Special Council Meeting
Municipality of West Grey
402813 Grey County Rd 4, Durham, ON N0G 1R0

January 4, 2022, 9 a.m.

Virtual meeting

We are using ZOOM meeting software.
To join through your computer (or smartphone with the ZOOM app) go to:
https://us02web.zoom.us/j/81408643506
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When prompted, enter meeting ID: 814 0864 3506
To participate, when prompted, use the raise hand function on your computer or *9 on your phone.
Accessibility of documents: Documents are available in alternate formats upon request.
Please contact the Clerk's Department at 519-369-2200 or by email at gscharback@westgrey.com to discuss how best we can meet your needs if you require an accessible format or communication support.

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6. Adjournment

Recommendation:

That we do now adjourn at ____ , to meet again on January 4, 2022 at 3:30 p.m. or at the call of the chair

DATE December 14, 2021
Project ID 21-036

5 Year Capital Budget Plan

Durham Water & Wastewater Capacity Enhancement

Municipality of West Grey

A Year 1 - 2022 **NOTE: Construction Cost Estimates, wherever indicated, are budget amounts. They will increase/decrease after completion of detailed design**

	Description	Reason For Project/Engineering Investigation	Consequences, if Project not Undertaken	Class D Estimated Amount (2021 dollars)	Engineering	Construction
1	Conducting a leak detection program to investigate water loss from known private services and to spot correct the identified leaks	* Need to stop the water loss to conserve water supply capabilities. Step is also part of water conservation/preservation programme	* Continued wastage of resources * Lead to increase in cost to enhance water supply capabilities	**$65,000**	$ 65,000	
2	Undertake 20 year cost-benefit analysis of southeast Durham well vs. new well at north end	* Southeast well likely can be converted into a municipal well, however, it is suspected that cost to treat the water and continued operations & maintenance (O & M) cost may outweigh cost associated with finding a new water supply well * Southeast well draws water from unprotected aquifer & Ministry of the Environment, Conservation & Parks (MECP) may not support use of this well. Testing & source water protection study cost is anticipated to be significant at $120K, which will be similar to a new well elsewhere * New well north of Durham may require only chlorination for treatment, which may have minimal long-term O & M cost	* if different sources of water are not considered, West Grey may run the risk of using a water supply well with high O & M costs * could jeopardize Schedule C Environmental Assessment (EA) at a later stage, if there is an objection by a taxpayer or any other member of public or government agency(ies)	**$12,000**	$ 12,000	
3	Hydrogeological study report to identify areas for drilling new well	* Previous investigations revealed that immediate area north of water standpipe, promised good water supply well location. A hydrogeological report will be needed document and support the engineer's recommendation to select a water source for an additional well * West Grey must document the hydrogeological information, which will be further used in report to MECP & EA	* drilling a new well without proper investigation and without establishing rationale is extremely risky. A proper hydrogeolotical report is a sound investment to ensure the best value for the tax dollar.	**$5,000**	$ 5,000	
4	Engineering investigation of Water Storage Needs	* Increase in water needs likely will require water storage capacity enhancements, which has not been established yet * There is a need to evaluate water storage needs, determine short-fall in capacity, when it will occur and how best to achieve it * Existing standpipe already need West Grey's attention	* If water storage capacity is not enhanced to match West Grey's growth needs, West Grey will run the risk of non-compliance of MECP Design Guidelines	**$7,500**	$ 7,500	
5	Garafraxa Street (Garfraxa Bridge to Saddler St) Water, Storm & Sanitary Sewers - Final Design, contract documents preparation and obtain Environmental Certificate of Approval (ECA)	* The condition of this watermain in this section had lead to the depletion of Water Standpipe in 2014. Field observations made by the public works department during the watermain repair at the time indicated that, the watermain was badly corroded and weak. The existing rocky terrain underneath the road, made the watermain break detection extremely difficult * Obtaining government funding to complete this project has been an ongoing challenge; the watermains have exceeded their lifecycle. * The preliminary design was completed in 2015. The final design drawing and tendering can be undertaken expeditiously for construction in 2022	* West Grey will run the risk of a water shortage if the existing infrastructure is not replaced. It is advised that West Grey repair the "known" serious watermain issues as West Grey is experiencing tremendous growth.	**$30,000**	$ 30,000	
6	Garafraxa Street (Saddler St. to South St.) Water, Storm & Sanitary Sewers - Final Design, contract documents preparation Undertake topographic survey, geotechnical investigation and designing, tender documents preparation to tender in 2024.....Continued in Year 2	* The condition of this watermain in this section had lead to the depletion of Water Standpipe in 2014. Field observations made by the public works department during the watermain repair at the time indicated that, the watermain was badly corroded and weak. The existing rocky terrain underneath the road, made the watermain break detection extremely difficult * Obtaining government funding to complete this project has been an ongoing challenge; the watermains have exceeded their lifecycle. * The preliminary design was completed in 2015. The final design drawing and tendering can be undertaken expeditiously for construction in 2022	* West Grey will run the risk of a water shortage if the existing infrastructure is not replaced. It is advised that West Grey repair the "known" serious watermain issues as West Grey is experiencing tremendous growth.	**$75,000**	$ 75,000	
7	Preliminary investigation of WWTP Capacity Enhancement (need 12-15% short-term increase in capacity but long-term is likely 40-50%) & MECP consultation	* West Grey needs to enhance the capacity of Wastewater Treatment Plant (WWTP) also to accommodate growth in Durham * Need to evaluate the options to achieve it, (Part of Sch C EA) including re-rating of WWTP capacity by undertaking Pilot Study of clarifiers. This study can be done as part of EA or outside of it.	* West Grey will not be able accommodate growth in subdivision development without enhancing WWTP capacity	**$28,000**	$ 8,000	
8	Commence Sch C EA for additional water supply and treatment as well as WWTP.....Continued in Year 2	* Upgrading of water treatment plant (WTP) and WWTP capacity cannot occur without completing a Sch C EA. Hydrogeological investigations and preliminary investigation for WWTP shall form part of Sch C EA * Construction and testing of well(s), investigation of WWTP capacity enhancement methods (as noted above) * Sch C EA to continue in Year 2	* West Grey will not be able accommodate growth in subdivision development without enhancing WWTP capacity and completing Schedule C Environmental Approval	New well including engineering & construction, land, legal **$300,000** (Year 1) Sch C EA **$95,000**	$95,000	$300,000
			SUBTOTAL (excluding HST)	**$617,500**		

	Description	Reason For Project/Engineering Investigation	Consequences, if Project not Undertaken	Class D Estimated Amount (2021 dollars)	Engineering	Construction
B	**Year 2 - 2023**					
1	Closed-Circuit Television (CCTV) Inspection of Sanitary Sewer on South St and under River	* The sanitary sewer under Saugeen River requires inspection for condition assessment. It is imperative to inspect the sewer and determine any upgrade requirements, in the event of potential property development which would direct sewage to this sewer. * Investigation and assessment must be completed in order to entertain any growth prospects within SE quadrant of Durham	* West Grey will not be able accommodate growth in subdivision development without full condition assessments.	**$20,000**	$ 20,000	
2	Smoke Testing	* Smoke testing is required to determine if roof leaders, catchbasins and other non-sanitary sources are connected to sanitary sewer * Durham collection system does experience inflow and smoke testing is the first step in this investigation	* Sources of infiltration cannot be identified and Bruce St. Sewage Pumping Station, sanitary collection system and WWTP will be overwhelmed with extraneous flows	**$80,000**	$ 80,000	
3	Continuation of Sch C EA from Year 1 (Item 8 in Year 1) additional water supply and treatment as well as WWTP	* Continuation of Sch C EA from Year 1 (Item 8 in Year 1)		**$100,000**	$ 100,000	
4	Undertake water CAD Modelling	* Water Computer Aided Drafting (CAD) modelling is required to determine what upgrades in distribution system needed to service new development * West Grey is required to provide fire + max day water demand at minimum 20 psi pressure and Max day at minimum 40 psi pressure. Modelling shall inform whether required flow and pressure shall be available to new subdivisions	* Growth cannot be accommodated without water distribution capacity as it would negatively impact water flows and pressures required for providing potable water and fire suppression	**$15,000**	$ 15,000	
5	Undertake sewer CAD Modelling (Need to complete study commenced in 2017)	* SewerCAD modelling is required to determine what upgrades in collection system might be needed to service new development * Modelling shall verify if additional flows can be handled without overwhelming the sewer and make basements prone to flooding due to backup in sewers	* Growth cannot be accommodated without sewer collection capacity	**$5,500**	$ 5,500	
6	Commence designing of WTP, if EA completed	* New water treatment plant must be designed and approval from MECP obtained, after completion to Sch C EA to upgrade water supply capacity	* New WTP can not be constructed without design and approval	**$100,000**	$ 100,000	
7	Tendering & Construction of Garafraxa (Bridge to Sadler St)	* The condition of this watermain in this section had lead to the depletion of Water Standpipe in 2014. Per operations department, watermain is corroded, weak & rocky terrain underneath, thereby making watermain break detection extremely difficult * Preliminary design is already completed, however obtaining government funding to complete this project has been an ongoing challenge; the watermains have exceeded their lifecycle.	* West Grey is experiencing tremendous growth and must replace existing watermain infrastructure or run the risk of water shortages.	**$2,750,000**		$ 2,750,000
8	Designing of Sadler to South St. block for watermain, storm and sanitary sewers (continued from Year 1, Item 6)	* Infrastructure condition in this block is similar to what is identified in Item 4 & 5 above		**$38,000**	$ 38,000	
			SUBTOTAL (excluding HST)	**$3,108,500**		
C	**Year 3 - 2024**					
1	Undertake designing of WWTP upgrades after EA completion	* To increase WWTP capacity, the plant upgrades must be designed and approval obtained from MECP * After obtaining approval final design drawing, tender documents must be prepared	* Without WWTP upgrades, West Grey cannot allow new subdivisions development	**$180,000**	$ 180,000	
2	Tendering and construction of new WTP	* To increase water supply capability, new WTP must be completed and commissioned	* Without WTP upgrades, West Grey cannot allow new subdivisions development	**$3,500,000**		$ 3,500,000
3	Designing of new/additional water storage	* If investigation in Item 4 Year 1, concludes that water storage capacity enhancement is necessary, West Grey must undertake designing of new water storage reservoir to match storage required for Town growth	* Without WTP upgrades, West Grey cannot allow new subdivisions development	**$95,000**	$ 95,000	
			SUBTOTAL (excluding HST)	**$3,775,000**		

	Description	Reason For Project/Engineering Investigation	Consequences, if Project not Undertaken	Class D Estimated Amount (2021 dollars)	Engineering	Construction
D	**Year 4 - 2025**					
1	Tendering and construction of WWTP upgrades	* To upgrade the capacity of WWTP to allow subdivision's development	* Follow through with construction at this phase is highly advisable to achieve sufficient capacity for growth	**$5,500,000**		$ 5,500,000
2	Tendering and Construction of Garafraxa (Sadler to South St)	* Watermain condition in this block is similar to what is identified in Item 5 above	* Follow through with construction at this phase is highly advisable to achieve sufficient capacity for growth	**$2,750,000**		$ 2,750,000
			SUBTOTAL (excluding HST)	**$8,250,000**		
E	**Year 5 - 2026**					
1	Tendering and construction of new water reservoir and associated Booster Pumping Station upgrades	* To increase water storage to meet provincial design guidelines to serve communities	* Without water storage enhancement, West Grey cannot allow new subdivisions development	**$2,500,000**		$ 2,500,000
			SUBTOTAL (excluding HST)	**$2,500,000**	**$ 931,000**	**$ 17,300,000**
			TOTAL (A, B, C, D & E) (excluding HST)	**$18,251,000**		

DATE: November 19, 2021

Project: 21-036

DRAFT

5 Year Capital Plan Schedule

Durham Water & Wastewater Capacity Enhancement

West Grey

A Year 1 - 2022

	Description	2022				2023				2024				2025				2026			
		1st Qtr	2nd Qtr	3rd Qtr	4thQtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1	Conducting a leak detection program to investigate water loss from known private services and to spot correct the identified leaks																				
2	Undertake 20 year cost-benefit analysis of southeast Durham well vs. new well at north end																				
3	Hydrogeological study report to identify areas for drilling new well																				
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5	Garafraxa Street (Garfraxa Bridge to Saddler St) Water, Storm & Sanitary Sewers - Final Design, contract documents preparation and obtain Environmental Certificate of Approval (ECA)																				
6	Garafraxa Street (Saddler St. to South St.) Water, Storm & Sanitary Sewers - Final Design, contract documents preparation Undertake topographic survey, geotechnical investigation and designing, tender documents preparation to tender in 2024…….Continued in Year 2																				
7	Preliminary investigation of WWTP Capacity Enhancement (need 12-15% short-term increase in capacity but long-term is likely 40-50%) & MECP consultation																				
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B Year 2 - 2023

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C Year 3 - 2024

1	Undertake designing of WWTP upgrades after EA completion																				
2	Tendering and construction of new WTP																				
3	Designing of new/additional water storage																				

D Year 4 - 2025

1	Tendering and construction of WWTP upgrades																				
2	Tendering and Construction of Garafraxa (Sadler to South St)																				

E Year 5 - 2026

1	Tendering and construction of new water reservoir and associated Booster Pumping Station upgrades																				

ENGINEERING
CONSULTANTS LTD

REPORT

Durham Water and Wastewater Treatment System Capacity Assessment

(Revised: September 28, 2021)
September 2021

21-036

Prepared by:
GSS Engineering Consultants Ltd.
Unit 104D, 1010 9th Ave. W
Owen Sound, ON N4K 5R7

Table of Contents

TABLES

FIGURES

LIST OF ABBREVIATIONS

Cast Iron	CI
Ductile Iron	DI
Environmental Compliance Approval	ECA
Functional Servicing Report	FSR
Litres per capita per day	lcpd
Ministry of the Environment, Conservation & Parks	MECP
Ontario Provincial Standards Specifications	OPSS
Water Treatment Plant	WTP
Wastewater Treatment Plant	WWTP

REPORT
Durham Water and Wastewater
Treatment System Capacity Assessment
Durham, West Grey

September, 2021 **21-036**

1.0 INTRODUCTION

Durham town within the Municipality of West Grey is experiencing significant growth pressure due to its location and access by Provincial Highway 6 and Grey County Road #4. Developer's interest in Durham arises from its proximity to Kitchener-Waterloo, Guelph region as well as availability of communal water supply and wastewater treatment. Availability of these two utilities are important for large subdivision development. Due to this heightened interest, Municipality of West Grey intends to undertake an investigation to complete water and wastewater treatment plant capacity assessment and determine if West Grey can continue to engage with prospective developers and commit to water and wastewater treatment systems capacity availability for development. This report primarily addresses the water treatment and wastewater treatment capacity issues, and cursorily discuss water supply (distribution system) and wastewater collection (sanitary sewer) system.

2.0 RATED CAPACITY OF WATER AND WASTEWATER SYSTEMS

For information, water treatment plants are designed for “Maximum Daily Demand” on an annual basis. However, the wastewater treatment plants are designed for “Average Daily Demand” on an annual basis. Typically, high water demands occur during summer periods when water consumption goes up due to summer activities including but not limited to domestic lawn watering needs and swimming pools. Some towns/cities with aged and corroded watermains can experience higher water demand during winter and spring months when watermain break occurs due to frost movement. Sometimes, residents are allowed to leave their taps running to prevent freezing of water service pipes. This occurs where water services are poorly constructed and are shallow in depth. This can lead to high water demands in winter/spring. Typically, if such high water demands occur sparingly, such events can be ignored as “unusual events”, however if such events happen regularly, they cannot be ignored in rated capacity utilization calculations.

In case of wastewater systems, rated capacity of wastewater treatment plant (WWTP) is based on average daily wastewater flows treated at the plant. So, any abnormal peaks at certain times of the year due to inflow and infiltration, may not adversely impact the rated capacity utilization in a significant way. They however should not be ignored as such events can overwhelm sewage collection system leading to basement flooding or overflow of sewage pumping station(s) or bypass of treatment units at the WWTP leading to potential non-compliance of Environmental Compliance Approval (ECA) conditions.

In an ideal water supply and treatment system and wastewater collection and treatment system in a municipality, water supplied, and wastewater treated at plant shall be comparable. However, if water treated and supplied is much higher than wastewater collected and treated, it is an indication of water distribution system losses. Conversely, if wastewater collection and treatment is much larger than water supply, then it indicates larger extraneous flows (inflow and infiltration) into sanitary sewers. Both situations are undesirable.

The rated capacities are as follows and cannot be exceeded.

Water Treatment Plants (Well #1B and Well #2 & 2A Pumphouse)	3011 m³/day
Wastewater Treatment Plant	2184 m³/day

The rated capacity of WTP is a combination of rated capacity of Well 1B Pumphouse and Well #2 and 2A Pumphouses.

3.0 CAPACITY UTILIZATION IN EXISTING CONDITIONS

Durham currently has 1310 billable units for water and 1265 billable units for wastewater.

Annual Operations and Maintenance Reports for WWTP and daily water and wastewater records for recent years were also obtained from operating authority. The data was analysed to determine maximum day water demands and annual average day wastewater flow to WWTP. Water meter records for residential, commercial, institutional, etc. were also obtained from West Grey and analyzed. In order to assess the current capacity utilization, water and wastewater records were assessed from 2013 to 2020.

Table 3-1 provides a summary of Durham WWTP capacity utilization, as recorded in the Annual Operations & Maintenance Reports submitted to Ministry of the Environment, Conservation & Parks (MECP). The WWTP has a rated capacity of 2184 m³/day. The capacity utilization varies from a low of 28.8% to 51.4% and was highest in 2014, at 51.4% (1123 m³/day). The higher capacity utilization was attributed to a number of houses allowed to run the tap continually to prevent water service freezing and possibly other reasons. It could also be an indication of extraneous flows entering the collection system. The above noted water wastage to sanitary sewers does occur every year but with varying amounts and is dependent on weather.

Table 3-2 provides a summary of water use, as recorded by Veolia Canada.

The existing water treatment plants have a rated capacity of 3011 m³/day. In the last column of **Table 3-2,** percentage capacity utilization of water works has been provided. Year 2014 indicates a capacity utilization of 76% (2289 m³/day) and 2015 indicates a capacity utilization of 71.6% (2157 m³/day). The capacity utilization in 2014 & 2015 is much higher than other years. An investigation revealed that water consumption was higher in 2014 and 2015 due to a combination of watermain breaks and water loss by water customers who were permitted to leave a tap running in winter to prevent freezing of water service pipe. Therefore, highest capacity utilization of water works is 1603 m³/day in 2013 if we ignore 2014 and 2015 water consumption. Watermain breaks, etc. is <u>not</u> a regular feature, and can occur in some years but not others. Watermain breaks have not caused significant water loss since 2015. This water wastage can be reduced/controlled by replacing old cast iron (CI) or ductile iron (DI) watermains.

Based on the foregoing data analysis, “current surplus capacity” (not accounting for Sunvale and Broos Subdivisions) is computed as follows:

Table 3-1

Summary of Durham Wastewater Treatment Plant

Capacity Utilization

June 1, 2021 21-036

Year	Annual Avg. Day (m^3/day)	Max Day (m^3/day)	Month When A Max Occurred	% Capacity Utilization	Comments
2013	976	2202	April	44.7	
2014	1123	4390	April	51.4	Higher wastewater flow due to a number of hoses allowed to run to prevent freezing
2015	823	1309	April	37.7	
2016	880	3781	April	40.3	
2017	981	2037	March	44.9	
2018	705	2643	February	32.3	
2019	702	1536	April	32.1	
2020	629	1271	January	28.8	
Worst Case Scenario	**1123 m^3/day**				
Rated Capacity of Wastewater Treatment Plant:		**2184 m^3/day**			

Table 3-2

Summary of Durham Water Treatment Plant

Capacity Utilization

Durham Water Works (2013 - 2020)

June 1, 2021 21-036

Year	Max Day (m^3/day)	Max Day Occurrence Date	% Capacity Utilization	Comments
2013	1603	Feb. 14	53.2	
2014	2289	Apr. 13 & 14	76.0	High water consumption due to approximately 30 hoses allowed to run water to prevent water freezing.
2015	2157	Feb. 23	71.6	High water consumption due to combination of 2 watermain breaks and garden hoses allowed to waste the water.
2016	1455	June 6	48.3	
2017	1309	Jan. 14	43.5	
2018	1470	Dec. 29	48.8	
2019	1482	Jan. 6	49.2	
2020	1591	July 6	52.8	
Worst Case Scenario	**1603 m^3/day**			High water demands of 2014 and 2015 neglected.
Rated Capacity of Water Works:	**3,011 m^3/day**			

Note: Rated capacity of Well #1B pumphouse 1375 m^3/day

Rated capacity of Well #2 pumphouse 1636 m^3/day

Rated capacity of water works 3011 m^3/day

Current Surplus Capacity of Durham WTP = Rated capacity – current capacity utilization

= 3011 m³/day – 1603 m³/day

= 1408 m³/day

The surplus water treatment capacity without new development is 1408 m³/day or 46.7% of rated capacity.

Current Surplus Capacity of Durham WWTP = Rated capacity – current capacity utilization

= 2184 m³/day – 1123 m³/day

= 1061 m³/day

The surplus WWTP capacity without new development is 1061 m³/day or 48.5% of rated capacity.

4.0 NEW APPROVED SUBDIVISIONS

As per our understanding, West Grey has entered into an agreement and has allowed permission to develop two (2) subdivisions in northeast end of Durham The information from the Functional Servicing Report (FSR) for Subdivisions is as follows:

Sunvale Homes: This subdivision, when fully developed shall include approximately 247 units comprising of single family lots, semi-detached lots, townhome blocks as per the subdivision plans. Population of 765 people is forecasted to live in the subdivision.

The FSR determined the water demand based on Provincial "Design Guidelines for Drinking Water System, 2008" issued by MECP. The guideline recommends a water demand of 270 to 450 L/capita/ day. Developer's engineer utilized 450 lcpd (litres per capita per day) in the FSR. At 450 lcpd average day water demand is anticipated to be 344 m³/day.

Developer's engineer estimated maximum day demand of 947 m³/day based on Maximum Day Factor of 2.75 for a population of 765 people. In our opinion, maximum day shall be lower, because after integration of subdivision with town, maximum day factor shall be about 2.0 and not 2.75 as the overall population equivalent of town shall be close to 4670. Based on this, we estimate maximum day demand to be 688 m³/day as opposed to 947 m³/day calculated by developers engineer.

At 450 lcpd, average day wastewater flow to treatment plant is anticipated to be 344 m³/day. The report does not specify the amount of infiltration into sanitary sewer that will be collected and eventually reach the treatment plant.

Assuming that sanitary sewer construction shall be as per OPSS (Ontario Provincial Standard Specifications), we have estimated the infiltration amount for capacity assessment. At an infiltration rate of 0.075 L/mm ø of sewer/100 m of sanitary sewer, we estimate the infiltration in subdivision sewers to be 10 m³/day.

Therefore, Sunvale Homes subdivision is anticipated to contribute 354 m³/day of wastewater to the Wastewater Treatment Plant (WWTP) and generates a maximum day water demand of 688 m³/day.

Broos Subdivision: This subdivision when fully developed shall include approximately 205 units comprising of single family lots, semi-detached lots, townhome blocks in the subdivision plans. Population of 631 people is forecasted to live in the subdivision.

At 450 lcpd (litres per capita per day) and using a max day factor of 2.0 as opposed to 2.75 as utilized by developer's engineer, maximum water demand is anticipated to be 568 m³/day as opposed to 781 m³/day calculated by developers engineer.

At 450 lcpd, average day wastewater flow to treatment plant is anticipated to be 284 m³/day. The report does not specify the amount of infiltration into sanitary sewer that will be collected and eventually reach the treatment plant.

Assuming that sanitary sewer construction shall be as per OPSS (Ontario Provincial Standard Specifications), we have estimated the infiltration amount for capacity assessment. At an infiltration rate of 0.075 L/mm ø of sewer/100 m of sanitary sewer, we estimate the infiltration in subdivision sewers to be 5 m³/day.

Therefore, Broos Subdivision is anticipated to contribute 289 m³/day of wastewater to the Wastewater Treatment Plant (WWTP) and generates a maximum day water demand of 568 m³/day.

5.0 DETERMINE IMPACT OF SUNVALE AND BROOS SUBDIVISIONS

It is recognized that all 452 residential units in Sunvale and Broos subdivisions shall be built over a number of years and water demands and sewage flows to WWTP shall increase gradually rather than in a short span of 2-3 years. Nevertheless, it is important to determine impact of full development of subdivisions on rated capacity of water and wastewater treatment plants.

Water Treatment Plant

Current maximum day water demand	1603 m³/day
Maximum day water demand from fully developed Sunvale Homes	688 m³/day
Maximum day water demand from fully developed Broos Subdivision	568 m³/day
Total water demand	2859 m³/day < 3011 m³/day
Uncommitted reserve capacity of WTP	3011 – 2859 = 152 m³/day

The water demand exerted by fully developed Broos and Sunvale Subdivisions and existing water customers, shall not exceed rated capacity of 3011 m³/day, and leaves only 152 m³/day of water treatment capacity available to entertain requests from new developers.

Wastewater Treatment Plant

Current average day wastewater flow to treatment plant	1123 m³/day
Wastewater flow from fully developed Sunvale Homes	354 m³/day
Wastewater flow from fully developed Broos Subdivision	289 m³/day
Total wastewater flow	1766 m³/day
Uncommitted reserve capacity of WWTP	2184-1766= 418 m³/day

The wastewater that is anticipated to be treated from fully developed Broos and Sunvale Subdivisions and existing Durham customers is 1766 m³/day, which is less than rated capacity of 2184 m³/day. West Grey, therefore, shall have spare uncommitted capacity of 418 m³/day to handle wastewater flow at Durham WWTP, which can be offered to new development.

6.0 FUTURE DEVELOPMENTS

West Grey is receiving interest from future developers to develop lands within Durham's limits. Provincial policy change is also anticipated to further create pressure on Water and Wastewater Treatment capacities.

An outline of future developments in pipeline are as follows:

6.1 Rockwood Terrace Re-Development

Existing Rockwood Terrace complex that houses 100 units/beds is owned and operated by Grey County. The current proposal does not support reuse of the existing building due to type of construction needed and costs associated with renovation. It is anticipated that existing building shall be developed and replaced with a new building that will offer the following:

- 128 beds of long term care beds vs 100 existing beds.
- 40 senior assisted living units that will include kitchenette. Half of the units shall have double occupancy and other half shall have single occupancy.
- 15 units shall be added which shall offer affordable (subsidized) rentals.
- 45 units shall be added which shall be offered at market rental rate.

6.2 Un-named Subdivision 1

Based on discussions with prospective developers, municipal staff anticipate that a 100 units subdivision likely shall be started in 2024 and will be completed by 2028.

6.3 Un-named Subdivision 2

Based on discussions with prospective developers, municipal staff anticipate that a 200 units subdivision likely shall be started in 2026 and will be completed by 2030.

6.4 Infill/Redevelopment of Existing Properties

There has been a recent trend in West Grey as per municipal staff, where owners with a dwelling unit are removing existing unit and replacing them with multiple dwelling units. Existing vacant lots in the serviced area are also being provided with residential buildings.

It is hard to imagine how long and how many such changes in existing units shall continue to occurs. For this study and in consultation with staff, it has been assumed that overall, 6 additional single residential units shall be added over and above existing residential units every year and that this trend may continue for next 10 years.

6.5 Provincial Policy Impact

The province has introduced zoning changes which shall require municipalities to adopt zoning bylaw which will allow secondary and accessory dwellings built in existing dwellings.

No accurate data is currently available to determine how many existing buildings can be

transformed in the above manner. Arbitrarily, it has been assumed that 8% of existing 1145 service connections or 92 existing buildings over the next 10 years shall have secondary dwellings added to them. It has been further assumed that such dwellings shall house, on an average, 2 persons per dwelling unit.

7.0 SERVICING IMPACT OF FUTURE DEVELOPMENT

Water demands and wastewater generation rates have been estimated as follows:

7.1 Rockwood Terrace Re-Development

- 128 beds at 450 Litres/bed water demand, adjusted by maximum day factor of 2.0 and 128 beds at 450 Litres sewage/bed.
- 40 senior assisted living units:
  - 20 units (single occupancy) at 450 L/unit water demand adjusted by maximum day factor of 2.0
  - 20 units (double occupancy) at 900 L/unit water demand adjusted by maximum day factor of 2.0
  - 20 units (single occupancy) at 450 L sewage/unit
  - 20 units (double occupancy) at 900 L sewage/unit
- 60 rental units (15 units affordable rent and 45 units with market rent)
  - Each unit at 900 Litres/unit water demand, adjusted by maximum day factor of 2.0
  - Each unit at 900 Litres sewage/unit
- An infiltration allowance of 10 m^3/day for sewers on redeveloped site

The water demand and sewage generation rates are summarized in **Table 8.1 & 8.2** (in section 8.0 of this report)**.**

7.2 Un-named Subdivision 1

Water demands from this subdivision with 100 residences have been estimated based on an assumption of 3 persons per home (pph) and a water demand of 450 Lcpd, adjusted by maximum day factor of 2.0.

Sewage flow contribution to WWTP have been estimated based on an assumption of 3 pph and 450 litres sewage/person/day and an infiltration allowance of 10 m^3/day for extraneous flow.

7.3 Un-named Subdivision 2

Water demands from this subdivision with 200 residences have been estimated based on an assumption of 3 persons per home (pph) and a water demand of 450 Lcpd, adjusted by maximum day factor of 2.0.

Sewage flow contribution to WWTP have been estimated based on an assumption of 3 pph and 450 litres sewage/person/day and an infiltration allowance of 10 m^3/day for extraneous flow.

7.4 Infill/Redevelopment of Existing Properties

Water demand for infill units have been estimated assuming an occupancy of 3 pph, 450 Lcpd adjusted by a maximum day factor of 2.0.

Sewage generation rate for infill units have been estimated assuming an occupancy of 3 pph, 450 L sewage per person, without any additional infiltration allowance, as no new sanitary sewers are involved.

7.5 Provincial Policy Impact

Water demand for modified dwellings have been estimated assuming an occupancy of 2 pph, 450 Lcpd adjusted by a maximum day factor of 2.0.

Sewage generation rate for modified dwellings have been estimated assuming an occupancy of 2 pph, 450 L sewage per person, without any infiltration allowance, as no new sanitary sewers are involved.

8.0 CAPACITY ASSESSMENT: WATER AND WASTEWATER

As part of the investigation, impact of future developments on rated capacity of WTP and WWTP was undertaken to determine if West Grey can entertain development request from future developers. The assessment also included changes that would occur at existing properties due to zoning changes allowed by Province. The information is summarized in **Table 8.1** for WTP and **Table 8.2** for WWTP. Information included is self-explanatory.

Per **Table 8.1**, there will be a shortfall of approximately 1119.8 m³/day in water treatment capacity when approved subdivisions are fully developed and future development as anticipated by staff, does occur.

Per **Table 8.2**, there will be a shortfall of approximately 259.8 m³/day in wastewater treatment capacity when approved subdivisions are fully developed and future development as anticipated by staff, does occur.

It may , however, be noted that shortfall in treatment capacity both for WTP and WWTP shall not happen suddenly but rather gradually, thereby allowing West Grey time to reduce existing demands by reduction measures (promoting water conservation), improvements (undertaking elimination of leaking watermains and sanitary sewers) etc.

The pace of building of homes in approved subdivisions namely Sunvale and Broos shall largely depend on market conditions, state of economy and other unknown factors. It is therefore difficult to predict when WTP and WWTP shall run out of capacity. In consultation with staff, we have created a chart that shows decline in available capacity every year as a result of development equivalent to 50 residences every year. In other words, it has been assumed that every following year WTP capacity shall reduce by 135 m³/day per year and WWTP capacity shall reduce by approximately 70 m³/day per year. Impact of this growth is depicted in **Figure 8.1** for WTP and **Figure 8.2** for WWTP. It is noted that Durham WTP may run out of treatment capacity by 2031 and WWTP by 2037 if equivalent to 50 residences are built per year. This timeline will shorten if pace of construction is faster than 50 residences per year.

Table 8.1 - Capacity Assessment Summary

Water Treatment Plant, Durham

Revised: 9/28/21	(A)	(B)	(C)
Description	**Current Capacity Utilization (m^3/day)**	**Committed Capacity (m^3/day)**	**Future Demands (m^3/day)**
Maximum Day Water Demand (2013-2020)	1603		
Sunvale Subdivision: 765 persons at 450 Lcpd, maximum day factor 2.0		689	
Broos Subdivision: 631 persons at 450 Lcpd, maximum day factor 2.0		568	
Rockwood Terrace * Additional 28 beds (128 new - 100 existing) at 450 L/unit, maximum day factor 2.0			25.2
* 20 senior assisted living units (single) at 450 L/unit, maximum day factor 2.0			18
* 20 senior assisted living units (double) at 900 L/unit, maximum day factor 2.0			36
* 60 Rental units (15 affordable rent + 45 market rent) at 900 L/unit, maximum day factor 2.0			108
Unnamed Subdivision 1 100 residences (300 persons) at 450 Lcpd, maximum day factor 2.0			270
Unnamed Subdivision 2 200 residence (600 persons) at 450 Lcpd, maximum day factor 2.0			540
Infill/Redevelopment of Existing Properties 6 additional units (2pph) at 450 Lcpd, maximum day factor 2.0 per year for 10 years (10.8 m^3/day per year)			108
Provincial Policy Impact 92 units (2 pph) at 450Lcpd, maximum day factor 2.0			165.6
	1603	**1257**	**1270.8**

Total of Current and Future Water Demand (A+B+C) = 4130.8 (m^3/day)

Surplus (shortfall) in rated capacity 3011 m^3/day - 4130.8 m^3/day = (1119.8 m^3/day)

Table 8.2 - Capacity Assessment Summary
Wastewater Treatment Plant, Durham

Revised: 9/28/2021	(A)	(B)	(C)
Description	**Current Capacity Utilization (m^3/day)**	**Committed Capacity (m^3/day)**	**Future Demands (m^3/day)**
Average Day Sewage Flow (2013-2020)	1123		
Sunvale Subdivision: 765 persons at 450 Lcpd, + infiltration allowance		355	
Broos Subdivision: 631 persons at 450 Lcpd, + infiltration allowance		290	
Rockwood Terrace * Additional 28 beds (128 new - 100 existing) at 450 L/unit * 20 senior assisted living units (single) at 450 L/unit * 20 senior assisted living units (double) at 90.0 L/unit * 60 Rental units (15 affordable rent + 45 market rent) at 900 L/unit * Infilitration Allowance			12.6 9 18 54 10
Unnamed Subdivision 1 100 residences (300 persons) at 450 Lcpd, + infiltration allowance			145
Unnamed Subdivision 2 200 residence (600 persons) at 450 Lcpd, + infiltration allowance			290
Infill/Redevelopment of Existing Properties 6 additional units (2pph) at 450 Lcpd per year for 10 years			54
Provincial Policy Impact 92 units (2 pph) at 450 Lcpd			82.8
	1123	**645**	**675.4**

Total of Current and Future Water Demand (A+B+C) = 2443.4 (m^3/day)

Surplus (shortfall) in rated capacity 2184 m^3/day - 2443.4 m^3/day = (259.4 m^3/day)

Figure 8.1 Illustration of Depletion of WTP Capacity Based on 50 New Residences/Year
Durham WTP, West Grey

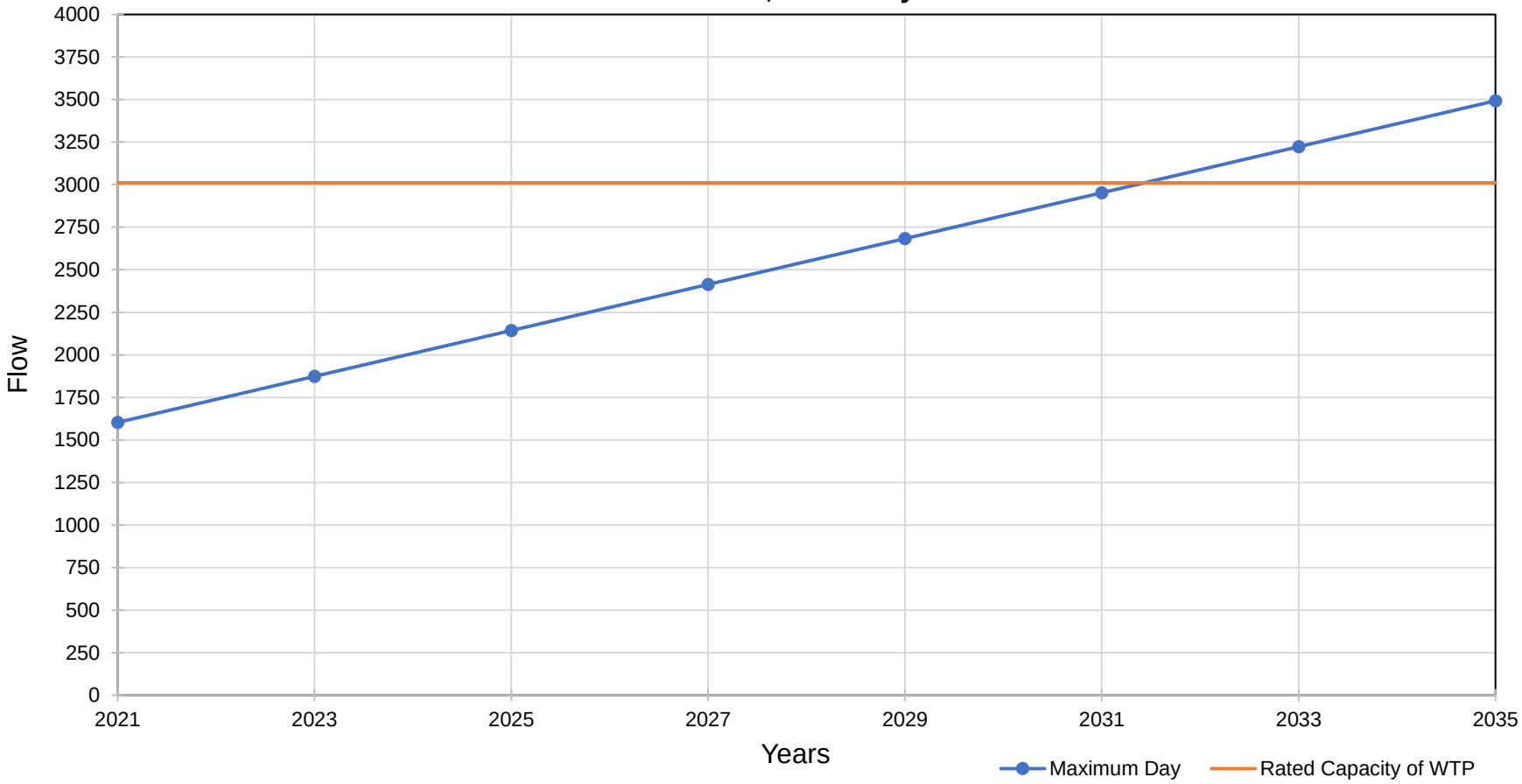
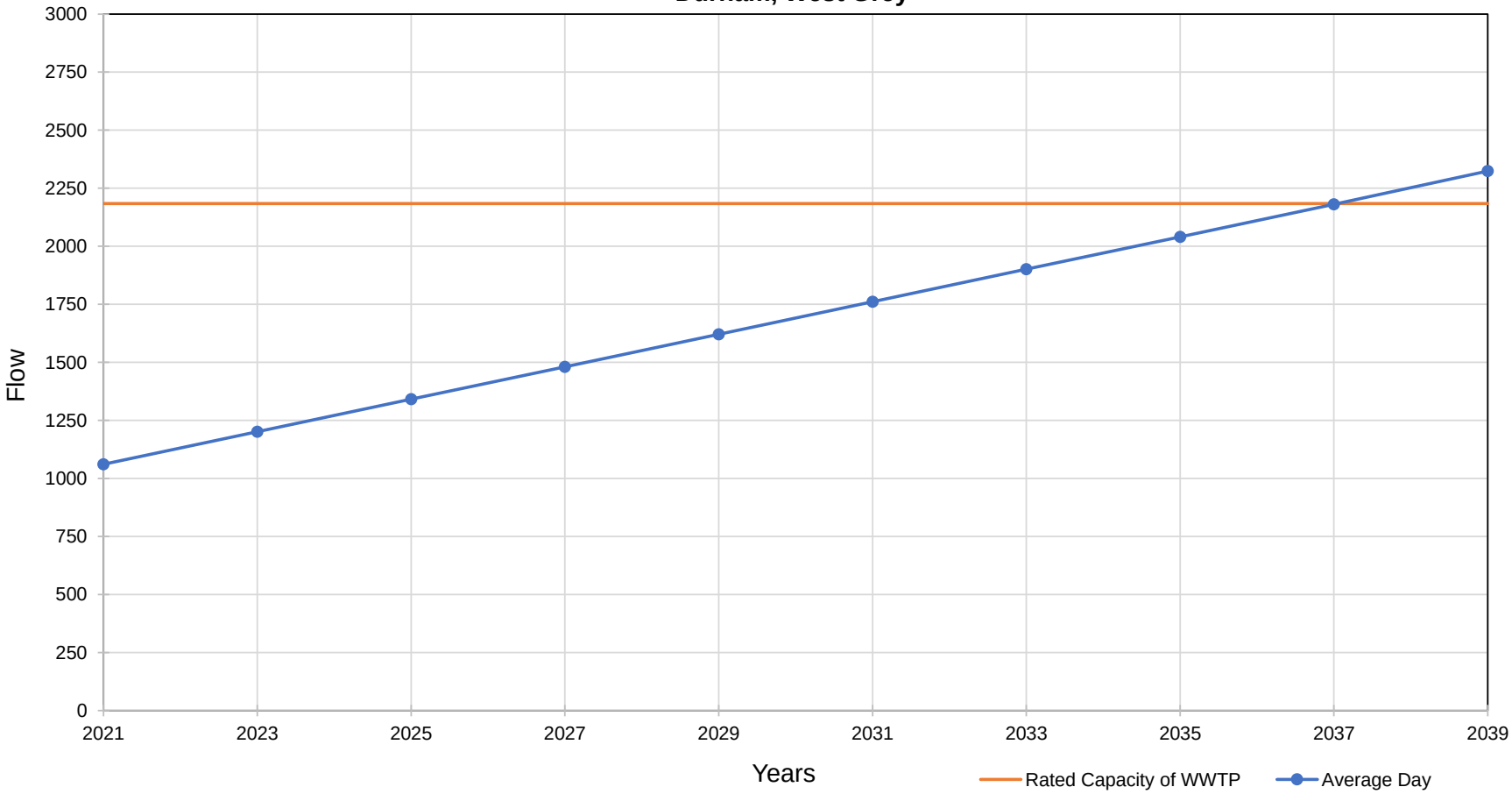


Figure 8.2 - Illustration of Depletion of WWTP Capacity Based on 50 New Residences/Year
Durham, West Grey



9.0 WATER AUDIT

During discussions with municipal staff, it was recognized that some residents are allowed to leave taps running during winter months to prevent water service from freezing. Staff also pointed out watermain breaks during winter and spring thaw events. It was also noted that Durham does have metered customers barring 10-15 property owners. It was, therefore, decided to analyze water and wastewater data in depth to determine any peculiarity in historical data. A brief discussion is as follows:

- Current maximum day water supply demand of 1603 m³/day translates into a 1224 litres per billable unit. Assuming average 2.5 person per house, water demand translates into 490 lcpd. This demand is 8.8% higher than provincial recommendation of 450 lcpd (250 – 450 lcpd) for water supplies.

  A higher per capita demand of ± 490 lcpd hints at possible distribution losses. Consequently, water supplied to distribution system was compared with wastewater collected in collection system. This comparison is provided in **Table 9-1**. While reviewing the information, it may be remembered that all water supplied to consumers does not reach WWTP as sewage (except in an ideal case). There could be water distribution losses by way of watermain breaks, watermain and water service leaks, lawn watering, filling pools, etc. which may not enter sanitary sewers. Also, sanitary sewers can collect additional water by way of inflow from rainfall and snow melt events and infiltration (due to poorly constructed sewers and manholes) and rise in water table. The followings are notable in **Table 9-1**:

  1) There is a disparity between water supplied vs. wastewater collected and disparity is increasing rapidly in recent years.
  2) Water supplied to distribution system, on average daily basis, is generally consistent, varying from a low of 929 m³/day average to high of 1196 m³/day average.
  3) Wastewater collected indicates a wider variation, from a low of 629 m³/day average to a high of 1123 m³/day average.
  4) Higher water supply than collected wastewater flows indicates potential water distribution losses, higher lawn water use, etc.
  5) Lower wastewater flows can be due to leakage from sewers into ground with seems unlikely. Generally, collection system suffers from infiltration rather than exfiltration.
  6) Continual decline in wastewater flows is positive development and may be due to low water use fixtures.
  7) Information in **Table 9-1** appear to hint of higher water distribution system losses.

Due to high water distribution system losses indication, water supplied data was further compared with water metered data. The information is summarized in **Table 9-2.** The analysis further confirms high

Table 9-1
Comparison of Water Supplied and Wastewater Generation
Durham, West Grey

Sept. 20, 2021 21-036

Year	Average Day Water Supplied to Distribution System (m^3/day)	Average Day Wastewater Collected in Collection System (m^3/day)	Difference between Water Supplied & Wastewater Collected (m^3/day)
2013	1054	976	78
2014	1196	1123	73
2015	1192	823	369
2016	1007	880	127
2017	929	981	-52
2018	1037	705	332
2019	1120	702	418
2020	1145	629	516

water losses from distribution system which varies from a low of 340 m³/day in 2017 to a high of 581 m³/day in 2015. The water loss amount varies from 36% to 46% of water supplied into distribution system.

The water loss from distribution system generally comprises of the followings:

- Annual hydrant flushing
- Watermain breaks
- Watermain leakages
- Water service leaks
- Running water to prevent water service freezing
- Water theft, and others

It may be noted that none of the above losses, as per collected data, appear to be contributing to wastewater flows at WWTP.

Table 9-2: Comparison of Water Supplied to Distribution System vs. Water Recorded by Water Meters

Sept. 20, 2021 21-036

Year	Average Day Water Supplied to Distribution System (m^3/day)	Average Day Estimated based on Water Metered Records (m^3/day)	Possible Leakage from Distribution System (m^3/day)
2014	1196	663	533 (44.6%)
2015	1192	641	551 (46.2%)
2016	1007	629	378 (37.5%)
2017	929	589	340 (36.6%)
2018	1037	622	415 (40%)
2019	1120	616	504 (45%)
2020	1145	649	496 43.3%)

10.0 OTHER IMPACTS OF FUTURE GROWTH

Preceding sections in the report had focused on growth impacts on capacities of water treatment and wastewater treatment plants. Other impacts of future growth include, but have not been addressed in this report, are:

- Capability of distribution system to supply adequate quantity of water at adequate pressure. Deficiencies could include inadequate watermain sizes and lack of looping. Other serious deficiency could be lack of water storage, and insufficient capacity of booster pumping station.
- Capability of Sewage Collection System to safely collect additional flows and transfer it to WWTP. Deficiencies could include inadequate sewer sizes, lack of pumping capacity, inadequate wet well sizes, etc.

11.0 NEXT STEPS

Based on the foregoing discussion in previous section of this report, it is amply clear that Durham's WTP and WWTP shall be unable to handle the demand generated by committed development and uncommitted future development. West Grey therefore, shall need to undertake a series of steps to enhance the capacity of WTP and WTTP to accommodate future growth. The treatment capacity of both WTP and WWTP is currently sufficient, but could exceed beyond rated capacity, if timely corrective steps are not implemented. The following steps can be adopted:

A. Water Treatment Capacity

A.1 Undertake a Leak Detection Survey to identify large water leakage areas. This step already has been completed during on-going investigation for preparation of this report. Larger leaks identified in survey have been corrected and consequently some reduction in water demand has been noted. There may be numerous small leaks, which have not been picked up by Leak Detection survey but are contributing to significant water loss from distribution system.

A.2. Implement immediately, lawn water restrictions during summer months to possibly reduce maximum day water demands. Also implement a water conservation education programme.

A.3 There is an existing drawing that indicates all Cast Iron (CI), Ductile Iron (DI), transite watermains by their age. It needs to be updated with history of watermain breaks, in order to help in identification of trouble areas.

A.4 Create a watermain and water services replacement programme based on age and condition of watermains. Old CI and DI watermains are likely fragile, prone to breakage and continuous small leakages. This programme will reduce water loss from distribution system gradually.

A.5 Reactivate the earlier project of finding new source of raw water supply. The writer had made a presentation to council in early 2013 identifying the area that could be explored by way of test well drilling. The area was identified by way of desk top hydrogeological study of several areas in Durham.

A.6 Monitor the "water supplied, and water consumed" data every two years to determine the efficacy of steps taken and modify the programme as needed to maximize benefit.

A.7 Undertake investigation and implement remedial measures to stop water loss by leaving taps open during winter periods. This problem occurs at ± 15 homes every year.

A.8 Undertake computer modelling of distribution system to identify area that could experience low flows and low pressures due to future growth.

B. Wastewater Treatment Plant

B.1 Undertake a smoke testing survey of entire collection system followed by CCTV inspection of "select" sanitary sewers and services to identify potential sources of inflow and infiltration.

B.2 Undertake manhole inspection programme to identify infiltration sources. Due to poor construction, during period of surcharged water table, they can collect significant amounts of "unwanted" water into collection system.

B.3 Create sanitary sewer maps showing pipe type, age and any known historical problems.

B.4 Create a sanitary sewer replacement/rehabilitation programme based on age and condition of sewers and historical problems.

B.5 Commence investigation for determining ways of enhancing capacity of WWTP and sewage pumping station.

B.6 Monitor sewage flows and compare with water suppled/metered every two years to determine the efficacy of steps taken and modify the programme as needed to maximize benefit.

B.7 Undertake computer modelling of collection system to identify existing sewers that could become deficient in capacity when new subdivisions are developed.

Respectfully Submitted,

GSS Engineering Consultants Ltd.

Rakesh Sharma, P. Eng. M.A.Sc., Secretary Treasurer
Designated Consulting Engineer

RS/nc

Corporation of the
Municipality of West Grey

January 4, 2022

Capital Budget Memo

The draft 2022 capital program includes $16.9 million of expenses which are funded by $1.488 million from the current year tax levy. This represents an increase of $85,000 in tax levy support for the capital program.

The capital budget is transferring $95,000 into reserves and is utilizing $1.6 million of various discretionary reserves.

Development charges are supporting the capital program by $868,000. Various provincial and federal grants make up $3.19 million of capital funding.

Loan or debenture financing will be utilized in the amount of $7.27 million for the investment in a new police building and $740,000 on the Durham water/sewer users for the hanging watermain on the Garafraxa bridge and for phase one of the urbanization of Durham Road.

Other municipal funding includes $1 million from Grey County for the Durham Road/County Road 27 urbanization project (pending county approval).

Capital expenses	$16,931,960
Transfer to capital reserves	95,000
Total Capital Budget	$17,026,960
Tax levy	$ (1,487,978)
User fees	(661,500)
Discretionary reserves	(1,603,687)
Development charges	(868,665)
Federal and Provincial grants	(3,192,742)
Loans/debentures	(8,011,875)
Other municipal	(1,140,513)
Sales/trade-ins	(60,000)
Total Capital Revenues	$(17,026,960)

Kerri Mighton, CPA, CGA
Director of Finance/Treasurer

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2022 Budget Changes Summary	108,185	1.0% tax levy change	Additions	Removals
2021 tax levy	10,809,869			
Starting point Nov. 30	1,071,036	9.9%		
additional CPI 3.5% = $105,000 budget incl. $60,000	45,000		45,000	
add'nl staff training budget had $2,500 now total $5,500	3,000		3,000	
new admin asst/records $60,000 - reconsidered ($60,000)	0	res'n 665-2021, 669-2021		
Saddler St E only - traffic study $10 & calming plan $7.5	17,500		17,500	
remove full traffic study for all of West Grey	-90,000			-90,000
adjust new admin asst/records to only start Apr 1	45,000		45,000	
new environ/capital projects to start Apr 1	52,500		52,500	
seasonal landfill savings, no update to Nby gatehouse	-74,000			-74,000
increase tipping fees effective Jan 1 instead of Mar 1	-10,000			-10,000
add revenue for lacrosse	-7,000			-7,000
reduce Library Board request	-53,400			-53,400
remove coin operated light at Durham tennis courts	-4,000			-4,000
change CIP to $75 from reserve to $25 from tax levy	25,000		25,000	
Revised tax levy increase as at Nov 30, 2021	1,020,636	9.4%	188,000	-238,400
Add in revenue for 2021 year end assessment growth	-185,000			
Starting point Jan 4, 2022	835,636	7.7%		

Operating Budget Request Form (BRF) Index

Department	COLA/ Step Wages	Insurance	Contracts	Other	Included Operating Total	BRF#	Proposed Additions	Other explanation
CAO	400,000					CAO-02-22	400,000	staffing gaps as identified by consultants 2022 or 2023
			80,000			CAO-03-22	80,000	police costing consultant
				10,000		CAO-04-22	10,000	FCM Green Fund application for waste diversionfeasibility study
Subtotals	400,000	-	80,000	10,000	-		490,000	
TOTAL							490,000	

Capital Budget Request Form (BRF) Index

Department	Included Capital Total	BRF#	Proposed Additions	Other explanation
Fire,EM,H&S	480,795	FRS-01-22		replacement of SCBA and breathing air compressor
Public Works	90,000	IPW-04-22		new one-ton dump truck
	50,000	IPW-05-22		single axle plow truck replacement
	1,549,221	IPW-06-22		Durham Rd urbanization Highway 6 to Bruce St (phase one)
Water/Sewer Durham	471,350	incl. with IPW-06-22		Durham Rd urbanization Highway 6 to Bruce St (phase one)
	700,000	WSD-01-22		replace hanging watermain on Garafraxa St bridge
Recreation	25,000	REC-03-22		Durham Arena LED lights over ice surface
TOTAL	3,366,366			

Municipality of West Grey

Budget Request

Request: CAO-02-22 – Staffing gaps

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

Description
Budget Request Form
Nature of request:
In response to recommendations from two service reviews, this Budget Request Form (BRF) addresses staffing gaps and rationale for council's consideration.
Justification:
In 2020, West Grey completed a compensation and organizational review. That review identified several staffing gaps based on staffing levels and structures of comparable municipalities, current workloads, and council priorities. The consultant recommended four new positions in 2021 and four new positions in 2022. In 2021, West Grey completed a service delivery and operations review (SDOR). That review identified four areas of focus – technology, organizational effectiveness, resource management and performance management. Additionally, the SDOR endorsed all of the recommendations in the 2020 review, namely, the staffing gaps, the need to develop a succession planning program, and the need to allocate funds for regular wage and compensation reviews. The following positions were recommended for 2022 through the organizational review and supported by the 2021 SDOR: • Human Resources/Health and Safety Coordinator • Deputy Fire Chief/Fire Prevention Officer • Bylaw and Property Standards Officer • IT Technician As well, the Manager, Community Services vacancy will need to be filled to respond to West Grey's population growth and the increase in public events, community services, and recreation programming. West Grey continues lagging in staffing levels when compared to similar municipalities across Ontario. In 2020, four new positions were recommended for 2021 and four new positions for 2022. Of the four positions for 2021, one was created using building revenue (building inspector) and one was created by allocating the salary of the vacant community services manager position for a finance and asset management position. The other two positions – customer service and records clerk and an environment and capital

Municipality of West Grey

Budget Request

Request: CAO-02-22 – Staffing gaps

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

projects coordinator – were not approved. However, in the preliminary 2022 budget deliberations, these two positions have been tentatively approved.

West Grey still requires four positions for 2022. Staff is aware of the many pressures in the 2022 budget. This Budget Request Form is for council's consideration for the 2022 budget, or to earmark some (or all of these) positions for 2023.

Consequences of not funding:

Two independent consultant reviews have identified staffing gaps in our corporate structure.

Deputy Fire Chief

West Grey Fire & Emergency Services has one full-time employee – the fire chief. The chief is also responsible for health and safety and emergency management. This is not a sustainable model, given the growth of the community, the increase in service demands, and the lack of support and succession planning for this position. A deputy fire chief will address all of these risks as well as even out workload pressures. The current staffing model for fire and emergency services is a top priority given the reliance on volunteer firefighters and the increased expectations of the part-time fire inspection officer. A full-time deputy fire chief will ensure legislative requirements are met, provide essential support for fire inspection, fire prevention and fire education initiatives.

Human Resources / Health and Safety Coordinator

As the corporation grows, there is an increased need for a human resource professional. West Grey retains outside HR support from a number of consultant agencies, based on the HR need. While this model has been adequate, it can become costly and is only used intermittently, resulting in HR matters falling to the CAO.

Training, health and safety and employee development is not formalized in this corporation, and based on municipal comparators, this is a major and significant organizational gap. Additionally, a staff survey was conducted during the SDOR with a response rate of approx. 90%. Through that employee feedback, it was clear that staff want training and development programs, consistency in procedures and policy enforcement, and initiatives to build corporate culture. These initiatives would be all possible under the leadership of this position, as would ensuring mandatory training and mandatory certification programs are completed by staff and by the due dates.

Regarding recruitment, there is an ad hoc method with department heads responsible for creating the job posting, composing interview questions, scheduling interviews, managing reference checks and completing offers of employment contracts. Equally

Municipality of West Grey

Budget Request

Request: CAO-02-22 – Staffing gaps

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

challenging is the onboarding process, training and mentoring, and generally helping new employees assimilate into the corporation.

Finally, the municipality has an Employee Consultation Committee (ECC) with staff representatives from several departments. The work of the ECC has been somewhat suspended during COVID, however, this committee is a valuable communication link between management and staff. An HR professional would be an important asset to this committee.

Regarding health and safety, West Grey has a health and safety workplace committee comprised of staff from across the corporation. Primarily, health and safety is a responsibility of the fire chief and the director of public works – two very busy portfolios already. The staff team does a very good job, however, this position would be able to move the corporation to a much more proactive model for health and safety.

Bylaw and Property Standards Officer

West Grey has a contract for part-time bylaw and property standards services. Bylaw enforcement is completed on a complaint-only basis in a reactionary model. With the future growth in population, and corresponding anticipated increase in complaints, the corporation will need to assess and determine if the part-time contracted service is adequate or if a part-time staff position is a preferred model.

West Grey Police are often required for back-up support for riskier calls and to enforce the municipality's noise bylaw on weekends and evenings when bylaw officers do not work. It is expected that this arrangement will need to continue as a bylaw officer does not have the level of training or equipment to respond to any escalated calls.

IT position

The SDOR ranked technology as a high priority for the corporation. As seen with the pandemic, the need to be technologically current was never more essential. West Grey staff has done a remarkable job responding to the tech needs created by the pandemic by enabling several staff to work remotely, implementing online solutions for council and committee meetings, evolving to live-stream for council meetings to ensure public transparency, and completing a corporate-wide software update. As well, staff researched and implemented several online solutions for residents to access. The challenge, however, is that this is not a sustainable model, there is a risk that software solutions will not 'talk to each other', and staff simply do not have the expertise to continue troubleshooting or investigating and assessing new software products. Additionally, expanding technology to all West Grey work locations would require a certain level of expertise to launch and manage those systems.

Municipality of West Grey

Budget Request

Request: CAO-02-22 – Staffing gaps

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

It is envisioned that this professional would also be responsible to assess, on an ongoing basis, West Grey's IT needs and create a long-term plan that identifies software solutions for all departments, develops an implementation schedule, conducts staff training, and provides ongoing tech support. As well, this position would be responsible for creating, implementing, and overseeing a Customer Resource Management (CRM) solution, as recommended in the SDOR.
Alignment with council priority of strategic plan
Pillar: Work together Goal: Listen and empower Strategy: Instill a customer-first workplace culture

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure						
Operating Expenditure						400,000
Funding Source						
Tax Levy						400,000
Reserve						
Grant						
Fees						
Other						

Note: Four new positions at approx. $75,000 each, and the return of the Manager, Community Services position.

Municipality of West Grey

Budget Request

Request: CAO-03-22 – Police costing consultant

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

Description
Budget Request Form
Nature of request:
Budget to retain a police costing consultant
Justification:
At the December 21, 2021 council meeting, West Grey council directed staff to initiate the process to obtain a costing from the Ontario Provincial Police (OPP) to provide policing services for West Grey. In consultation with Ontario municipalities that have gone through the OPP costing process, West Grey Chief Administrative Officer (CAO) was strongly advised to budget for, and retain, a costing consultant to complete the cost and service level analysis of the OPP proposal in relation to the cost and service level currently provided by West Grey Police Service. The CAOs consulted further noted that retaining a third-party consultant ensures an unbiased analysis on a complicated, specialized matter that requires specific expertise. Bids received by these municipalities in 2018/2019 ranged from $40,000 to $70,000; however, both municipalities paid approx. $55,000. Inflation and the reality of escalating costs would necessitate a budget maximum of $80,000.
Consequences of not funding:
It is not appropriate or feasible for municipal staff to complete the costing analysis. This analysis requires specific expertise and impartiality. If council does not allocate appropriate funds to retain such expertise, there is a threat to the integrity of the costing analysis.
Alignment with council priority of strategic plan
Pillar: Work together Goal: Listen and empower Strategy: Instill a customer-first workplace culture

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure						

Municipality of West Grey

Budget Request

Request: CAO-03-22 – Police costing consultant

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

Operating Expenditure		80,000				
Funding Source						
Tax Levy		80,000				
Reserve						
Grant						
Fees						
Other						

Municipality of West Grey

Budget Request

Request: CAO-04-22 – FCM Green Fund

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

Description
Budget Request Form
Nature of request:
Council requested staff report back on the waste reduction and diversion study grant (Resolution 489-2021)
Justification:

The FCM Green Fund grant awards up to 50% of eligible costs for waste diversion feasibility studies – to a mazimum of $175,000. There are a number of steps in the grant process, including:

1. Complete the pre-application process – once submitted, the FCM will respond within 15 days to advise if it has been successful.
2. If the pre-application is successful, complete the rest of the application process, which includes:
3. Evidence of Consultation with upper-level government – i.e., prepare a letter and send to the provincial government, and receive a letter from the provincial government addressed to Municipality regarding the funding, etc.
4. Identify all sources of funding – all funding must be confirmed in writing from the funding source/partner and must be included in the application,
5. Evidence pertaining to level of Partnerships contributing to the initiative – evidence that funding is in place, list of funding partners, letters from those providing funding, etc.,
6. A letter from the Municipality confirming its cash contributions to the initiative – note that the municipal cash contribution must be at least 10% of the overall cost of the Study,
7. Complete the necessary application spreadsheet data entry
8. Submit the application – once submitted, it will take three to five months for the FCM to review and respond back to the municipality.

Once a waste diversion feasibility study is complete, the study can be included when applying for funding for a pilot project.

Municipality of West Grey

Budget Request

Request: CAO-04-22 – FCM Green Fund

Department: Chief Administrative Officer

Year: 2022 Included in draft budget ☐ Proposed addition to budget ☒

The total cost of a feasibility study for West Grey is estimated at $20,000. West Grey could receive $10,000 in FCM funding. West Grey has no other partners for this type of waste diversion feasibility study, and the project costs will need to be paid by the municipality before funding will reimburse costs.

Consequences of not funding:

West Grey council has allocated $25,000 from the Municipal Modernization Grant program for a waste reduction/diversion study. Staff do not recommend 'grant stacking' and would advise that if council prefers to NOT allocate tax levy funds, then the modernization funds be used for the study and West Grey does not participate in the FCM program.

Alignment with council priority of strategic plan

Pillar: Build a better future
Goal: Stewards of the environment
Strategy: Find ways to divert waste from landfill sites

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure						
Operating Expenditure		20,000				
Funding Source						
Tax Levy		10,000				
Reserve						
Grant		10,000				
Fees						
Other						

Municipality of West Grey

Budget Request

Request: FRS-01-22 Capital - replacement of SCBA and breathing air compressor

Department: Fire Services

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
Replacement of SCBA and breathing air compressor
Justification:
SCBA (Self Contained Breathing Apparatus) this equipment is part of the fire service's PPE (Personal Protective Equipment). The present equipment is now 15 years old, and the air cylinders are due to expire over the next two years. The Air Packs themselves are now four (4) generations old and no longer meet NFPA (National Fire Protection Agency) recommendations. The present operating pressure is 2216-psi for the cylinders and packs. The industry standard is now 4500-psi so this would also be an upgrade to present equipment. If we stay with the 2216-psi, we would still be required to replace our cylinders, there are over 70 in total. Upgrading to the 4500-psi system, we would be required to also upgrade our breathing air compressor to a 6000-psi system. Each SCBA unit has a computer built in that operates and regulates pressures, air flows and sensors, including the man down integrated alarms of each unit. We presently have 38 units in operation as well as 3 units in RIT (Rapid Intervention Team) bags these units are taken in when we have a firefighter in trouble that may require rescuing. Each unit would consist of the air pack itself, two 4500-psi cylinders for each, and all accessories for each pack, including RIC (Rapid Intervention Connection) and hoses. This is so one firefighter can buddy breath in an emergency if trouble were to arise. Each firefighter would be fitted for their own face piece as part of their PPE. The compressor and the cascade system would be replaced to the 6000-psi system and the fill station would remain as statis quo. Compressor system upgrade; $58,000. SCBA Replacement: $422,000. Budget estimates only. Any SCBA considered for purchase must first meet and pass testing by a committee made up of firefighters.

Municipality of West Grey

Budget Request

Request: FRS-01-22 Capital - replacement of SCBA and breathing air compressor

Department: Fire Services

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Consequences of not funding:
Firefighter safety may be compromised as the present equipment is aging and may be at risk of failure. There are also higher maintenance costs on the old units as parts for older models dwindle. This equipment is also important to allow personnel to do the job safely. With out the SCBAs, there would be no proximity or internal firefighter or rescue operations.
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Vibrant community Strategy: Maintain and invest in our infrastructure; be responsible stewards of the tax dollars

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		480,795				
Operating Expenditure						
Funding Source						
Tax Levy		59,112				
Reserves Gen. Cap. Dev. Charg		225,933 195,750				
Grant						
Fees						
Other						

Municipality of West Grey

Budget Request

Request: IPW-04-22 – Capital - One Ton Dump Truck

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
One Ton Dump Truck
Justification:
The original plan for fleet was to have a one-ton truck at each public works depot. These work trucks are essential for cold mix repair and for transporting signs and materials for the day-to-day work. The one-ton trucks can be utilized instead of the large plow trucks for these smaller jobs. There are currently one-ton trucks at two of the depots. There are 524 km of hard top roads to be maintained and one-ton trucks are critical for our cold mix hard top maintenance program.
Consequences of not funding:
• Further deterioration of the existing machine • Higher maintenance costs (material and labour for parts) • Unmaintained gravel roads • Inadequate transportation system
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Vibrant community Strategy: Maintain and invest in our infrastructure; be responsible stewards of the tax dollars

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		90,000				
Operating Expenditure						
Funding Source						

Municipality of West Grey

Budget Request

Request: IPW-04-22 – Capital - One Ton Dump Truck

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Tax Levy		24,750				
Reserves DC		65,250				
Grant						
Fees						
Other						

Municipality of West Grey

Budget Request

Request: IPW-05-22 – Capital – Single Axle Plow Replacement Durham

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
Single Axle Plow Replacement - Durham
Justification:
The draft capital budget includes $50,000 for replacement of the 2006 single axle plow in Durham. This unit was purchased used in 2016. The existing truck will require repairs to the box and the engine if it is not replaced. The proposal is to replace this unit with another used single axle truck.
Consequences of not funding:
It is estimated that the existing unit will need at least $50,000 of repairs to the box and the engine if it is not replaced, so the operating budget should be increased to include these expenses.
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Vibrant community Strategy: Maintain and invest in our infrastructure; be responsible stewards of the tax dollars

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		50,000				
Operating Expenditure						
Funding Source						
Tax Levy		40,000				
Reserves						
Grant						

Municipality of West Grey

Budget Request

Request: IPW-05-22 – Capital – Single Axle Plow Replacement Durham

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Fees						
Other – sale of existing truck		10,000				

Municipality of West Grey

Budget Request

Request: IPW-06-22 – Capital – Durham Rd Urbanization (Hwy 6 to Bruce St)

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
Durham Rd Urbanization (Highway 6 to Bruce St)
Justification:
This project is phase one of the urbanization of Durham Rd which is required to service the growth in the system. The preliminary engineers estimate of the total cost for this project is $2,020,571. Since this is a county road, the County of Grey would be responsible for approximately $1,015,542. The Durham water users share is $311,300 and the Durham sewer users share $160,050. The tax levy share of the project is $533,679. This is an eligible development charge project so $293,625 of development charges can be used to reduce the tax levy portion of the project. It is being proposed that $214,804 be transferred from the General Capital Reserve, leaving a balance of $25,250 to be funded from the current year tax levy.
Consequences of not funding:
In order to continue to be ready for the new connections to the water sewer system, phase one needs to be completed before the next phases can begin.
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Vibrant community Strategy: Maintain and invest in our infrastructure; be responsible stewards of the tax dollars

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		2,020,571				
Operating Expenditure						
Funding Source						

Municipality of West Grey

Budget Request

Request: IPW-06-22 – Capital – Durham Rd Urbanization (Hwy 6 to Bruce St)

Department: Infrastructure & Public Works

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Tax Levy		25,250				
Reserves Gen. Cap. Dev. Chrge		 214,804 293,625				
Grant						
Fees						
Other bank loans paid by water/sewer County		 311,300 160,050 1,015,542				

Municipality of West Grey

Budget Request

Request: WSD-01-22-Capital – Durham Watermain Replacement Garafraxa St Bridge

Department: Durham Water

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
Durham watermain replacement – Garafraxa Street bridge
Justification:
The engineers have reviewed the original scope of the work to be completed on the Garafraxa Street bridge to ensure all components of the existing bridge rehabilitation are being considered. Below is a breakdown of the additional items associated with the hanging watermain replacement: - Removal of existing watermain, including existing hangers (west side) - Removal of existing cantilevered concrete sidewalks - Removal and replacement of existing retaining wall cap to facilitate installation of new railing system - Work platform and scaffolding to facilitate installation of new concrete cantilevered sidewalk and new insulated watermain on bridge - Maintenance of existing water supply to determine if temporary water supply is required and if existing water valves are operational - Installation of new cantilevered sidewalk including new hangers for watermain and new hangers for gas-main (to be supplied by Enbridge) - Installation of insulated watermain on bridge - Installation of heat trace system It is estimated that this project would cost $700,000. The Ontario Community Infrastructure Fund (OCIF) Formula-based Component Allocation Notice was recently received advising of the 2022 funding amount of $880,242 or an increase of $431,435. This grant is calculated using core infrastructure assets valued at cost as reported in Schedule 51 of the Financial Information Return (FIR). The items included as core assets are roads, bridges, water and wastewater. The 2022 draft budget included the same OCIF funding amount as 2021 which was $448,807 and was being used towards roads projects. Since the basis for our funding amount is due in part to the value of the water and wastewater assets, it is being recommended that the additional $431,435 be used towards the watermain replacement on the Garafraxa bridge. This would leave a balance of $268,565 to be funded from the water users.

Municipality of West Grey

Budget Request

Request: WSD-01-22-Capital – Durham Watermain Replacement Garafraxa St Bridge

Department: Durham Water

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Consequences of not funding:
Based on the age and condition of the existing hanging watermain, the engineers feel it would be an opportunity for the municipality to address the replacement of the watermain as it would align with the rehabilitation of the bridge components and the cost of a replacement as a separate project would likely be inflated.
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Vibrant community Strategy: Maintain and invest in our infrastructure

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		700,000				
Operating Expenditure						
Funding Source						
Tax Levy						
Reserves						
Grant		431,435				
Fees						
Other Bank loan water users		268,565				

Municipality of West Grey

Budget Request

Request: REC-03-22-Capital – Durham Arena LED lights over ice surface

Department: Recreation - Durham

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Description
Budget Request Form
Nature of request:
Durham Arena LED lights over ice surface
Justification:
This project would replace the lights over the ice surface at the Durham Arena with LED.
Consequences of not funding:
Continue with existing lights which would not reduce the hydro consumption at the facility.
Alignment with council priority of strategic plan
Pillar: Build a better future Goal: Stewards of the environment Strategy: Look for sustainable practices throughout municipal venues and programming

	2022 Mandatory	**2022 One-time**	**2022 Growth**	**2022 Service level**	**2023 One-time**	**2023 Service level**
Capital Expenditure		25,000				
Operating Expenditure						
Funding Source						
Tax Levy		25,000				
Reserves						

Municipality of West Grey

Budget Request

Request: REC-03-22-Capital – Durham Arena LED lights over ice surface

Department: Recreation - Durham

Year: 2022 Included in draft budget ☒ Proposed addition to budget ☐

Grant						
Fees						
Other						

Council report

Meeting date:	January 4, 2022
Title:	Year End Surplus
Prepared by:	Kerri Mighton, Director of Finance/Treasurer
Reviewed by:	Laura Johnston, CAO

Recommendation

That council direct staff to continue to include in the budget bylaw that the general year end surplus be transferred to a future capital reserve.

Executive summary

Starting with the 2022 budget, staff implemented Budget Request Forms (BRFs) to present new items for council consideration and approval. These forms would include a recommendation for use of any savings from efficiencies. Since the final year end surplus or deficit is not known until the audit is complete, which is after the budget bylaw would typically be passed by council, staff recommend that the practice of transferring any year end general surplus to a general capital reserve be continued. This automatic transfer of year end surplus has been a useful tool to build a reserve for future capital.

Background and discussion

At the June 1, 2021, meeting council passed the following motion:

Whereas West Grey staff are dedicated to continuous improvement and finding efficiencies in municipal operations; and

Whereas year-end surpluses and operational savings have traditionally been allocated to a capital reserve; and

Whereas council deems it expedient to consider staff recommendations for the allocation of any year-end surplus that may assist in implementing efficiencies; and

Now therefore be it resolved that a staff report be included in the 2022 preliminary budget meeting outlining options for year-end surplus or deficit, including the option of presenting any surplus generated as a result of implementing efficiencies during budget deliberations, with a

request to allocate these for funding further efficiencies.

Starting with the 2022 budget, staff have implemented Budget Request Forms (BRF) to present new items for council consideration. These forms include comprehensive presentation for new costs, costs savings from efficiencies, revenue sources, etc., depending on the item to be deliberated for final council approval.

Starting in 2013, the budget bylaw has included a section which states, “that any remaining year end general surplus shall be transferred to a future capital reserve”. The final year end surplus or deficit is not known until the audit is complete, which is after the budget bylaw would typically be passed by council. The transfer of any year end general surplus to this capital reserve is discretionary and council can change this direction by amending its bylaw. This automatic transfer of year end surplus has been a useful tool to build a reserve for future capital. The ending balance in the general capital reserve for 2020 was $1,467,307 and the draft 2022 budget includes using $421,683 of this reserve which would leave a balance of $1,045,624.

Legal and legislated requirements

The Municipal Act

Financial and resource implications

If the automatic transfer of year end surplus to a future capital reserve within the budget bylaw is discontinued, then council should consider commitment of funding additional capital reserves in its annual budget.

Staffing implications

N/A

Consultation

Laura Johnston, CAO

Alignment to strategic vision plan

Pillar: Build a better future
Goal: Vibrant community
Strategy: Maintain and invest in our infrastructure

Attachments

N/A

Next steps

Incorporate council direction into preparation of the budget bylaw.

Respectfully submitted:

Kerri Mighton, director of finance/treasurer