

# **Appendix B**

**November 2008 Financial Principles Report**

**15** **89**

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

<b>RECOMMENDATION</b>
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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.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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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**

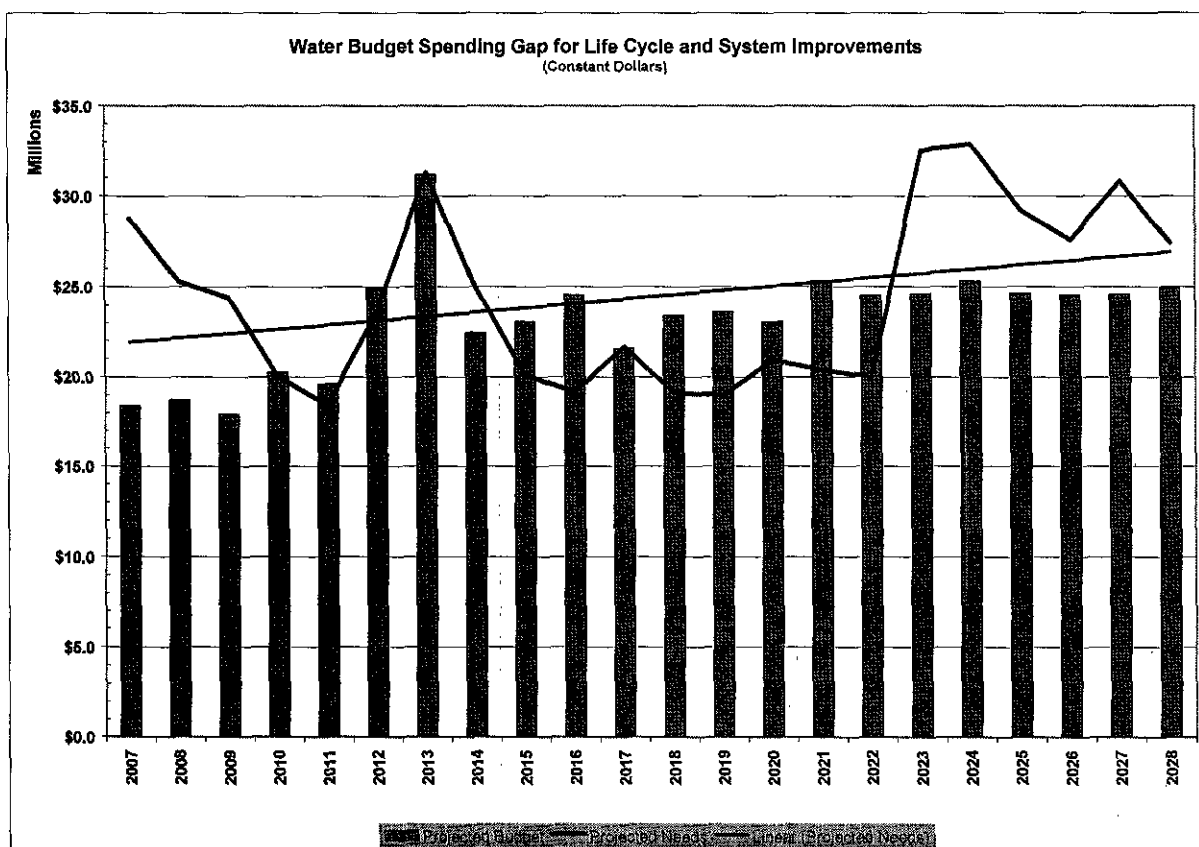
A large portion of the water infrastructure is very old and in need of renewal. A January 28, 2008 ETC report estimated the water infrastructure deficit for London at \$220 million. This is an indication that more funding is required to renew aging infrastructure to ensure water reliability, quality, 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.

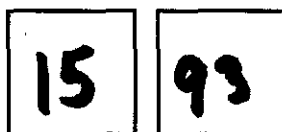


**Life Cycle Infrastructure Renewal:**

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.

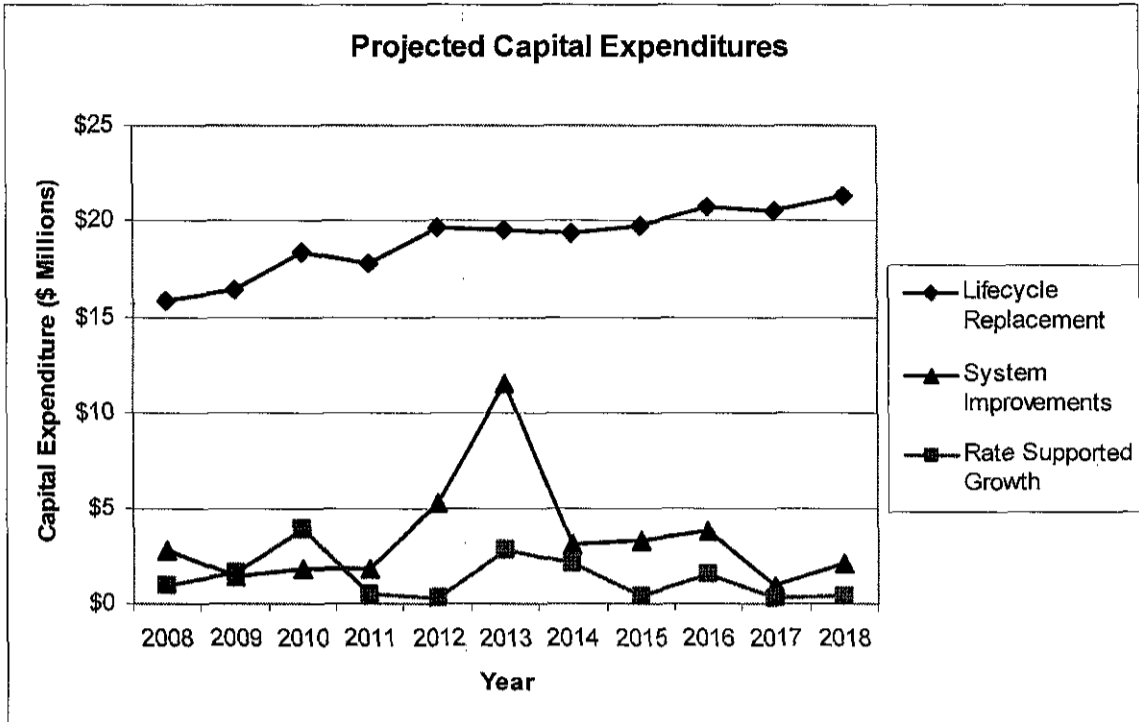
#### Growth:

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.

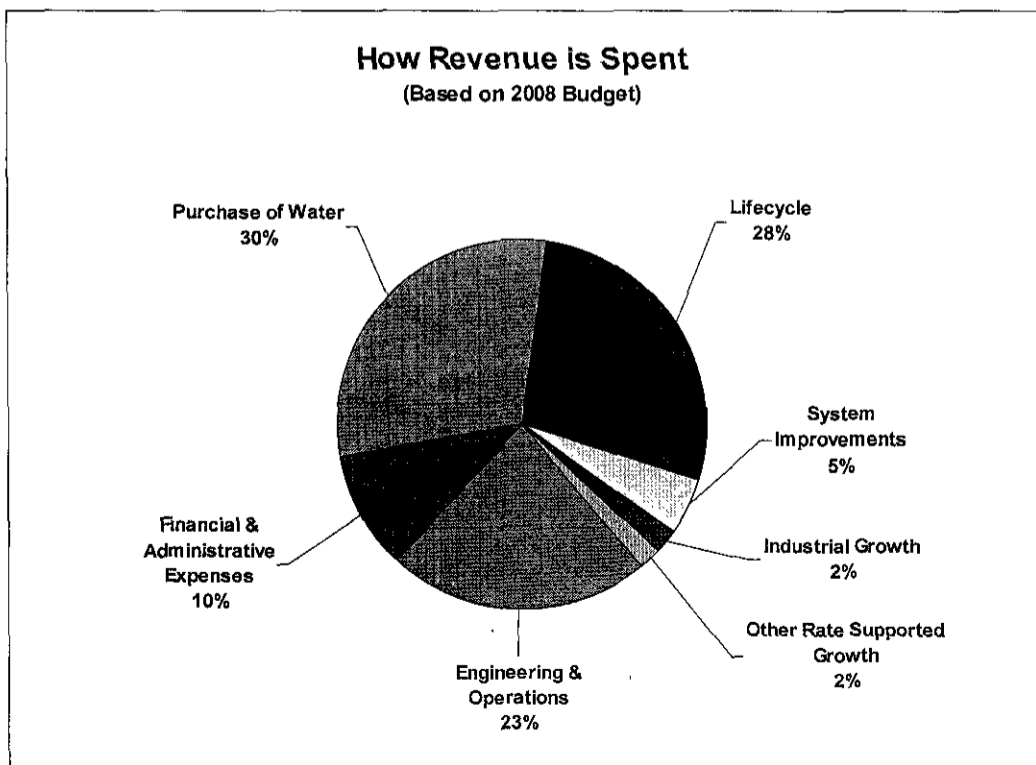
The Projected Capital Expenditures chart below (shown in constant dollars) illustrates the relative importance of these three budget components as inputs to the financial model. It is noted that lifecycle renewal accounts for over 80% of all capital expenditures. Occasional large system improvements 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.

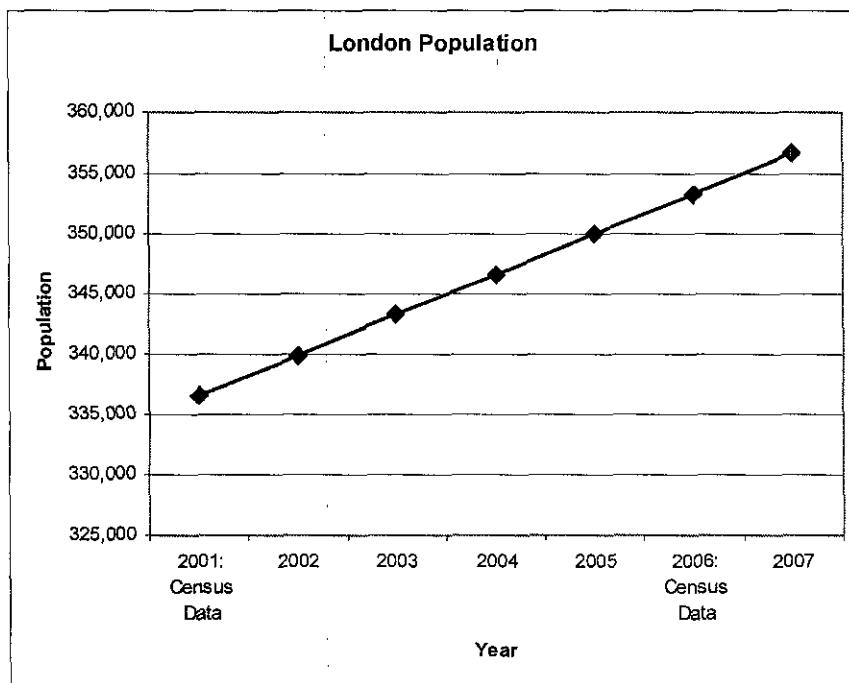




Increases in the cost to purchase water from the Regional Systems increases the retail rate that the City charges its customers. While the City has managed to operate and maintain the water system with essential zero debt, it must be remembered that the Regional systems still hold significant debt through 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.

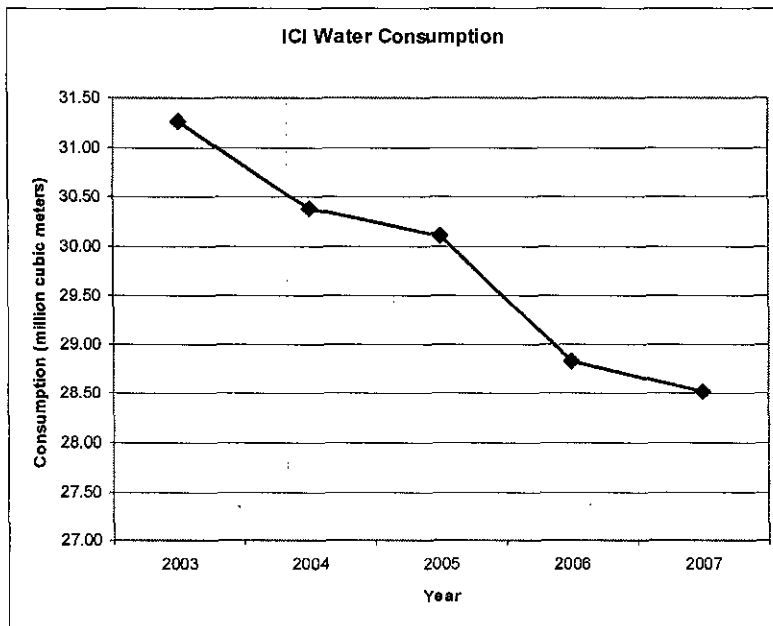
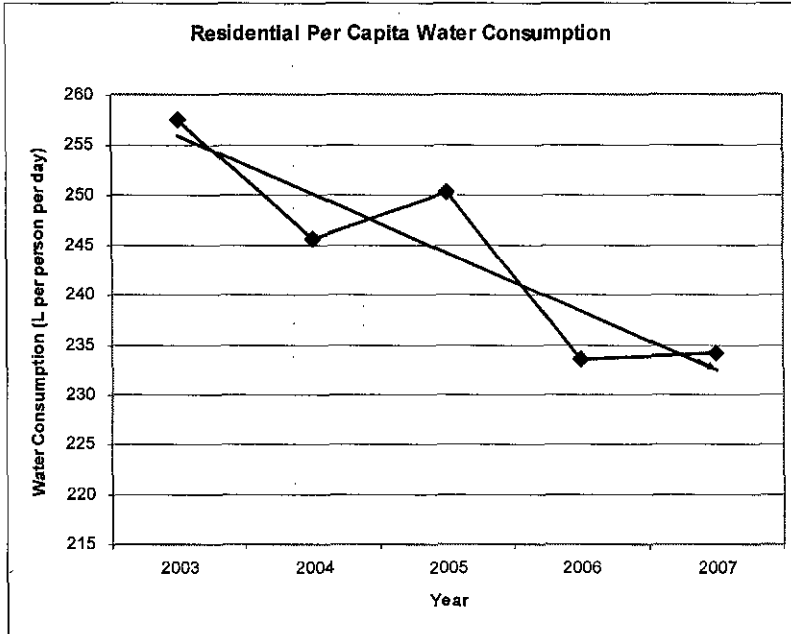


**Consumption:**

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.

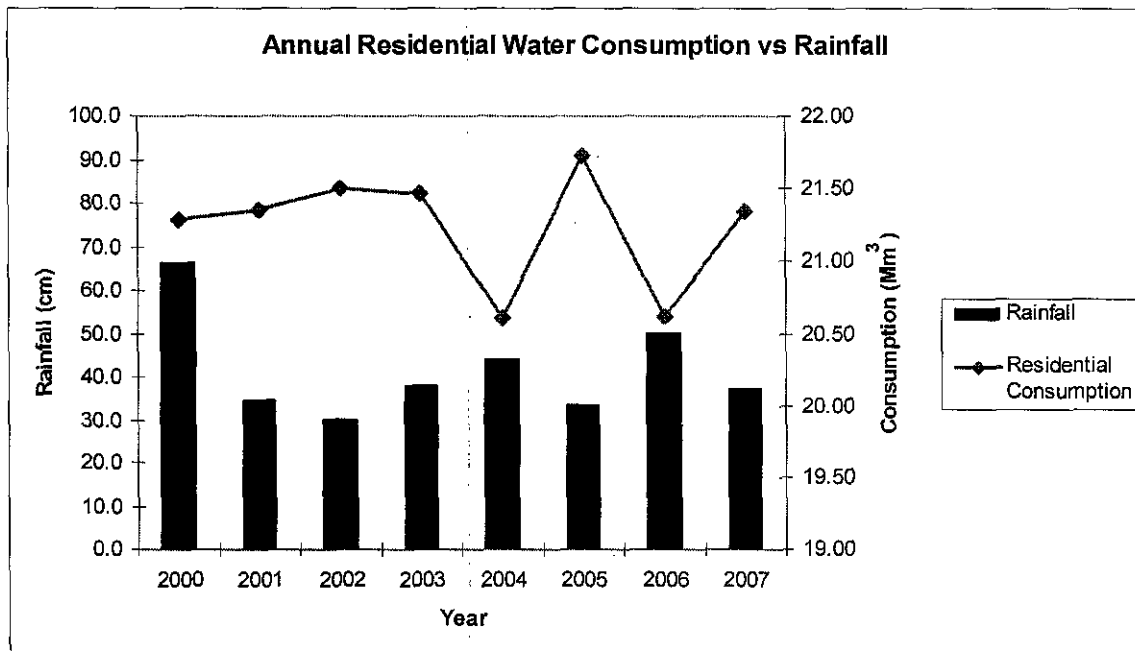
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**Weather:**

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	-

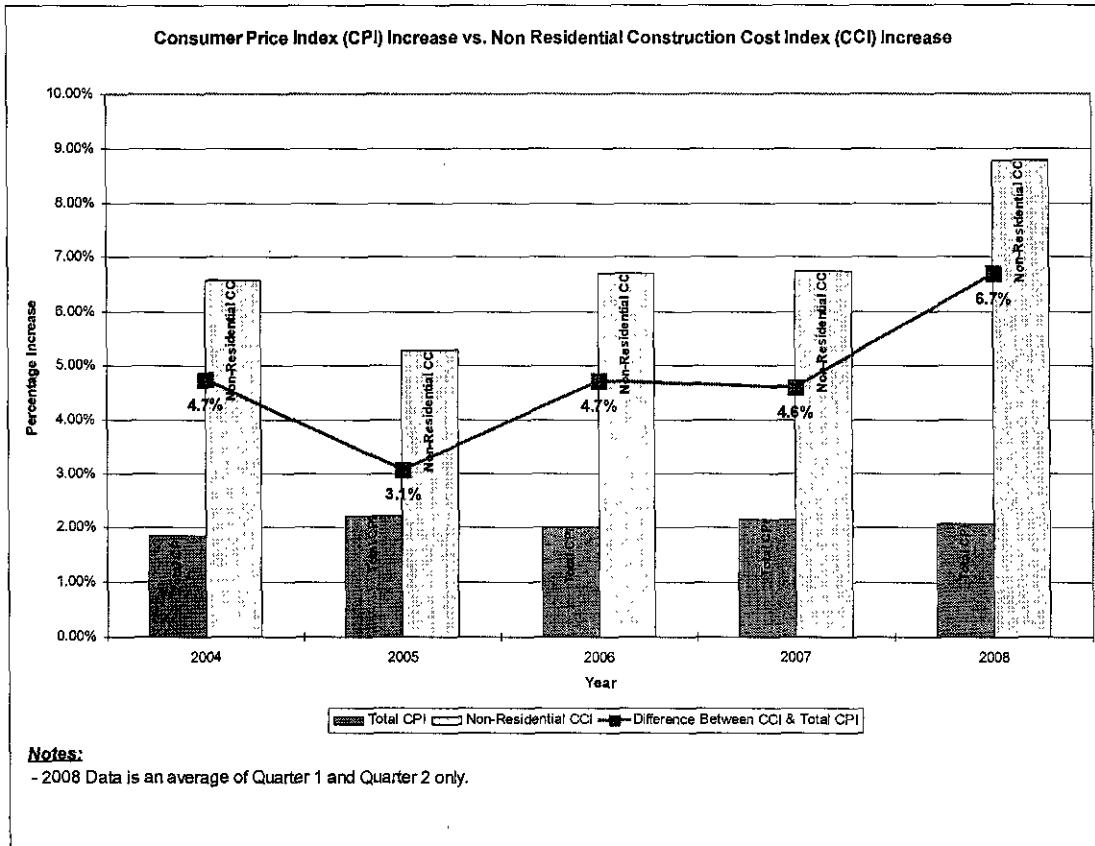
Total: \$8M - \$10M

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%)**

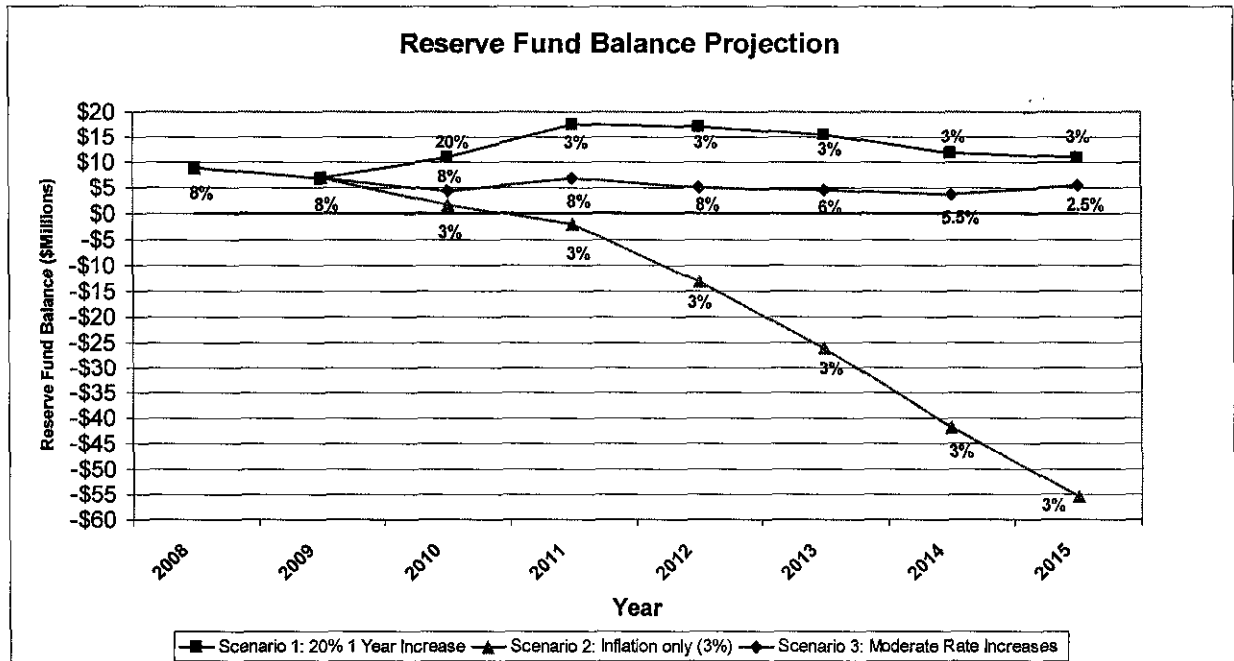
Windsor, Ontario implemented an 86% water rate increase in 2007 to help generate funds to replace aging water mains. It is noted that prior to this increase, Windsor's water rates were among the lowest in Ontario. Although a high one time rate increase in London would achieve the need for increased cash 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.

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:**

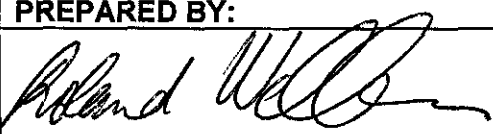
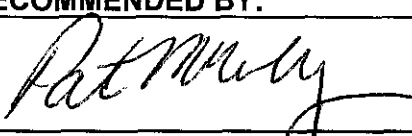
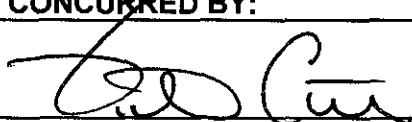
The furtherance of the Water 20 year Financial Plan was identified as a Strategic Initiative for Environmental and Engineering Services as presented to the Environment and Transportation Committee in January 2008. It is also consistent with a number of Corporate Strategic Priorities outlined in the table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

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Corporate Strategic Priority	How Priority is Addressed
<b>Economic Prosperity:</b> <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.
<b>Infrastructure Renewal and Expansion:</b> <i>Investing in a strategic and sustainable municipal infrastructure</i>	By ensuring a 20 year strategy is in place that is affordable and achievable.
<b>Environmental Leadership:</b> <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.
<b>Financial Stability:</b> <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.

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<b>CONCURRED BY:</b>	
	
<b>VIC COTÉ</b> GENERAL MANAGER OF FINANCE AND CORPORATE SERVICES	

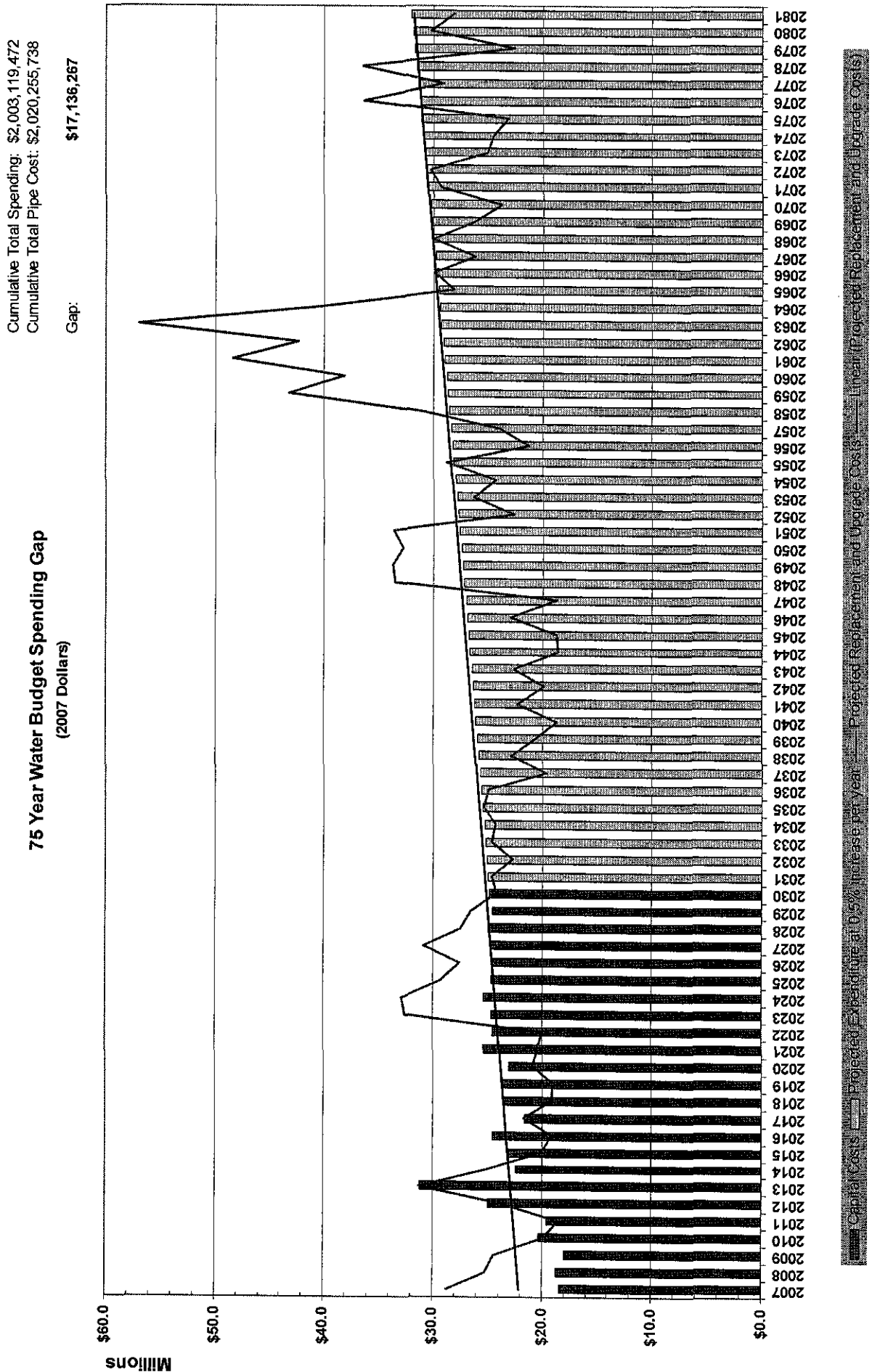
November 14, 2008

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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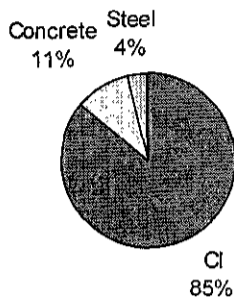
**Appendix "B" - Pipe Material by Construction Period**

**1878-1950**



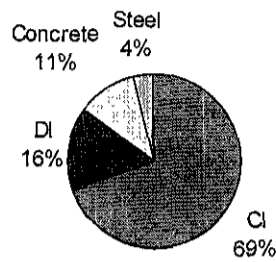
**Length: 199km**

**1951-1960**



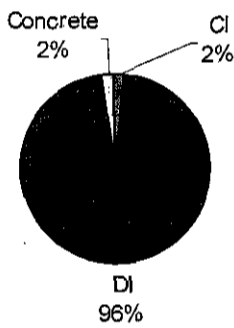
**Length: 186.5km**

**1961-1970**



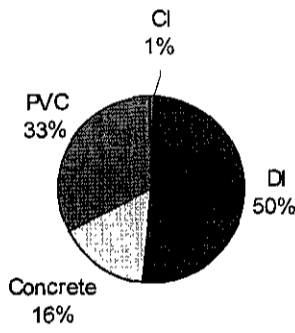
**Length: 233km**

**1971-1980**



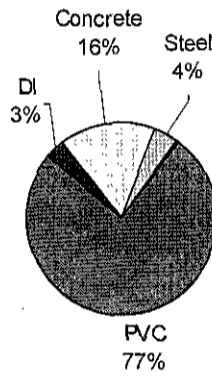
**Length: 212km**

**1981-1990**



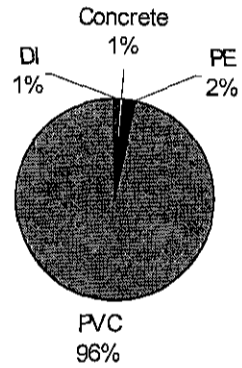
**Length: 197km**

**1991-2000**



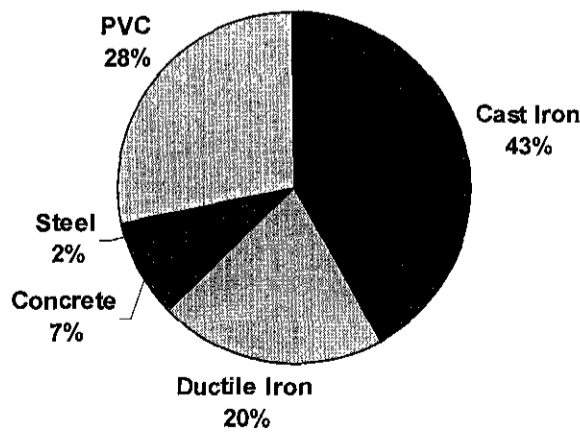
**Length: 237km**

**2001-2008**



**Length: 248km**

**Distribution System Pipe Material as of 2008**





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