



2022 Draft Water Budget Package

Township of Hamilton

February 15, 2022





2022 Water Budget Package

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Water Department



Water Department Overview

What We Do

The Water Operations Department is responsible for the treatment and distribution of potable water through compliance with all relevant Ontario legislation. The department is committed to continuous improvement initiatives and preventative maintenance to enhance the operation of our systems.

2021 Accomplishments

- Continue to protect workforce by running 2 Operations Teams during COVID which ensured the Township could continue to provide safe and secure water operations.
- Replacement of leaking high-lift header without disruption to supply of Drinking Water to Creighton Heights.
- Inspection and rehabilitation of Well 6 and Well 1 at Creighton Heights which has enhanced our supply of raw water to the treatment process.
- Replacement of Water Truck with ambulance from Northumberland County. The ambulance is a configuration that works exceptionally well for our needs. Made some minor improvements to it and now have a reliable Water Truck for years to come

- Replacement of level sensors at Creighton Heights for Wells 1, 6 and 7 (ongoing) to allow for protection of well pumps from cavitation if aquifer is drawn down too far.
- Continued replacement of water meters in Creighton Heights and Camborne which will enhance water meter reading from a time intensive and inefficient task to a streamlined and quick task. Replacement of old meters also captures lost revenue.
- Emergency rehabilitation of Well 1A in Camborne. This work has secured the present and future supply of water to Camborne.
- Emergency rehabilitation of Well 2A in Camborne completed in early November 2021. This work secures the present and future of water supply to Camborne. Having 2 properly functioning wells is critical to ensuring reliable supply.
- Flow Control Valves were replaced at Camborne which allows us to properly regulate the flow from the wells into the treatment process. Original flow control valves were completely eroded by sand from aquifer.





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- In-house 5-year maintenance completed on Generators.
- Continued and intelligent Operations and Maintenance of our Water Treatment Systems to ensure continued and reliable supply of water to our customers. We meet and exceed regulatory requirements and continue to find ways to improve.
- Development Charges (DC) study completed with presentation to Council and the Public in November.
- Rate study completed with presentation to Council and Public in December 2021. The findings of this study supports the Township in making the appropriate rate increases to allow for financial stability of our water systems.
- In-house raw water quality assessments were completed for our License Renewals which saved the Water Department costs. Ministry of Environment Conservation and Parks (MECP) renewed our Municipal Drinking Water Licenses on August 12th, 2021 and they are valid for 5 years. Preceding the license renewal applications, the Township's Water Financial Plan, as required by O. Reg 453/07, was completed, coupled with the rate study by Watson and Associates.
- The National Sanitation Foundation (NSF) External Audit of the Drinking Water Quality Management System (DWQMS) occurred in May 2021 with zero non-compliances and 8 Opportunities for Improvements which were quickly acted upon and implemented.
- Motor Control Centre (MCC) maintenance at the Creighton Heights Plant was undertaken to ensure continued reliable operation. The MCC was found to be in reasonable condition with recommendations to replace some components.
- Installed cell signal booster at Camborne Water Plant as cell signal is weak in this location. This is important to ensure water plant alarms and communications are getting through to our Water Operator cell phone for appropriate response.
- Programming within the Programmable Logic Controller (PLC)'s of both Camborne and Creighton Heights Water Plants was undertaken to ensure back up data collection in the event of data gaps.

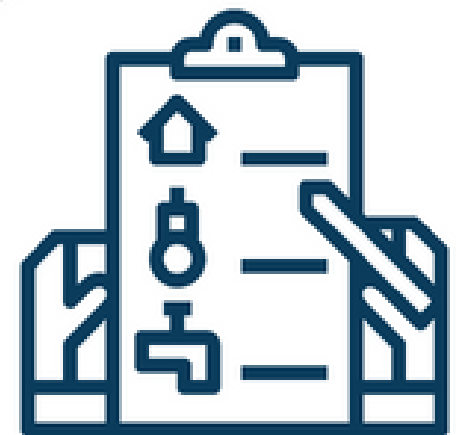




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2022 Priorities

- Well 7 rehabilitation at Creighton Heights in spring of 2022. We plan on inspections and rehabilitation of wells on a 5-to-8-year basis.
- Replacement of Control Panel CP-01. This is the original control panel from 1996 and is at end of life. It controls the majority at instruments and pumps at the plant. Its failure would be catastrophic as we would not be able to supply water to Creighton Heights.
- Replacement of 9 UV disinfection units that are original from 1996 and are at end of life.
- Remove, inspect and rehab as necessary, High-lift Pump #3 as part of proactive maintenance. Expert opinion on their condition is that they are in good working condition. We want to pull/inspect the pump with the most hours to determine for certain.
- Replace shingles, ice / water shield and deck sheathing at Camborne Water Treatment Plant as existing shingles are failing. Many shingles break off in moderate to high winds.
- Engage with an expert firm to find ways to remove naturally occurring ammonia and methane from Creighton Heights raw water supply. Take findings and begin to budget / plan for new process for removal.
- Undertake Creighton Heights Water Master Plan Study. With completion of study the Township can



make plans and build infrastructure. This will allow more connections to our system which will alleviate the cost burden on so few existing customers.

- Continued replacement of water meters in Creighton Heights and Camborne for 2022 which will enhance water meter reading from a time intensive and inefficient task to a streamlined and quick task. Replacement of old meters also captures lost revenue.



2022 Draft Water Operating Budget

Township of Hamilton





2022 Draft Water Operating Budget

Water Budget Highlights

Figure 1: Water Budget Highlights (No change from February 8, 2022 Meeting)

	2021 Budget	2022 Draft Budget	Variance (Fav)/Unfav	Variance %
Expenditures				
Personnel	270,000	278,100	8,100	3.0%
Contribution to Reserve	86,628	150,517	63,888	73.8%
Other Expenditure	244,018	246,734	2,716	1.1%
Total Expenditures	600,646	675,351	74,704	12.4%
Revenues				
Contribution from Reserve	(10,000)	-	10,000	-100.0%
Other Revenue	(590,647)	(675,351)	(84,704)	14.3%
Total Revenue	(600,647)	(675,351)	(74,704)	12.4%
Net Budget	(0)	0	(0)	



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Figure 2: Water Budget Highlights by Category (No change from February 8, 2022 Meeting)

	2021 Approved Budget	Base	New	Reserve Funded Expenditure	Council Targeted Initiatives	Unsustainable Revenue Source	2022 Draft Budget
Expenditures							
Personnel	270,000	8,100	-	-	-	-	278,100
Contribution to Reserve	86,628	63,888	-	-	-	-	150,517
Other Expenditure	244,018	2,716	-	-	-	-	246,734
Total Expenditures	600,646	74,704	0	0	0	0	675,351
Revenues							
Contribution from Reserve	(10,000)	10,000	-	-	-	-	-
Other Revenue	(590,647)	(84,704)	-	-	-	-	(675,351)
Total Revenue	(600,647)	(74,704)	0	0	0	0	(675,351)
Net Budget	(0)	(0)	0	0	0	0	0



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Water Budget- Pressure Sheet

Figure 3: Water Pressure Sheet (Part 1) (No change from February 8, 2022 Meeting)

Budget Variance Explanations	2019 Actual	2020 Actual	2021 Preliminary Actual	2021 Budget	2022 Draft Budget	Incremental Changes	% Change Over Prior Year	Explanation
2021 Net Budget						0		
EXPENDITURES								
Personnel	211,636	231,462	267,365	270,000	278,100	8,100	3.0%	Due to step and benefit rate increases, as well as general cost of living increases
Contribution to Reserve								
<u>Water Admin</u>								
TRANSFER TO WATER RESERVE	8,107	-	14,684	-	70,263	70,263		2022 Budget: Debt payment to Township
TRANSFER TO CAPITAL RESERVE	-	-	38,275	38,275	28,260	(10,015)	-26.2%	To fund Capital Projects Phase in till 2026
TRANSFER TO LUSI CAPITAL RESERVE	22,064	-	24,487	24,270	27,911	3,641	15.0%	
Other Expenditure								
<u>Water Admin</u>								
CAPITAL LOAN PAYMENT	-	1,018	-	-	10,976	10,976		Capital loan payment (2021 Capital Projects)
TRAINING	3,911	1,181	3,174	4,500	4,000	(500)	-11.1%	Aligned with actual
OFFICE SUPPLIES	2,053	1,010	423	1,300	800	(500)	-38.5%	Aligned with actual + contingency
LAB SUPPLIES	3,389	5,608	3,585	5,000	5,100	100	2.0%	Aligned with actual
INSURANCE	18,669	20,144	22,151	20,400	22,600	2,200	10.8%	Aligned with actual
AUDIT - DWQMS	5,309	4,109	1,526	4,000	2,000	(2,000)	-50.0%	External off-site audit
TELEPHONE	1,065	565	964	750	800	50	6.7%	Aligned with actual
SAMPLING	496	411	211	750	500	(250)	-33.3%	Aligned with actual + contingency
VEHICLE REPAIRS	1,623	3,605	1,412	5,000	3,000	(2,000)	-40.0%	Aligned with actual + contingency
CONSULTANT GENERAL	-	48,318	10,411	10,000	5,000	(5,000)	-50.0%	Uncommitted Reserve Capacity Study
<u>Camborne</u>								
CHEMICAL SUPPLY	592	648	742	700	800	100	14.3%	Aligned with actual
HYDRO	6,847	7,050	6,993	7,000	7,140	140	2.0%	Aligned with actual
HEATING FUEL	1,191	1,290	1,418	1,300	1,400	100	7.7%	Aligned with actual
<u>Creighton Heights</u>								
CHEMICALS	12,729	13,375	12,899	12,000	13,000	1,000	8.3%	Aligned with actual
TELEPHONE	2,727	622	669	1,000	800	(200)	-20.0%	Aligned with actual
SCADA NETWORK	-	672	672	2,000	800	(1,200)	-60.0%	Aligned with actual + contingency
HOLDING TANK	1,749	645	748	1,500	1,200	(300)	-20.0%	Aligned with actual + contingency Need to pump at least twice a year
Total Expenditures Variance						74,704	12.4%	



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Figure 4: Water Pressure Sheet (Part 2) (No change from February 8, 2022 Meeting)

Budget Variance Explanations	2019 Actual	2020 Actual	2021 Preliminary Actual	2021 Budget	2022 Draft Budget	Incremental Changes	% Change Over Prior Year	Explanation
REVENUES								
Contribution from Reserve								
<u>Water Admin</u>								
TRANSFERS FROM RESERVES	-	(44,354)	(10,000)	(10,000)	-	10,000	-100.0%	Completion of 2021 Rate Study
Other Revenue								
LUSI COST RECOVERIES	(22,064)	(22,261)	(24,487)	(24,270)	(27,911)	(3,641)	15.0%	Rate Increase
WATER BILLING	(342,960)	(340,546)	(386,714)	(419,457)	(482,376)	(62,919)	15.0%	Rate Increase
CAPITAL COST RECOVERY	(109,926)	(110,123)	(122,219)	(120,968)	(139,113)	(18,145)	15.0%	Rate Increase
Total Revenues Variance						(74,704)	12.4%	
BASE BUDGET INCREASE						(0)		
Incremental Change						(0)		
Net Budget						(0)		



2022 Draft Water Capital Budget

Township of Hamilton





2022 Draft Water Capital Budget

Figure 5: Draft Water Capital Budget

Description of Capital Project	2022 Draft Capital Budget Request	Reserve	Debt*	Development Charges	Ontario Community Infrastructure Fund (OCIF)	Federal Gas Tax	Priority
WATER							
Creighton Heights UV Disinfection Unit Replacements	75,000		(75,000)				1
Creighton Heights Priority Electrical and Control Upgrades	275,000	(38,275)	(169,765)		(33,600)	(33,360)	2
Creighton Heights Well 7 Maintenance and Rehabilitation	48,000		(38,800)	(9,200)			3
Creighton Heights Highlift Pump removal inspection and repair (Highlift pumps to be inspected/rehabilitated, 1 pump per year)	30,000		(30,000)				4
Camborne - WTP Roof Shingles Replacement	30,000		(30,000)				5
Water Meter Replacement	10,000		(10,000)				6
Creighton Heights Raw Water Quality Study	20,000		(20,000)				7
Water Supply & Distribution System Service Delivery RFP Preparation	32,000		(32,000)				Refer to staff report CAO:2022-02
2022 Water Capital Budget	520,000	(38,275)	(405,565)	(9,200)	(33,600)	(33,360)	
* Council approved a number of capital projects in 2021 to be funded from 3rd party debt - \$203,900							



Water Business Enhancement Requests

Request #1: Creighton Heights UV Disinfection Unit Replacements

Project Name: Creighton Heights UV Disinfection Unit Replacements **Submitted By:** Anita Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: Not Applicable

Import ID: Not Applicable

Figure 6: Project Description and Justification

Project Description:	Replace obsolete and deteriorating UV Disinfection Units
Project Justification:	Creighton Heights achieves primary disinfection of process water with the use of 9 Ultraviolet Reactors. These are original from when the plant was built. These models are at end of life and parts are increasingly difficult to procure. Wiring and circuitry are fragile leading to vulnerability of water supply. Annual calibration with use of the Calibration Tool is difficult due to corroded connections.



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Figure 7: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	UV Disinfection is the primary and only means of disinfection at Creighton Heights. Loss of primary UV disinfection stops supply to Distribution/customers.
Legislative Requirement	High	Creighton Heights Drinking Water is disinfected with Ultraviolet reactors to deactivate water borne pathogens as per Creighton Heights Municipal Drinking Water License 139-103, Issue 4, and original Engineered Design
Operational Saving, Short Payback	Medium	Today's UV reactors are more energy efficient leading to lower electricity costs. Electricity consumption is the highest expense at the Creighton Heights Plant. In addition, reduced alarms are anticipated and thus, reduced call outs for Water Operations Staff who attend the Plant for UV issues.
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	High	Replacement of the UV Reactors has been identified in the Water Capital Budget Replacement Program for year 2022. The Asset is beyond lifecycle as described above. Impact of delaying this important project will lead to emergency replacement that is a risk to drinking water and more costly compared to planned replacement.
Growth Related	Not Applicable	Not Applicable
Service Enhancements	High	Secure supply of Drinking Water. Reduced call outs of Water Operations Staff. Relief for Water Operations Staff as this is creating grave concern.



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Figure 8: Capital Project Costing

Cost	2022	2023
Creighton Heights UV Disinfection Unit Replacements	\$75,000	Nil
Total Expenditure	\$75,000	Nil

Figure 9: Capital Project Funding

Funding	2022	2023
Debt	\$75,000	Nil
Total	\$75,000	Nil



Request #2: Creighton Heights Priority Electrical and Control Upgrades

Project Name: Creighton Heights Priority Electrical and Control Upgrades

Submitted By: Anita Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: Not Applicable

Import ID: Not Applicable

Figure 10: Project Description and Justification

Project Description:	Replace obsolete and unsound Control Panel CP-01.
Project Justification:	<ul style="list-style-type: none">• Control Panel CP-01 has been in service since the Plant was commissioned in 1995.• It is the control panel for multiple critical functions such as Raw Water Supply Well Pump control, Auto-dialer function, all High-lift Pump function, Methane Stripper Controls, UV reactor Controls, Chloramine analyzer function, Clearwell alarms, Domestic Sewage Holding Tank alarms, Finished Water data collection, to name a few.• This Control Panel is the main panel where most of the equipment within the plant interfaces with the control matrix that allows us to program and control the functions within the Water Plant.• Over the last number of years, the connections between the input/output cards for all the above-mentioned functions and the bus bar that they seat into, has weakened, resulting in connections that are frail, resulting in periodic loss of control.• Parts are no longer available for this model as it is obsolete. It might be possible to find parts online, but their integrity would be questionable.



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Figure 11: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	Critically important infrastructure for maintaining control of Drinking Water Process, Production and Delivery to Distribution System.
Legislative Requirement	High	Failure of Control Panel will lead to loss of control resulting in inadequately treated water and/or loss of pressure and/or loss of control of Distribution chloramine residual potentially resulting in Boil Water Orders.
Operational Saving, Short Payback	High	Planned replacement is always more cost effective as compared to an emergency where Water Quality would be compromised.
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	High	This Control Panel should have been replaced during the SCADA upgrade in 2019. It is past its lifecycle. Delaying this project will result in near future loss of control and need for emergency replacement. We have lost control of High-lift function recently when the door was opened. That is all it takes as connections are so weak.
Growth Related	Not Applicable	Not Applicable
Service Enhancements	High	Safe and secure production and supply of Drinking Water to our Community which will serve for many years to come.



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Figure 12: Capital Project Costing

Cost	2022	2023	2024
Creighton Heights Priority Electrical and Control Upgrades	\$275,000	Nil	Nil
Total Expenditure	\$275,000	Nil	Nil

Figure 13: Capital Project Funding

Funding	2022	2023
Capital Reserve Funds	\$38,275	Nil
Debt	\$169,765	Nil
Ontario Community Infrastructure Fund (OCIF)	\$33,600	Nil
Federal Gas Tax	\$33,360	Nil
Total	\$275,000	Nil



Request #3: Creighton Heights Well 7 Maintenance and Rehabilitation

Project Name: Creighton Heights Well 7 Maintenance and Rehabilitation **Submitted By:** Anita Schoenleber, Water Operations Manager

Department: Water Operations **Estimated Date of Completion:** 2022

Asset Name: Not Applicable **Import ID:** Not Applicable

Figure 14: Creighton Heights Well 7 Maintenance and Rehabilitation Project Description and Justification

Project Description:	Maintenance and Rehabilitation of Well 7
Project Justification:	Routine maintenance and rehabilitation to sustain productivity of Well 7 for production of Drinking Water for the Creighton Heights Drinking Water System.



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Figure 15: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	<ul style="list-style-type: none"> • Must ensure Creighton Heights has reliable water supply. • Well 7 is main production well that operates on its own or with Well 1 which is a lower capacity well. • This project is in our Water Capital Budget Replacement Program for year 2022 • Well 7 well pump (10HP) has been in service since 2000. It is necessary to replace it.
Legislative Requirement	High	Having Well 7 as a reliable production well ensures that the Creighton Heights Water Plant can supply water to the communities of Baltimore and Carleton Blvd area residences.
Operational Saving, Short Payback	High	Routine maintenance of wells reduces risk of costly emergency work
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	High	Routine maintenance reduces risk of costly emergency work
Growth Related	Not Applicable	
Service Enhancements	High	Secure supply of Drinking Water



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Figure 16: Capital Project Costing

Cost	2022	2023
Creighton Heights Well 7 Maintenance and Rehabilitation	\$48,000	Nil
Total Expenditure	\$48,000	Nil

Figure 17: Capital Project Funding

Funding	2022	2023
Debt	\$38,800	Nil
Development Charges	\$9,200	Nil
Total	\$48,000	Nil



Request #4: Creighton Heights Highlift Pump Removal Inspection and Repair

Project Name: Creighton Heights High-lift Pump removal inspection and repair

Submitted By: A. Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: N/A

Import ID: N/A

Figure 18: Project Description and Justification

Project Description:	Removal, inspect and repair High-lift Pump #3.
Project Justification:	All of Creighton Heights High-lift Pumps have been in operation since 1995 when the water plant was commissioned. Minimal maintenance has been required in the 24 years that the pumps have been in operation. Work was performed on some of the motors over the years. The high-lift pumps deliver drinking water to the Distribution system on a rotational basis but at least one pump is running 24/7, 365 to provide flow and pressure to the Distribution system. Their function is highly critical. Remove and inspect High-lift pump #3 as it has the most hours and is showing signs of wear



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Figure 19: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	Critically important infrastructure for maintaining flow and pressure to the Distribution System.
Legislative Requirement	High	Distribution Pressure must be always maintained at a minimum level to protect the system from cross contamination and to ensure customers are continuously supplied.
Operational Saving, Short Payback	High	Planned and preventative maintenance is always more cost effective as compared to an emergency where Water Quality would be compromised.
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	Not Applicable	Not Applicable
Growth Related	Not Applicable	Not Applicable
Service Enhancements	High	This activity helps ensure secure supply of Drinking Water to our Community.



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Figure 20: Capital Project Costing

Cost	2022	2023	2024
Creighton Heights High-lift Pump removal inspection and repair	\$30,000	Nil	Nil
Total Expenditure	\$30,000	Nil	Nil

Figure 21: Capital Project Funding

Funding	2022	2023
Debt	\$30,000	Nil
Total	\$30,000	Nil



Request #5: Camborne Water Treatment Plant Roof

Project Name: Camborne Water Treatment Plant Roof **Submitted By:** A. Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: Camborne Water Treatment Plant

Import ID: N/A

Figure 22: Project Description and Justification

Project Description:	Reroof with sheet metal for longevity
Project Justification:	Current shingles are blowing off in every storm. Recent condition assessment by Operations Staff revealed that there are multiple locations on the roof that have missing and sun/weather damaged shingles. It is prudent to replace the shingles before further damage is sustained.



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Figure 23: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	Leaks caused by failed shingles will potentially leak into/onto critical equipment causing damage/shorts and loss of operation
Legislative Requirement	Low	Legislation says to maintain all structures in an orderly and safe condition
Operational Saving, Short Payback	Medium	Replacement now will prevent further damage and future larger scale problems
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	High	Routine replacement is necessary as existing shingles have come to end of life. Original shingles have lasted 16 years. Impact from delaying replacement will lead to more costly issues to expensive equipment if leak makes it through structure.
Growth Related	Not Applicable	Not Applicable
Service Enhancements	Medium	Secure supply and protection of assets



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Figure 24: Capital Project Costing

Cost	2022	2023	2024
Camborne Water Treatment Plant Roof	\$30,000	Nil	Nil
Total Expenditure	\$30,000	Nil	Nil

Figure 25: Capital Project Funding

Funding	2022	2023
Debt	\$30,000	
Total	\$30,000	



Request #6: Water Meter Replacement Program

Project Name: Water Meter Replacement Program

Submitted By: A. Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: Not Applicable

Import ID: Not Applicable

Figure 26: Project Description and Justification

Project Description:	Replace existing water meters with radio read meters.
Project Justification	<p>The Township currently has 555 metered water customers from which all our Water Revenue is derived. Roughly 80% of the meters can only be read with equipment that is obsolete, which if broken, will lead to inefficient averaging of water consumption for billing. Repair parts are increasingly difficult to secure.</p> <p>The Township has replaced approximately 100 of these meters to date. Our Water Operators spend roughly 40 hours during each billing quarter completing the water meter reads. These hours are often spread throughout a few weeks during each billing quarter due to other operational requirements that need to be completed.</p> <p>Upon project completion, once the remaining 455 meters are replaced, water meters could be read in less than four hours.</p> <p>Old water meters are responsible for loss of revenue</p>



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Figure 27: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	Medium	Radio Reads will eliminate the requirement for walking property to property (slips, trips, falls, dog encounters etc.)
Legislative Requirement	Not Applicable	Not Applicable
Operational Saving, Short Payback	High	Meter reading would take roughly 5% of the current time required to complete. The other 95% of this time can be allocated to more operations and maintenance.
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	High	The risk of losing our ability to read meters due to failed meter gun with few/no replacement parts available, results in the billing department having to estimate water consumption. This practice is inaccurate and inefficient. It leads to many unhappy customers and an inordinate amount of time spent by Staff to handle complaints
Growth Related	Not Applicable	Not Applicable
Service Enhancements	High	The entire water billing task could be completed in one day. Meter reads could be completed in approximately 4 hours, then downloaded directly into our accounting software and bills generated.



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Figure 28: Capital Project Costing

Cost	2022	2023
Water Meters	\$10,000	Nil
Total Expenditure	\$10,000	Nil

Figure 29: Capital Project Funding

Funding	2022	2023
Debt	\$10,000	Nil
Total	\$10,000	Nil



Request #7: Creighton Heights Raw Water Quality Study

Project Name: Creighton Heights Raw Water Quality Study

Submitted By: Anita Schoenleber, Water Operations Manager

Department: Water Operations

Estimated Date of Completion: 2022

Asset Name: Not Applicable

Import ID: Not Applicable

Figure 30: Project Description and Justification

Project Description:	Conduct a study to determine methods for ammonia removal from Creighton Heights Raw Water so we can work towards improving treated water quality.
Project Justification:	Regular customer complaints about coloured water from our Municipal drinking water system. With proper ammonia removal, nitrification of the Distribution System will be drastically reduced.



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Figure 31: Project Matrix

Criteria	Assessment (Low, Medium, High)	Comments
Safety Issues, Risk Management	High	There is no health or safety issue with our treated drinking water as we meet or exceed all regulatory requirements. We do have an obligation to supply water that is aesthetically acceptable. Our current treatment process does not remove ammonia and this study will help us determine if we can remove it. Removal of ammonia will allow Operations to return to year-round Free Chlorination of filtered water and remove the occurrence of nitrification of the Distribution system. Currently, in the Autumn, Operations shifts from Chloramination to Free Chlorination to burn off nitrifiers in the Distribution for approximately one month. This is unpleasant for customers and is operationally challenging. After extensive flushing of the Distribution to pull the Free Chlorine throughout, Operations switches back to Chloramination for the next 11 months.
Legislative Requirement	Low	We do have an obligation to supply aesthetically appealing drinking water and to ensure the Distribution System experiences limited nitrification.
Operational Saving, Short Payback		If ammonia removal is found to be possible through this study, there will be reduced need for extensive Distribution flushing which saves water that is expensive to produce. With reduced flushing, Operators will have more time for Maintenance activities. Reduced disinfection chemical use (during Free Chlorination for 1 month, we triple our chemical use).
Routine Replacement, Asset beyond lifecycle, Impact of delaying replacement	Not Applicable	Not Applicable
Growth Related	Not Applicable	Not Applicable



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Criteria	Assessment (Low, Medium, High)	Comments
Service Enhancements	High	Allows Operations to supply aesthetically pleasing Drinking Water and limit nitrification in the Distribution System. Customers will have more confidence in our Public Water Supply.

Figure 32: Capital Project Costing

Cost	2022	2023	2024
Creighton Heights Raw Water Quality Study	\$20,000	Nil	Nil
Total Expenditure	\$20,000	Nil	Nil

Figure 33: Capital Project Funding

Funding	2022	2023
Debt	\$20,000	Nil
Total	\$20,000	Nil



2022 Draft Water Reserve Budget

Figure 34: Draft Water Reserve Budget

<u>Description</u>	<u>Projected 2021 Ending Balance including Commitment</u>	<u>2022 OPERATING BUDGET</u>		<u>2022 CAPITAL BUDGET</u>		<u>Projected 2022 Ending Balance</u>
		<u>Contribution to Reserve</u>	<u>Contribution from Reserve</u>	<u>Contribution to Reserve</u>	<u>Contribution from Reserve</u>	
HYDRANT RESERVE	(150,790)	(14,083)				(164,873)
LUSI CAPITAL FUND RESERVE	(68,595)	(27,911)				(96,506)
CAPITAL FUND RESERVE	(38,275)	(28,260)			38,275	(28,260)
WATER RESERVE	520,000	(70,263)				449,737
WATER RATE STUDY	(11,317)	(10,000)				(21,317)
WATER - UNFUNDED CAPITAL - KENNEDY RD	268,748					268,748
Water Reserve	519,771	(150,517)	-	-	38,275	407,529
3rd PARTY WATER DEBT FOR CAPITAL PROJECTS	203,900				405,565	609,465



2022-2030 Draft Water Capital Forecast

Figure 35: 2022-2030 Water Capital Forecast

Description	Water (Uninflated \$) 2022 - 2030	Water (Inflated \$) 2022 - 2030	Years Undertaken
Capital Expenditures			
Creighton Heights Priority Treatment Equipment Upgrades - UV Reactor Replacement	\$ 75,000	\$ 75,000	2022
Creighton Heights Priority Electrical and Control Upgrades	275,000	275,000	2022
Creighton Heights Wells 7 Maintenance and Rehabilitation	48,000	48,000	2022
Water Supply & Distribution System Service Delivery RFP Preparation	32,000	32,000	2022
Creighton Heights - High Lift Pumps	110,000	114,000	2022-2026
Camborne - WTP Roof Shingles Replacement	30,000	30,000	2022
Water Meter Upgrades	270,000	292,000	2022-2030
Creighton Heights – Raw Water Quality Study	20,000	20,000	2022
Creighton Heights Water Supply Master Plan Study	150,000	150,000	2023
Camborne - Priority Electrical & Controls Upgrades	100,000	104,000	2024
Camborne - Electrical, Instrumentation and Controls Upgrades	224,200	252,000	2028
Camborne – Replace Filter Media	19,300	20,000	2024
Creighton Heights Valve and Equipment Replacements	300,000	345,000	2029
Creighton Heights – Distribution System Extension and Looping	200,000	234,000	2030
Creighton Heights Roof and Site Repairs	156,300	169,000	2026
Distribution System Preventative Maintenance	57,500	61,000	2025
Creighton Heights - Generator Replacement	175,000	179,000	2023
Rehabilitate or replace watermain from June Ave at Catherine St to just beyond June Ave at Haymur St	300,000	312,000	2024
Rehabilitate or replace June Ave watermain from Ontario St to Catherine St and rehabilitate or replace the Catherine St watermain from June Ave to Lenore Ave	400,000	408,000	2023
Creighton Heights – Engineering Design of Ammonia Removal System	300,000	318,000	2025
Line Valve Replacement	95,000	102,000	2023-2030
Creighton Heights – Construction of Ammonia Removal System	1,500,000	1,673,000	2027-2028
Total Capital Expenditures	\$ 4,837,300	\$ 5,213,000	



Final Thoughts

Thank you for taking the time to review the Township of Hamilton’s 2022 Draft Water Budget Package.

Should you have any questions regarding the information presented in this package, please do not hesitate to contact the Mayor, a Member of Council or the Treasurer.

Members of the public are also invited to attend any of the upcoming public Budget Meetings to ask questions during Question Period and to stay engaged and up-to-date with the 2022 Budget conversation.

The scheduled water budget meetings are:

- Special Council Water Budget Meeting #1
 - February 8, 2022 (9:30am to 12:00pm)
- Regular Council Meeting
 - February 15, 2022 (1:00pm to 4:00pm)

Member of Council / Staff	Contact Details
Mayor Bill Cane	bcane@hamiltontownship.ca
Deputy Mayor Scott Jibb	scottjibb@hamiltontownship.ca
Councillor Mark Lovshin	mlovshin@hamiltontownship.ca
Councillor Pat McCourt	pmccourt@hamiltontownship.ca
Councillor Larry Williamson	lwilliamson@hamiltontownship.ca
Treasurer Nusrat Ahmed	nahmed@hamiltontownship.ca



Schedule A: Line-by-Line Water Budget

Continued on next page.



2022 Water Budget Package

	2019 Actuals	2020 Actuals	2021 Preliminary Actuals	2021 Budget	2022 Draft Budget	\$ Increase	% Increase
Water							
Water Admin Revenues							
TRANSFERS FROM RESERVES	0	(73,037)	(10,000)	(10,000)	0	10,000	-100.0%
Total Contribution from Reserve	0	(73,037)	(10,000)	(10,000)	0	10,000	-100.0%
PENALTIES & INTEREST	(1,296)	(859)	(776)	(2,000)	(2,000)	0	0.0%
MISC. REVENUE	(17)	0			0	0	
METER SALES	(3,593)	(2,053)	(1,027)	(3,500)	(3,500)	0	0.0%
OTHER RECOVERIES	(59)	(1,259)	(23,417)	(2,000)	(2,000)	0	0.0%
LUSI COST RECOVERIES	(22,064)	(22,261)	(24,487)	(24,270)	(27,911)	(3,641)	15.0%
Total Other Revenue	(27,029)	(26,432)	(49,706)	(31,770)	(35,411)	(3,641)	11.5%
Total Water Admin Revenues	(27,029)	(99,469)	(59,706)	(41,770)	(35,411)	6,359	-15.2%
Water Admin Expenditures							
Total Water Salaries and Benefit Exp	211,636	231,462	267,365	270,000	278,100	8,100	3.0%
TRANSFER TO WATER RESERVE	8,107	0	14,684	0	70,263	70,263	
TRANSFER TO WATER RATE STUDY RESERVE	10,000	10,000	10,000	10,000	10,000	0	0.0%
TRANSFER TO CAPITAL RESERVE	0	0	38,275	38,275	28,260	(10,015)	
TRANSFER TO LUSI CAPITAL RESERVE	22,064	22,261	24,487	24,270	27,911	3,641	15.0%
Total Contribution to Reserve	40,171	32,261	87,446	72,545	136,434	63,888	88.1%
WATERWORKS SYS -INTEREST - UNFUNDED WATER DEFICITS		1,018			10,976	10,976	
TRAINING	3,911	1,181	3,174	4,500	4,000	(500)	-11.1%
MEMBERSHIPS	559	442	935	800	800	0	0.0%
MILEAGE & FUEL	2,751	2,253	2,320	2,500	2,500	0	0.0%
STAFF APPRECIATION	291	0	184	500	500	0	0.0%
OFFICE SUPPLIES	2,053	1,010	423	1,300	800	(500)	-38.5%
LAB SUPPLIES	3,389	5,608	3,585	5,000	5,100	100	2.0%
INSURANCE	18,669	20,144	22,151	20,400	22,600	2,200	10.8%
AUDIT - DWQMS	5,309	4,109	1,526	4,000	2,000	(2,000)	-50.0%
TELEPHONE	1,065	565	964	750	800	50	6.7%
DISPATCHING SERVICES	642	826	824	850	850	0	0.0%
SAMPLING	496	411	211	750	500	(250)	-33.3%
CONTRACTED OUT	14,530	23,232	10,372	25,000	25,000	0	0.0%
MINOR CAPITAL	1,238	1,664	2,736	1,500	1,500	0	0.0%
VEHICLE REPAIRS	1,623	3,605	1,412	5,000	3,000	(2,000)	-40.0%
LINE MAINTENANCE	13,332	62	0	0	0	0	0.0%
WRITE OFFS	2,555	528	0	500	500	0	0.0%
WATER METER REPLACEMENT	6,716	0	0	0	0	0	
LINE VALVE REPLACEMENT	10,644	0	0	0	0	0	
GIS MAPPING	0	0	0	5,000	5,000	0	0.0%
CONSULTANT GENERAL	0	48,318	10,411	10,000	5,000	(5,000)	100.0%
WATERWORKS WATER METERS		1,900	0	0	0	0	
WATERWORKS SYSTEM-LUSI INFRASTRUCTURE COSTS		1,988	0				
COMPUTER HARDWARE, SOFTWARE AND INTERNET SUPPORT		0	6,614	7,000	7,000	0	0.0%
Total Water Admin Operating Expenditures	341,580	382,585	422,654	437,895	512,960	75,065	17.1%
Net Water Admin	314,551	283,116	362,947	396,125	477,549	81,424	20.6%



2022 Water Budget Package

	2019 Actuals	2020 Actuals	2021 Preliminary Actuals	2021 Budget	2022 Draft Budget	\$ Increase	% Increase
Camborne Water Revenues							
WATER BILLING	(41,229)	(44,505)	(47,911)	(49,983)	(57,481)	(7,497)	15.0%
CAPITAL COST RECOVERY	(13,199)	(13,199)	(15,169)	(14,519)	(16,697)	(2,178)	15.0%
Total Camborne Revenues	(54,428)	(57,704)	(63,080)	(64,502)	(74,177)	(9,675)	15.0%
Camborne Water Expenditures							
CHEMICAL SUPPLY	592	648	742	700	800	100	14.3%
HYDRO	6,847	7,050	6,993	7,000	7,140	140	2.0%
HEATING FUEL	1,191	1,290	1,418	1,300	1,400	100	7.7%
TELEPHONE	2,578	1,330	1,351	1,300	1,300	0	0.0%
SAMPLING	2,552	2,251	2,344	2,500	2,500	0	0.0%
LINE MAINT	22,571	24,501	22,658	20,000	20,000	0	0.0%
HOLDING TANK	957	542	148	500	500	0	0.0%
Total Camborne Water Other Expenditures	37,289	37,612	35,653	33,300	33,640	340	1.0%
Net Camborne Water	(17,140)	(20,092)	(27,427)	(31,202)	(40,537)	(9,335)	29.9%



2022 Water Budget Package

	2019 Actuals	2020 Actuals	2021 Preliminary Actuals	2021 Budget	2022 Draft Budget	\$ Increase	% Increase
Creighton Heights Revenues							
WATER BILLING	(301,730)	(296,042)	(338,803)	(369,474)	(424,895)	(55,421)	15.0%
CAPITAL COST RECOVERY	(96,727)	(96,924)	(107,050)	(106,449)	(122,416)	(15,967)	15.0%
Total Creighton Heights Water Revenue	(398,457)	(392,966)	(445,853)	(475,923)	(547,311)	(71,388)	15.0%
Creighton Heights Expenditures							
CHEMICALS	12,729	13,375	12,899	12,000	13,000	1,000	8.3%
HYDRO	56,485	59,330	51,934	58,500	58,500	0	0.0%
TELEPHONE	2,727	622	669	1,000	800	(200)	-20.0%
SAMPLING	5,208	4,805	5,149	6,000	6,000	0	0.0%
LINE MAINTENANCE	22,148	50,493	25,469	30,000	30,000	0	0.0%
SCADA NETWORK	0	672	672	2,000	800	(1,200)	
HOLDING TANK	1,749	645	748	1,500	1,200	(300)	-20.0%
Total Creighton Heights Water Expenditures	101,046	129,942	97,539	111,000	110,300	(700)	-0.6%
Net Creighton Heights Water	(297,411)	(263,024)	(348,313)	(364,923)	(437,011)	(72,088)	19.8%
	0						
Hydrants							
AREA CHARGE HYDRANTS	(18,276)	(18,936)	(19,466)	(18,451)	(18,451)	0	0.0%
Total Revenue	(18,276)	(18,936)	(19,466)	(18,451)	(18,451)	0	0.0%
TRANSFER TO HYDRANT RESERVE	14,537	12,189	14,083	14,083	14,083	0	0.0%
Total Contribution to Reserve	14,537	12,189	14,083	14,083	14,083	0	0.0%
HYDRANT INSPECTIONS	3,739	6,747	3,789	4,368	4,368	(0)	0.0%
Total Other Expenditure	3,739	6,747	3,789	4,368	4,368	(0)	0.0%
Total Hydrants	(0)	0	(1,594)	(0)	0	0	0.0%