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**		