September 4, 2018

Chair and Members
Lake Huron Primary Water Supply System
Joint Board of Management

Re: **2019 Operating & Capital Budget**

Enclosed please find a copy of the draft 2019 Budget for the Lake Huron Primary Water Supply System. You are receiving the document at this time in keeping with a request by the Board to receive the draft Budget a month in advance of the meeting at which it is to be considered. The balance of the agenda material for the upcoming meeting scheduled for Thursday, October 4, 2018, London City Hall, will be provided one week in advance of the meeting as per usual practice.

J. Bunn
Committee Secretary

Enclosure

Lake Huron Primary Water Supply System
Office 519.930.3505 ext. 1355
Fax 519.474.0451
ahenry@london.ca
http://watersupply.london.ca/

ISO 14001

c/o The City of London
Regional Water Supply Division
235 North Centre Road, Suite 200
London, Ontario
N5X 4E7

Lake Huron
Primary Water Supply System

Report No.:	LH-2018-03-01
Report Page:	1 **of** 10
Meeting Date:	October 4, 2018
File No.:	

To: Chair and Members
Lake Huron Primary Water Supply System Board of Management

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: 2019 Operating and Capital Budgets

RECOMMENDATION

That the following actions be taken by the Board of Management for the Lake Huron Water Supply System with regard to the 2019 Operating and Capital Budgets:

a) The Board **APPROVE** the 2019 Operating Budget in the total amount of $22,107,000 as presented;

b) The Board **APPROVE** the 2019 Capital Budget in the total amount of $15,127,000 as presented;

c) The Board **RECEIVE** the 2018 to 2028 Capital Forecast for information;

d) The Board **APPROVE** the 2019 rate for water of $0.4943 per cubic meter; and,

e) The Board **RECEIVE** the 2017 to 2023 Flow and Financial Analysis for information.

f) The Board **APPROVE** the target balance for the Emergency Reserve Fund at $5,000,000.

EXECUTIVE SUMMARY

The proposed operating and capital budgets present a balanced cost and revenue projection for 2019, and are consistent with the water system's Financial Plan approved in 2016. The proposed water rate for 2019 of 49.43 cents per cubic meter of water will adequately address capital, operating and administrative requirements as currently projected. The Financial Plan continues to be a key element in the long term strategic approach that addresses both infrastructure and operating issues, and ensures fiscal responsibility to maintain a reliable and sustainable water supply to the benefiting municipalities and consumers.

Cost projections presented in the 2019 budget include the operating costs within the extended term of the agreement with the contracted operating authority, which now incorporate the current and future costs for the operation of the new Residuals Management Facility.

The 2019 Capital Budget builds on the water system's Asset Management Plan approved in 2016, and utilizes the Customer Level of Service framework and Risk Mitigation strategy previously approved by the Board. This includes the utilization of the new business case process to better quantify anticipated costs, savings, and service impacts to the water supply system.

The projects and initiatives in the 2019 Capital Budget are presented in this report within two primary groupings; Maintain Level of Service (Maintain LOS) projects that serve to ensure that services are provided at the current level of service, and Improved Level of Service (Improved LOS) which address enhancements to levels of service, support growth of the system and increasing water demands, address regulatory changes, or increased efficiency. A proposed capital project may touch, in part, all of these aspects, however they are presented within this report according to their respective primary driver.

PROPOSED 2019 OPERATING BUDGET

2019 Water Rate

It is proposed in this budget that the water rate for the wholesale of water to the benefiting municipalities be set at $0.4943 per cubic meter (49.43¢ per cubic meter). In responding to regulatory, operational and inflationary pressures, this proposed 2019 rate represents a 2.0% increase from the current rate.

The rate proposed for the 2019 budget is **LESS** than the projected rate increase of 3.0% previously reported to the Board in the 2018 Budget and the recently approved Financial Plan, largely due to the increased volume of water projected to be supplied to the benefiting municipalities in 2019.

2019 Budget Volume

Allowing for the current rate of population and water demand growth within the benefiting municipalities, as well as anticipated impacts of continued water conservation, the proposed 2019 treated water volume included in the budget of 44.67 million cubic meters represents an 8.7% increase compared with the 2018 approved budgeted volume, and approximately 7.1% lower than the anticipated 2018 actual supplied volumes by year-end.

Approved 2018 budget volume	41,110,000 m^3
Anticipated 2018 year-end volume	48,070,690 m^3
Proposed 2019 volume	44,668,650 m^3

The long-term volume projections for the regional water systems have been re-evaluated in preparation for the 2019 budget, and revised to incorporate increasing consumption trends within the City of London. Supplied volumes to the other benefiting municipalities continue to remain stable, with low to moderate long-term annual growth in consumption.

The anticipated 2018 year-end volume is reflective of the higher than normal temperatures and generally drier conditions experienced this year. Staff expect that the short-term consumption will increase from the previous projections provided to the Board, largely due to the higher anticipated consumption by London, however a more conservative approach has been used for the longer-term volume projections.

Water demand projections and anticipated capital works are reviewed regularly to ensure capital investments are appropriately coordinated and timed, and will be reviewed again during future revisions to the Master Water Plan and Asset Management Plan. Further, the recently adopted business case process as part of the Asset Management Plan promotes a risk mitigation and level of service strategy which further addresses the appropriate timing of necessary projects.

Operating Costs

The two single largest operating costs for the water supply system are the contract costs for the operation and maintenance of the water supply system, and the purchase of power for the system. The 2019 budgeted operating costs are approximately $10.32 million, reflecting a net 0.8% projected decrease compared to the 2018 budget. Energy saving initiatives implemented at the facility are translating to an anticipated 9% decrease in energy costs, offsetting increases in other contracted services for 2019. Of the $10.32 million, energy comprises approximately 40% of operating expenditures.

The Service Fee currently paid to the Board's contracted operating authority, the Ontario Clean Water Agency (OCWA), is solely comprised of a general component (reflecting labour, material and chemical costs, etc.) paid by the Board. As electricity can be highly variable on a year-over-year basis, the risk of market volatility has summarily been assumed by the Board and mitigated through the Board's energy procurement strategy, as well as conservation and efficiency programs.

The Board previously received and accepted an energy, conservation and pump optimization study report which reviewed possible cost saving and efficiency measures related to the procurement and usage of electrical energy and the associated pump strategy for the system. A number of efficiency recommendations were received and incorporated into the Asset Management Plan and Financial Plan, which require the development of a business case to better quantify anticipated costs, savings, and service impacts. The proposed capital plan has started to incorporate some of the energy efficiency projects, with further projects to be considered in future.

Administration and Other Expenses

The Administration and Other Expenditures projected for the 2019 budget of approximately $1.94 Million represents a $21,000 net increase over the 2018 budget amount. This net increase is due to numerous changes to the water supply system, including:

- Overhead and service costs: the administration charges paid to the City of London for such services as accounts payable/receivable, clerical support, and budget administration was marginally increased to reflect current actual costs to the city.
- Management & Administrative Personnel: previous projections for personnel costs have been adjusted as a result of lower job rates for new positions previously approved by the Board.
- Information Technology: projected increase in costs to secure, maintain, and support the water systems information technology

Security Audit

The recently completed and approved Security Audit and Threat Risk Vulnerability Assessment recommended a number of capital and operating investments to the regional water system, including staffing resources. The proposed 2019 Operating Budget currently does not include any anticipated contracted security-related services. Board staff are in the process of completing the development of an implementation and resource plan, and a comprehensive report will be presented to the Board at a future meeting including recommended changes to the 2019 Operating Budget, if any.

The approved 2018 and proposed 2019 Capital budgets included an allowance for addressing critical recommendations and upgrades from the Security Audit. Investments continue to be evaluated and implemented on a priority basis, starting with the water treatment plant facilities.

PROPOSED 2019 CAPITAL BUDGET

The proposed 2019 Capital Budget reflects a number of projects to address capital improvements and critical reinvestment in the water supply system's assets, as well as regulatory requirements, ongoing and proposed Board initiatives. Project specific summaries are provided in Appendix A of this report for the Board's information.

Financial Plan and Asset Management Plan

The approved Asset Management Plan and Financial Plan provided an assessment of anticipated capital projects, based on condition assessments, operational assessments provided by our contracted operating authority, and previously undertaken studies which were available at that time. In the development of the 2019 Capital Budget, a business case is created for each project which outlines the scope of the issue that needs to be addressed, options, cost estimates, and project dependencies. The business case process is linked with our Customer Level of Service framework and Risk Mitigation strategy in order to better prioritize and direct funds in a more strategic fashion and in consideration of financial constraints which may be experienced.

Within this framework, a capital project may be “lifecycle” in nature and required in order to maintain a level of service, and/or “service improvement” in nature which may address:

- Enhancement to the level of service (including safety and security, and working conditions);
- Support of system growth or growth in water demands;
- Address regulatory changes; or,
- Increase efficiency.

The level of capital investment will vary from year-to-year, most especially for projects related to system or water demand growth. The Asset Replacement Reserve is used for lifecycle projects (maintain LOS), while the Capital Reserve is used for system improvements. A given project, in principle, may address multiple elements within the Customer Level of Service framework (energy efficiency, health & safety, regulatory, performance, etc.), and therefor may require the utilization of both the Asset Replacement Reserve (lifecycle) and the Capital Reserve (service improvement and growth).

It is important to note that the anticipated projects outlined in the Asset Management Plan tend to be based on risk mitigation in the first five-year planning period, and systemic or age-related in nature for the remaining 25+ year planning period. In addition, the financial information presented in the Asset Management Plan is considered an “unconstrained” financial projection; meaning without consideration of such things as other operational needs and financial constraints (e.g. borrowing capacity) experienced by the water supply system.

The Financial Plan is utilized to incorporate the needs identified in not only the Asset Management Plan, but also the Master Water Plan (growth study) and other planning studies undertaken by the system, as well as the evolving operational and administrative needs of the system to better constrain the financial requirements and implications to the system. During the development of the annual budget the projections in the Financial Plan are measured and adjusted according to actual conditions, which will consequently affect the capital plan in each fiscal year.

2019 Capital Plan

The Financial Plan approved by the Board recommends an average year-end balance for the Asset Replacement Reserve in the order of $7.5 million. Although the actual investment and rate of commitment may vary year to year, the current capital plan maintains the average investment rate as outlined in the Asset Management Plan and Financial Plan.

In contrast, the Capital Reserve is intended to grow significantly over time to provide a sufficient base for funding large growth-related projects in future. The balance of generational investment equity (utilization of reserves established by current users, versus debt incurred and paid by future users) has yet to be fully quantified, and will be addressed in future Master Water Plan and Financial Plan studies. There are no significant growth-related expenditures within the current planning period (i.e. plant expansion or pipeline twinning), and staff are satisfied that the issue of generational equity can be addressed within a reasonable timeframe.

Lifecycle Projects (Maintain Level of Service)

Proposed projects in the 2019 Capital Budget which address maintaining the system's level of service are:

- Hydraulic/Transient Model Update
- Plant Instrumentation
- McGillivray Control Panel Replacement
- Building Repairs
- Filter Media Replacement
- PLC Replacements

In addition to the above-noted capital projects, the 2019 Capital Budget includes LH1316 Annual Maintenance which funds, in part, maintenance and repair projects undertaken by the contracted operating authority, the Ontario Clean Water Agency. All maintenance and repairs of the system's assets are the obligation of the contracted operating authority to undertake in accordance with the Service Agreement. For activities of maintenance and repair where the value of the material and any contracted specialty service exceed $30,000 (adjusted annually by CPI), the Board is responsible for the value of the work in excess of the $30,000 (as adjusted). To facilitate this work, the Capital Budget includes an Annual Maintenance project which is utilized to fund this contractual obligation of the Board.

Service Improvement Projects (Enhanced Level of Service, Regulatory Changes, Efficiency)

Proposed projects in the 2019 Capital Budget for which the primary driver is service improvement are:

- Security Upgrades
- Crop Yield Monitoring (2012 Rupture)
- Chamber 63 Access
- High Lift Pump Replacement
- Master Water Plan
- Flash Mixer Upgrade

A summary of the capital projects are provided in Appendix A of this report.

CAPITAL FORECAST

A number of capital projects are projected beyond the 2019 Capital Budget year, which will have an impact on the financial forecast and future water rates for the water system. Some of these capital projects were anticipated in previous budget forecasts, and are now inclusive of the recently completed Asset Management Plan and Financial Plan. As previously noted, staff undertake a complete business case assessment for each project to confirm the costs, timing, and priority of the project, consistent with our new Customer Level of Service framework and Risk Mitigation strategy.

The next update to the Board's Master Water Plan is proposed in the 2019 Capital Budget, and future updates to the Asset Management Plan and Financial Plan are anticipated to be initiated in 2021.

FLOW AND FINANCIAL ANALYSIS

Included in the budget package is a projection of annual volumes and finances beyond 2019, and provides a summary analysis of one option for rate increases and the use of debt (if any). This projection has incorporated the recommendations from the Financial Plan, but has been adjusted to reflect the higher than previously anticipated volumes and corresponding revenues.

The projected operating expense beyond 2019 assumes that the future cost of operating the system is consistent with the amended operating agreement with the Ontario Clean Water Agency to 2022. In addition, energy expenditures projected beyond 2019 have assumed a reasonable escalation of costs, tied to the anticipated annual volumes projected and consequential savings from various efficiency-related investments.

As a direct result of the anticipated higher annual volumes, staff are currently projecting a 2% annual increase in the rate beyond the 2019 budget; roughly equivalent to the average rate of general inflation. This water rate projection, however, may be subject to change and revision as the 2019 Master Water Plan is completed and subsequently incorporated in to future Financial Plans.

Reserve Funds

Conceptually, the Asset Replacement Reserve is required to provide a stable funding source for capital programs designed to replace, maintain and potentially extend the asset life to its full potential. Accordingly, the contribution to the Asset Replacement Reserve fund year-over-year should be relatively consistent, on average, with minor variations accounted for as the Asset Management Plan is implemented.

Conversely, the Capital Reserve Fund is intended for growth-related capital programs and various system improvement initiatives. As these programs tend to be periodic in nature, the

reserve fund balance in the Capital Reserve may significantly increase or significantly decrease in any given year depending on the programs undertaken.

In accordance with the Financial Plan and previous Board resolution, the target balance of the Emergency Reserve Fund is established at $2 million, wherein contributions will be discontinued when the Emergency Reserve Fund balance reaches the target value. The Emergency Reserve Fund is intended to fund unplanned and unanticipated emergency-related projects such as pipeline failures, tank ruptures and treatment process failures.

The costs associated with the most recent pipe failures had significantly depleted the Emergency Reserve Fund in the years in which they occurred. Given this and the total value of assets the Lake Huron system operates and maintains, it is the recommendation of staff that the target ending balance be increased from $2 million to $5 million.

Acknowledgement

The preparation of the 2019 Operating and Capital budgets were undertaken by the Regional Water Supply Division staff, with the assistance of Debbie Gibson and City of London Financial Services.

Submitted by:	Recommended by:
Andrew Henry, P. Eng. Director, Regional Water Supply	Kelly Scherr, P.Eng., MBA, FEC Chief Administrative Officer

Appendix A:

2019 Capital Project Summary

Attachments:

2019 Operating and Capital Budgets, and Nine Year Capital Forecast, October 4, 2018

APPENDIX A: 2019 CAPITAL PROJECT SUMMARY

Lifecycle Projects (Maintain LOS)

LH1242 – Hydraulic/Transient Model Update & Transient Monitoring (multi-year program): The last hydraulic model for the transmission system was completed in 2009. In addition, transient pressures within the transmission system have the potential to cause catastrophic failures to the various pumping systems and pipelines that supply the benefiting municipalities. This project proposes to update the hydraulic and transient model for the system, and incorporate the new high lift pumps proposed for the water treatment plant.

LH1244 – Building Repairs: This project proposes to undertake a comprehensive condition assessment of the building structures, including the slab walls, windows and glazing.

LH1338 – Plant Instrumentation (annual program): Much of the plant's online analyzers are beyond their useful life. This program funds a systematic replacement of the water system's online analyzers that are critically necessary to ensure ongoing compliance with regulations and the system's Municipal Drinking Water Licence.

LH1369 – Filter Media Rebuild (multi-year program): This project undertakes the systemic replacement of the media within the filter boxes, as well as the filter rate valves and control valves, with an allowance for repairs to the existing filter block and drains as needed. The filter media will be replaced in two filters per year over a six year program, with 2019 being the last year of the program. This program does not replace the entire filtration system, which would include the filter block, underdrains, channels, and associated control systems and backwash equipment.

McGillivray Control Panel Replacement: The existing control panel at this pumping station was installed in the early 1970's, and is largely comprised of solid-state switches and solenoids and requires complete replacement.

PLC Replacements (multi-year program): Much of the water system's programmable logic controllers (PLC) are ten years old and nearing the end of their life. This project is intended to implement a systematic replacement program to update ~~change~~ the existing controllers.

Service Improvement Projects (Enhanced LOS, Growth, Regulator Changes, Efficiency)

LH1229 – Security Upgrades (multi-year program): The recently completed Security Audit and Threat Risk Vulnerability Assessment provided policy, resource, and site-specific recommendations to mitigate security and safety risks at all facilities. The project proposed is a multi-year allowance to undertake security-related modifications to all facilities, based on the criticality assessment and recommendations of the security specialist.

LH1230 – High Lift Pump Replacement: The recently completed Energy Audit and Pump Optimization Study identified the high lift pumps at the water treatment plant and McGillivray intermediate pump station as a significant opportunity for energy optimization and savings. Although the ideal solution would be to replace all nine of the 3000hp pumps (five at the water treatment plant and four at the McGillivray Booster Pump Station) with a more optimal pump set-up, the 2019 costs assume a more cost effective short- to mid-term solution of removing three pumps at the water treatment plant replacing them with two lower volume high-head pumps and two more efficient high volume pumps. The 2018 portion of the project provides a detailed engineering assessment and design work necessary to confirm the construction requirements, anticipated savings, and available funding from IESO and other government agencies. The 2019 portion of the project is the anticipated cost of equipment purchases and installation.

LH1255 – Crop Yield Monitoring (2012 Rupture): The pipeline rupture that occurred in 2012 caused significant damage to nearby agricultural lands. The Board entered into agreements with the affected landowners compensating for damages as a result of the catastrophic failure of the pipeline, which included a requirement to monitor the crop yields in the 7th, 8th, and 9th year after the land was reinstated. The intention of the monitoring is to ensure that the crop yields have sufficiently recovered following the repair and reinstatement, and don't require additional work to mitigate ongoing losses.

LH2019 – Master Water Plan Update: The Master Water Plan for the regional water system is undertaken every five years, and used to evaluate the impacts of anticipated growth in the system and supplied volumes to the benefiting municipalities.

Chamber 63 Access: Periodic access to this critical chamber currently requires access over three properties; a distance of about 850m through agricultural lands and along waterways. The proposed project will install a manufactured culvert near Chamber 63 which will reduce the access requirements to only 300m across one property and significantly reduce the annual impacts to landowners.

Flash Mixer Upgrade: The current equipment used for the rapid mixing of coagulant necessary for the chemically-assisted sedimentation process has been demonstrated to be inefficient and ineffective in the proper dispersion of chemicals for an effective flocc formation, resulting in the overutilization of chemicals. This project proposes to undertake improvements to the flash mixers to significantly improve the coagulation and sedimentation process, and reduce chemical consumption.

Lake Huron
Primary Water Supply System

2019 Operating and Capital Budgets

and Nine Year Capital Forecast

October 4, 2018

Lake Huron Primary Water Supply System
2019 Budget

Table of Contents

Lake Huron Primary Water Supply System
2019 Budget
Revenue and Expenditure Summary
($000's)

	2018 Approved Budget	2019 Proposed Budget	Incr (Decr) Over 2018	% Budget Incr (Decr)	2018 Year End Projection
Revenue					
Volume Revenues [1]	19,922	22,080	2,158	10.8%	23,296
Other Revenues	20	26	6	30.0%	22
Total Revenue	**$ 19,942**	**$ 22,106**	**$ 2,164**	**10.9%**	**$ 23,318**
Expenditures					
Operating Costs [2]	10,402	10,320	(82)	(0.8)%	9,893
Administration and Other Expenditures	1,918	1,938	20	1.0%	1,877
Debt Principal Repayments [3]	1,197	1,218	21	1.8%	1,197
Interest on Long Term Debt [3]	182	163	(19)	(10.4)%	182
Contribution to Reserve Funds	6,243	8,467	2,224	35.6%	10,169
Total Expenditures	**$ 19,942**	**$ 22,106**	**$ 2,164**	**10.9%**	**$ 23,318**

* subject to rounding

Notes:

(1) A volume increase is anticipated in 2019 (from 41,110,000 m^3 in 2018 to 44,668,650 m^3 in 2019). Rates per m^3 are proposed to increase by 2.0%.
(2) Part of the service contract costs are direct to the Lake Huron system (i.e. electricity), while all other costs are fixed to the annual operating costs included in the Service Fee paid to the Ontario Clean Water Agency.
(3) Refer to page 9 for more information on debt.

Lake Huron Primary Water Supply System
2019 Budget
Administration & Other Expenditures
($000's)

Administration & Other Expenditures	2018 Approved Budget	2019 Proposed Budget	Incr (Decr) Over 2018	% Budget Incr (Decr)	2018 Year End Projection
Management & Administrative Personnel [1]	748	681	(67)	(9.0)%	645
Support and Overhead Costs [2]	208	213	5	2.4%	208
Payment in Lieu of Taxes	268	275	7	2.6%	274
Insurance (Director & Officers, General Liability)	330	300	(30)	(9.1)%	313
Financial/Office Expenses [3]	250	279	29	11.6%	341
Information Technology Maintenance [4]	27	113	86	318.5%	15
Purchased Services (Legal, Consulting, Locates etc.)	87	77	(10)	(11.5)%	80
Total Administration & Other Expenditures	**$ 1,918**	**$ 1,938**	**$ 20**	**1.0%**	**$ 1,877**

* subject to rounding

Notes:

(1) Management & Administrative Personnel costs have decreased due to new positions being evaluated at a lower rate than originally budgeted.

(2) Support and Overhead Costs reflect the costs charged by the Administering Municipality for various administrative functions (e.g. Finance, Purchasing, Human Resources, Risk Management, etc.).

(3) Financial/Office Expenses include other administrative expenses such as leased space, training/seminars/conventions, computer leasing, and sampling and research initiatives.

(4) For the 2019 budget year, the budget for Annual IT Maintenance has increased based on expected maintenance requirements for existing computer and network systems

Lake Huron Primary Water Supply System
2019 Budget
2019 Capital Plan with Forecast for 2020 to 2028
($000's)

#	Description	Project Total	Prior Years Budget	2018 Approved Budget	2019 Proposed Budget	2020	2021	2022	2023	2024 to 2028
LH1020	Financial Plan	100					50			50
LH1204	McGillivray HVAC Replacement	1,750						1,750		
LH1207	Concrete Crack Injection	150	60	30		30		30		
LH1227	Pipe Conveyance System	30		30						
LH1229	Security Upgrades	550		150	100	100	100	100		
LH1230	High Lift Pump Replacement	13,557		125	13,432					
LH1231	Alum Flow Switch Install	30		30						
LH1232	Arva Victaulic Repair	50		50						
LH1233	Control Panel/Wire Cleanup	25		25						
LH1234	HVAC Smoke Alarm	100		100						
LH1235	PAC System Assessment Study	50		50						
LH1236	Raw Water Flowmeter Replacement	125		125						
LH1237	RMF Settling Plate Study	50		50						
LH1238	Roof Replacement	200		200						
LH1239	Sluice Gate Repairs	150		150						
LH1240	Travelling Screen #1 Replacement	500		500						
LH1241	Review Inactivation Control Strategy and UV Upgrade	30		30						
LH1242	Hydraulic/Transient Model Update & Transient Monitoring	550			110	110	110	110	110	
LH1243	McGillivray Electrical Upgrades	5,477					685	4,792		
LH1244	Building Repairs	85			85					
LH1245	Flocculator Walking Beam Rehab	200					200			
LH1246	LL Building - Curtain Wall/Clearstory Window Replacement	156					156			
LH1247	LL Building - Roofing	572					572			
LH1249	LL/Clearwell Sluice Gate Replacement	260					260			
LH1250	McGillivray Pumps & Valves Refurbishment	3,842						3,842		
LH1251	PAC Feed/Transfer Pump System Replacement	715					715			
LH1254	Pre-treatment System Modifications	1,000					1,000			
LH1255	Crop Yield Monitoring - 2012 Rupture	110			110					
LH1256	Crop Yield Monitoring - 2014 Pipeline Twinning	300					300			
LH1316xx	Annual Maintenance [1]	1,500	125	125	125	125	125	125	125	625
LH1317	Distressed Pipe Replacement	1,550		350		300		300		600

cont'd

Lake Huron Primary Water Supply System
2019 Budget
2019 Capital Plan with Forecast for 2020 to 2028
($000's)

#	Description	Project Total	Prior Years Budget	2018 Approved Budget	2019 Proposed Budget	2020	2021	2022	2023	2024 to 2028
LH1333	Asset Management Plan	300					150			150
LH1338	Plant Instrumentation	1,360	535	75	75	75	75	75	75	375
LH1352	Arva Reservoir Structural Repairs	2,000					2,000			
LH1369	Filter Media Rebuild	2,105	1,255	425	425					
LH1428	Distressed Pipe (11-5) Replacement	300	250	50						
LH1900	Record Drawings & Documents	431	401	5		5		5		15
LH2019	Lake Huron Master Plan Update	235			135					100
LH2034	Huron Flocc Room Railing Replacement			100						
Planned	Anticipated Asset Replacements (AMP)	5,359								5,359
Proposed	Chamber 63 Access Culvert	75			75					
Proposed	McGillivray Control Panel Replacement	150			150					
Proposed	UPS Coordination	110							110	
Proposed	Flash Mixer Upgrade	1,024			265	759				
Proposed	PLC Replacements	400			40	40	40	40	40	200
		$ 47,613	**$ 2,626**	**$ 2,775**	**$ 15,127**	**$ 1,544**	**$ 6,538**	**$ 11,169**	**$ 460**	**$ 7,474**

* subject to rounding

Notes:

(1) Capital account for Board contributions to maintenance projects undertaken by the operating authority.

Lake Huron Primary Water Supply System
2019 Budget
Capital Plan Sources of Financing
($000's)

Funding Source	2018 Approved Budget	2019 Proposed Budget	2020	2021	2022	2023
Asset Replacement Reserve Fund	2,189	3,683	767	4,967	9,731	387
Capital Reserve Fund	536	11,444	257	1,571	758	73
Emergency Reserve Fund	50	-	-	-	-	-
Debenture	-	-	-	-	-	-
Other Funding Sources	-	-	520	-	680	-
Total Capital Funding	**$ 2,775**	**$ 15,127**	**$ 1,544**	**$ 6,538**	**$ 11,169**	**$ 460**

* subject to rounding

Lake Huron Primary Water Supply System
2019 Budget
Asset Replacement Reserve Fund Analysis and Continuity Schedule
($000's)

Asset Replacement Reserve Fund (1)	Actual	Projected					
	2017	2018	2019	2020	2021	2022	2023
Reserve Fund Opening Balance	16,032	12,982	9,763	10,107	14,717	15,728	14,433
Sources:							
Current Year Operating Contributions	2,708	3,194	3,857	5,156	5,705	8,168	8,479
Proceeds from Sale of Assets							
Transfer from Capital Reserve Fund							
Net Interest Earnings - 1.8% (2)	191	196	170	221	272	269	333
Total Sources	**$ 18,931**	**$ 16,372**	**$ 13,790**	**$ 15,484**	**$ 20,694**	**$ 24,165**	**$ 23,245**
Uses:							
Total Lifecycle Capital Projects	5,949	2,189	3,683	871	4,967	9,867	387
Less: Other Funding Sources				(104)	-	(136)	
Less: Debenture Requirement							
Net Current Year Fund Draws (3)	5,949	2,189	3,683	767	4,967	9,731	387
Prior Years Capital Expenditures		4,420					
Total Uses	**$ 5,949**	**$ 6,609**	**$ 3,683**	**$ 767**	**$ 4,967**	**$ 9,731**	**$ 387**
Reserve Fund Ending Balance	**$ 12,982**	**$ 9,763**	**$ 10,107**	**$ 14,717**	**$ 15,728**	**$ 14,433**	**$ 22,859**

* subject to rounding

Notes:

(1) The Asset Replacement Reserve Fund was established in 2008 to fund projects of a lifecycle nature to maintain existing levels of service and has an average annual target ending balance of $7.5M.

(2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.

(3) Drawdowns are based on full/committed capital needs and not intended to project the actual cash flow of funds being utilized in a particular year.

Lake Huron Primary Water Supply System
2019 Budget
Capital Reserve Fund Analysis and Continuity Schedule
($000's)

Capital Reserve Fund (1)	Actual	Projected					
	2017	2018	2019	2020	2021	2022	2023
Reserve Fund Opening Balance	5,877	11,084	14,422	7,869	11,408	13,622	14,615
Sources:							
Current Year Operating Contributions	5,688	3,743	4,610	3,624	3,563	1,498	1,963
Net Interest Earnings - 1.8% (2)	76	228	281	172	223	252	280
Total Sources	**$ 11,641**	**$ 15,055**	**$ 19,313**	**$ 11,665**	**$ 15,194**	**$ 15,372**	**$ 16,858**
Uses:							
Total System Improvement & Growth Projects	557	536	11,444	673	1,571	1,302	73
Less: Other Funding Sources				(416)	-	(544)	
Less: Debenture Requirement							
Net Current Year Fund Draws (3)	557	536	11,444	257	1,571	758	73
Prior Years Capital Expenditures (3)		97					
Transfer to Asset Replacement Reserve Fund							
Total Uses	**$ 557**	**$ 633**	**$ 11,444**	**$ 257**	**$ 1,571**	**$ 758**	**$ 73**
Reserve Fund Ending Balance	**$ 11,084**	**$ 14,422**	**$ 7,869**	**$ 11,408**	**$ 13,622**	**$ 14,615**	**$ 16,784**

* subject to rounding

Notes:

(1) The Capital Reserve Fund was established to fund projects of a growth nature, enhancing levels of service, or address issues which are regulatory or safety in nature.

(2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.

(3) Drawdowns are based on full capital needs and not intended to project the actual cash flow of funds in a particular year.

Lake Huron Primary Water Supply System
2019 Budget
Emergency Reserve Fund Analysis and Continuity Schedule
($000's)

Emergency Reserve Fund (1)	Actual	Projected					
	2017	2018	2019	2020	2021	2022	2023
Reserve Fund Opening Balance	676	2,000	5,000	5,031	5,063	5,154	5,247
Sources:							
Current Year Operating Contributions	1,550	3,232	-				
Net Interest Earnings - 1.8% (2)	8	34	31	32	91	93	94
Total Sources	**$ 2,234**	**$ 5,266**	**$ 5,031**	**$ 5,063**	**$ 5,154**	**$ 5,247**	**$ 5,341**
Uses:							
Current Year Capital Expenditures (3)	234	50					
Prior Years Capital Expenditures (3)		216					
Total Uses	**$ 234**	**$ 266**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Reserve Fund Ending Balance	**$ 2,000**	**$ 5,000**	**$ 5,031**	**$ 5,063**	**$ 5,154**	**$ 5,247**	**$ 5,341**

* subject to rounding

Notes:

(1) The Emergency Reserve Fund was established in 2011 to fund projects that arise on an emergency basis. This funding is to be in place outside of the Capital and Asset Replacement Reserve Funds and their defining guidelines. Contributions will be capped once the reserve fund balance reaches $5.0 million.

(2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.

(3) Drawdowns are based on full capital needs and not intended to project the actual cash flow of funds in a particular year.

Lake Huron Primary Water Supply System
Flow and Financial Analysis Summary
($000's)

Factors	Actual	Approved	Projected					
	2017	2018 Budget	2018	2019	2020	2021	2022	2023
Rate Increase [1]	3.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Flow m^3	45,896,828	41,110,000	48,070,690	44,668,650	45,167,823	45,873,277	46,589,216	47,315,797
Total Water Rate $/$m^3$	0.4705	0.4846	0.4846	0.4943	0.5042	0.5143	0.5246	0.5351
Flow Volume Revenues	21,584	19,922	23,296	22,080	22,773	23,592	24,439	25,317
Other Revenue	27	20	22	26	20	20	20	20
Total Revenue	**$ 21,611**	**$ 19,942**	**$ 23,318**	**$ 22,106**	**$ 22,793**	**$ 23,612**	**$ 24,459**	**$ 25,337**
Operating Expenses [2]	9,697	10,402	9,893	10,320	10,694	11,028	11,483	11,791
Administrative Expenses	632	1,918	1,877	1,938	1,938	1,938	1,938	1,938
Debt Servicing Costs [3]	1,336	1,379	1,379	1,381	1,381	1,378	1,372	1,166
Total Operating & Administrative Expenses	**$ 11,665**	**$ 13,699**	**$ 13,149**	**$ 13,639**	**$ 14,013**	**$ 14,344**	**$ 14,793**	**$ 14,895**
Asset Replacement Reserve Fund Contributions	2,708	2,500	3,194	3,857	5,156	5,705	8,168	8,479
Capital Reserve Fund Contributions	5,688	3,743	3,743	4,610	3,624	3,563	1,498	1,963
Emergency Reserve Fund Contributions	1,550	-	3,232	-	-	-	-	-
Total Expenses	**$ 21,611**	**$ 19,942**	**$ 23,318**	**$ 22,106**	**$ 22,793**	**$ 23,612**	**$ 24,459**	**$ 25,337**

* subject to rounding

Notes:

(1) Rate increases recommended are consistent with the approved Financial Plan which provide for prudent financial planning to accommodate inflation, new capital requirements and adequate reserve fund balances.

(2) Operating expense projections reflect annual inflationary increases and anticipated adjustments, in accordance with the service agreement with the contracted operating authority.

(3) Debenture Requirements:

- Debt authorized (2007) for the PLC & SCADA Systems Upgrade (LH1330) in the amount of $1.75M was issued in 2012 with payments beginning in 2013 (all-in interest rate of 2.8% for a 10 year term).
- Debt authorized (2006) for the Backup Generator (LH1326) in the amount of $1.5M was issued in 2013 with payments beginning in 2014 (all-in interest rate of 3.3% for a 10 year term).
- Debt authorized (2011) for the Residue Management Plant (LH1902) in the amount of $16M was partially issued in 2015 ($7M) with payments beginning in 2016 (all-in interest rate of 1.9% for a 10 year term). It is not expected that any further debt will be required for this project.
- Debt authorized (2012) for the Huron Transmission Main Twinning (LH1305) in the amount of $4M was partially issued in 2015 ($1.665M) with payments beginning in 2016 (all-in rate of 1.9% for a 10 year term). Further debt issuance in 2017 in the amount of $0.4M and payments beginning in Sept/17 (all-in rate of 2.48% for a 10 for a 10 year term). It is not expected that any further debt will be required for this project.
- Rates noted above could change depending upon market conditions at the time of debt issuance.