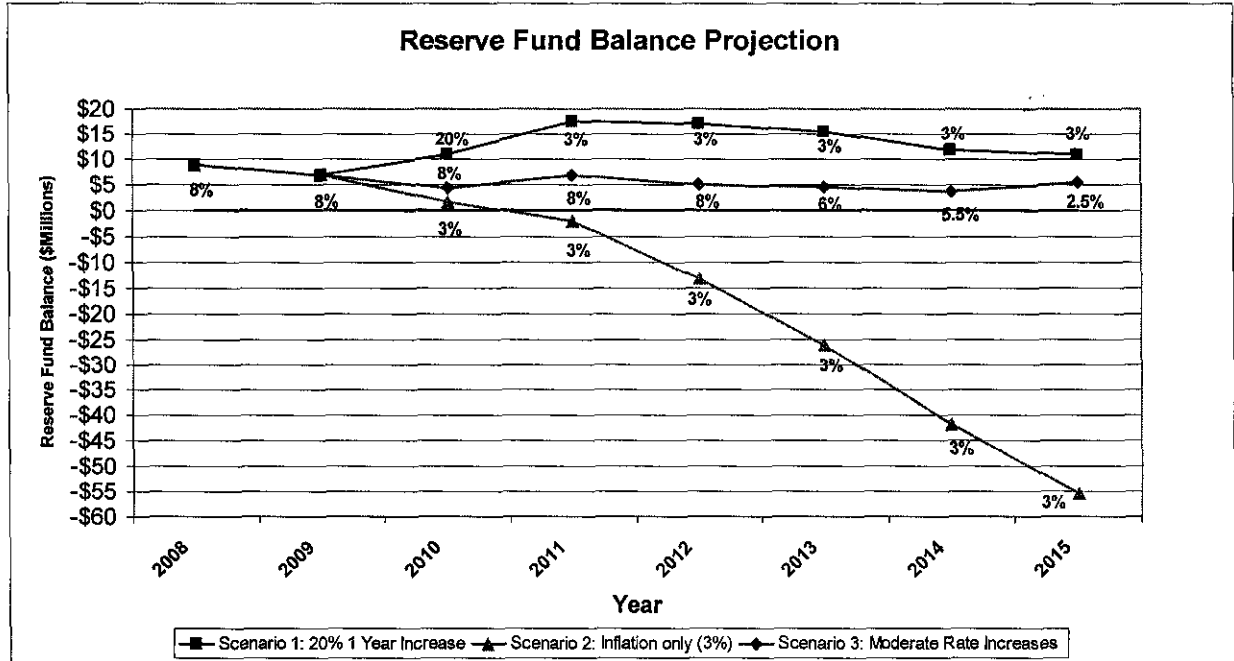
This option is attractive to current rate payers; however, it does not address the needs of the water supply and distribution system and future generations. In this scenario, the water infrastructure gap will continue to widen as capital replacement projects would have to be deferred. This will overburden future generations to fund the replacement needs. If capital works are delayed in an attempt to reduce the rate increases, this increases risk, repair and maintenance costs and social disruption associated with increased failure frequency, and only temporarily delays the need for higher rate increases into the future to maintain a safe and reliable water supply system. The chart below illustrates the reserve fund entering negative values as early as 2011. In this scenario, \$55 million of debt would have to be issued within 7 years to undertake the capital expenditures necessary to replace the aging infrastructure while ensuring that the reserve fund balance does not drop below zero. This level of debt would further encumber the City in its ability to borrow for other projects. While future debt adopted by the Regional Water Systems through the Joint Boards of Management is apportioned to the member municipalities applies to all modelling scenarios, the use of additional debt noted above for City infrastructure renewal is not a practical option to reduce rates in the short term.

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Scenario #3 - Moderate annual rate increases (8%) – RECOMMENDED SCENARIO

It is anticipated that this option will achieve a balance between the need to generate revenue and the need to satisfy rate payers with justifiable cost increases to maintain the high quality of water that customers now enjoy. Moderate rate increases, as identified in the chart below, serve to maintain the reserve fund in the \$5 million range in the “near” term, while also funding the necessary annual capital expenditures. Beyond the sustainability point of 2015, the reserve fund rises to \$10 million while maintaining water rate increases at or near inflation. It is recommended that Scenario #3 be chosen to move forward in the financial planning process.



The graph identifies projected reserve fund balances under different water rate escalation scenarios. The underlying assumptions for the model considers average annual inflation of 3% and average pipe life of 75 years, based on North American experience, adjusted to London’s pipe material mix and vintage (see Appendix “B” for more details on pipe inventory). Over time, it is anticipated that the reserve fund minimum targets would also be increased to account for deflation of the dollar and the resulting loss in buying power for pipe repair and renewal.

Conclusion:

Water renewal projects will continue to be required to address aging infrastructure, irrespective of water consumption. Rising costs to purchase water, combined with construction cost increases, require increased revenue through London’s water rates. Three scenarios were outlined above to help address the need for increased funding. Scenario #3, which introduces a 8% annual rate increase over the next four years, is recommended to support the level of funding required. Sustainability is achieved by 2015, while the reserve fund is stabilized near the minimum target level and the infrastructure gap is further closed, with an indication that it will be eliminated in the long term. Adoption of smaller annual rate increases would force capital replacement projects to be deferred, since debt should not be used for annual renewal needs. The net impact of this action results in higher risk, higher maintenance and repair costs, along with higher social disruption due to increased pipe failures and higher rates for the next generation. It is not recommended that the existing level of risk be increased at this time. The recommendation outlined above will serve to maintain **London’s Advantage – securing tomorrow** by achieving a safe, sufficient, and sustainable water supply system.

Corporate Strategic Alignment:

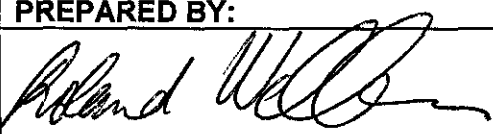
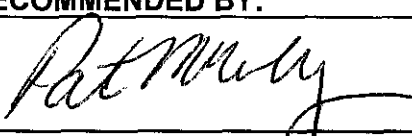
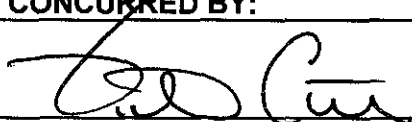
The furtherance of the Water 20 year Financial Plan was identified as a Strategic Initiative for Environmental and Engineering Services as presented to the Environment and Transportation Committee in January 2008. It is also consistent with a number of Corporate Strategic Priorities outlined in the table below.

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Corporate Strategic Priority	How Priority is Addressed
Economic Prosperity: <i>Creating an environment for a resilient, diversified and inclusive economy</i>	By ensuring an adequate high quality water supply to support new and existing businesses.
Infrastructure Renewal and Expansion: <i>Investing in a strategic and sustainable municipal infrastructure</i>	By ensuring a 20 year strategy is in place that is affordable and achievable.
Environmental Leadership: <i>Valuing our natural heritage and environment</i>	By delaying significant growth related projects, made possible through a sound water conservation program, thereby saving resources including money and reducing energy, chemicals and greenhouse gases.
Financial Stability: <i>Realizing a prosperous financial future</i>	By appropriately financing the water supply system making it affordable and sustainable.

Acknowledgements:

This report has been prepared with the assistance of Kyle Chambers of the Water Engineering Division and Sharon Houde, Manager of Administrative Services. This report was reviewed by Martin Hayward, Director, Financial Planning and Policy.

PREPARED BY:	RECOMMENDED BY:
	
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CONCURRED BY:	
	
VIC COTÉ GENERAL MANAGER OF FINANCE AND CORPORATE SERVICES	

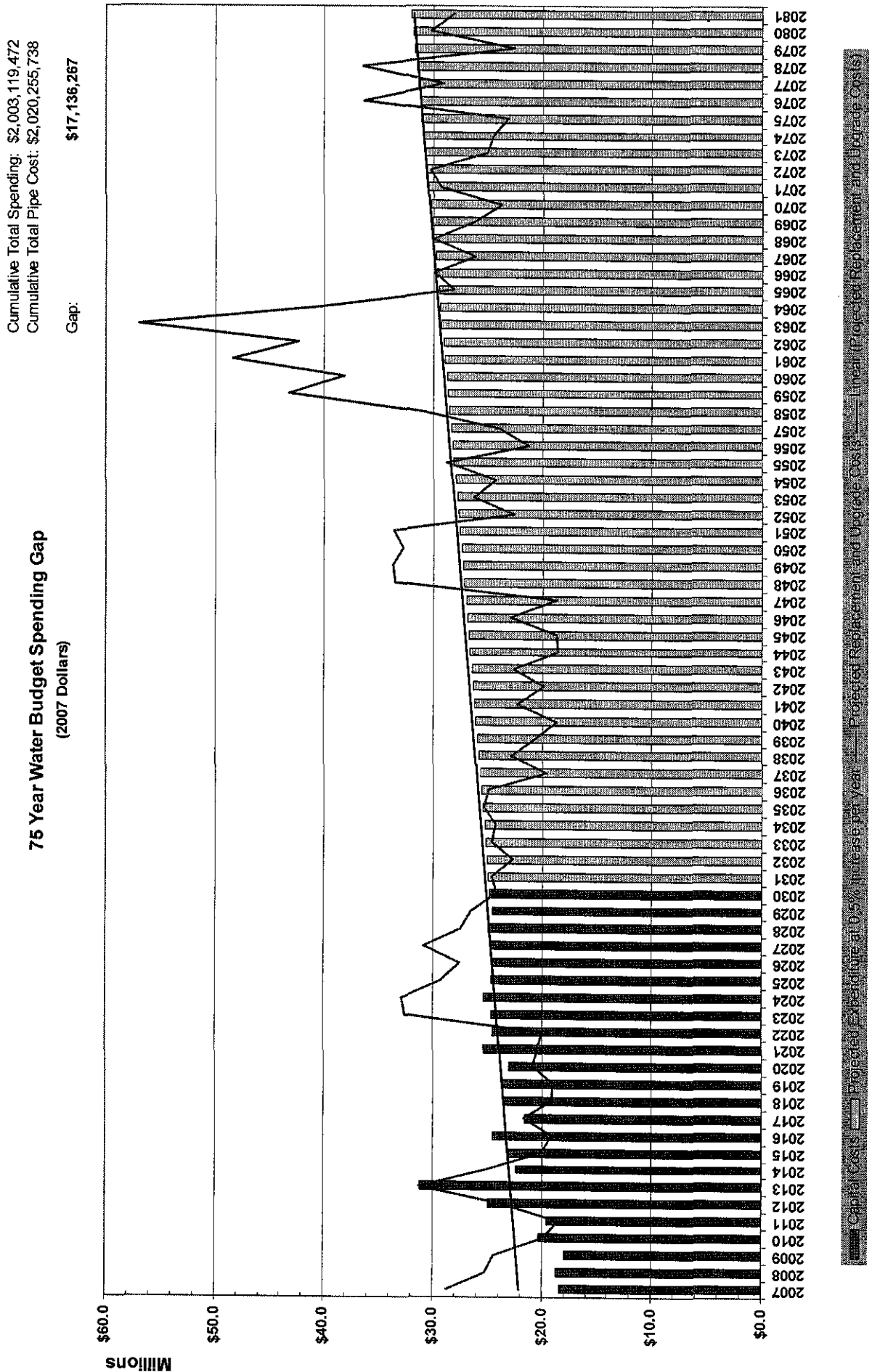
November 14, 2008

Attached:

- Appendix "A" – 75 Year Needs Chart versus Potential Budget – NO INFLATION
- Appendix "B" – Pipe Material by Construction Period

- cc: Vic Coté, General Manager of Finance and Corporate Services
 Rick Brown, Division Manager Administrative Services
 John Braam, Division Manager Water/Sewer Operations

Appendix "A" - 75 Year Needs Chart vs. Potential Budget (No Inflation)

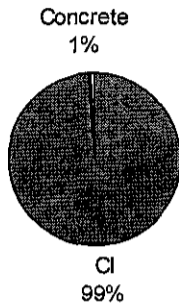


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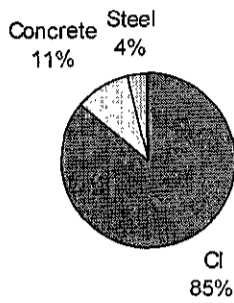
Appendix "B" - Pipe Material by Construction Period

1878-1950



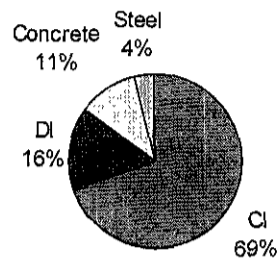
Length: 199km

1951-1960



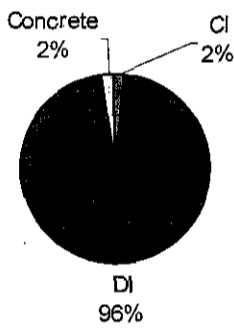
Length: 186.5km

1961-1970



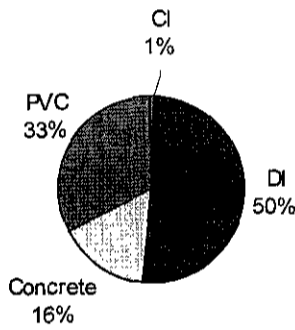
Length: 233km

1971-1980



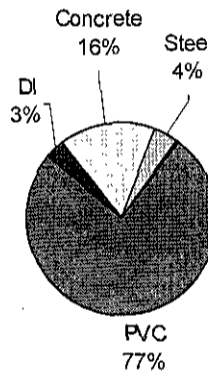
Length: 212km

1981-1990



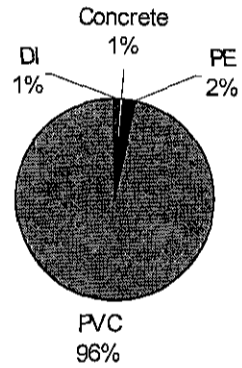
Length: 197km

1991-2000



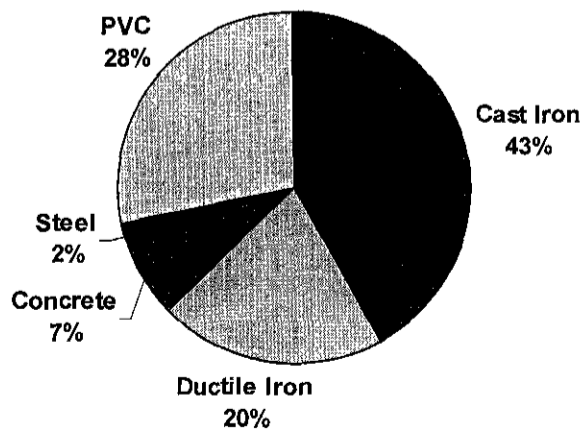
Length: 237km

2001-2008



Length: 248km

Distribution System Pipe Material as of 2008



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