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The Regional Municipality of Durham Report

To: Works Committee
From: Commissioner of Works
Report: #2022-W-42
Date: December 7, 2022

Subject:

Works Department – 2023 Water Supply and Sanitary Sewerage Systems Business Plans and Budgets

Recommendation:

That the Works Committee recommends to the Finance and Administration Committee for subsequent recommendation to Regional Council that the Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budgets be approved.

Report:

1. Purpose

- 1.1 The purpose of this report is to obtain Works Committee concurrence of the 2023 Business Plans and Budgets for the Works Department's portion of the Water Supply System and Sanitary Sewerage System. The Works Department's 2023 Business Plans and Budgets will be referred to the Finance and Administration Committee for consideration during deliberations of the 2023 Consolidated Business Plans and Budgets for the Water Supply and the Sanitary Sewerage Systems.

2. Overview

- 2.1 The Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budgets supports and advances the goals of the Regional Municipality of Durham's (Region) Strategic Plan, namely:
- Goal 1: Environmental Sustainability
 - Goal 2: Community Vitality
 - Goal 3: Economic Prosperity
 - Goal 4: Social Investment
 - Goal 5: Service Excellence
- 2.2 The recommended Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budget includes \$453.76 million in gross expenditures (Water Supply System \$200.82 million and Sanitary Sewerage System \$252.94 million) requiring \$206.34 million in user rate revenue (\$105.58 million Water Supply System and \$100.76 million Sanitary Sewerage System) with the remaining funded by program fees, development charges, recovery from the Regional Municipality of York, debt financing, and reserve and reserve funds.
- 2.3 The recommended Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budgets provides operating and capital funding for the following items:

Water Supply:

- Maintenance Operations
 - (a) Watermain Cleaning and Repairs
 - (b) Valve and Hydrant Maintenance
 - (c) Water Connection Maintenance
 - (d) Water Meter Repair and Testing
 - (e) Depot Operations
- Water Supply Plant Operations
 - (a) Plants East
 - (b) Plants Central
 - (c) Plants North

(d) Sun Valley Private Water System

(e) Supervisory Control and Data Acquisition (SCADA) Systems

- Engineering and Staff Support
- Facilities Management
- Administration
- Water Supply System portion of Headquarters Shared Costs
- Construction of Municipal Services

Sanitary Sewerage:

- Maintenance Operations
 - (a) Sewer Cleaning, Repairs and Maintenance
 - (b) Sewer Connection Maintenance
 - (c) Depot Operations
- Water Pollution Control Plant Operations
 - (a) Plants and Pumping Stations
 - (b) Duffin Creek Water Pollution Control Plant
- Regional Environmental Laboratory
- Engineering and Staff Support
- Facilities Management
- Administration
- Sanitary Sewerage portion of Headquarters Shared Costs
- Construction of Municipal Services

3. Previous Reports and Decisions

- 3.1 Report #2021-W-51, approved by Regional Council on December 22, 2021, approved the Works Department's 2022 Water Supply and Sanitary Sewerage Business Plans and Budgets.

4. 2022 Accomplishments

- 4.1 Regional water supply and sanitary sewerage systems continue to provide safe drinking water and protect the water environment. Quality and environmental

management systems support and integrate operations to meet regulatory performance requirements. The following metrics provide a demonstration of the system performance objectives in 2022:

- No Boil Water Advisory days.
- 99.8 per cent compliance of drinking water test results.
- No unplanned sanitary sewage by-pass events.
- 100 per cent compliance of wastewater effluent results to protect water environment.

4.2 The capital water supply and sanitary sewerage programs support the Region's Strategic Plan goals. The following highlights the detailed design and construction of some of the major projects which commenced in 2022:

- 23 water supply and sanitary sewerage projects.
- Twinning of the Liverpool Road forcemain, Pickering – construction has commenced with a completion target of August 2023.
- Whitby Water Supply Plant industrial raw water pumping station, outfall works and chlorination lines replacement, Whitby – commence work order to be issued in December 2022 with completion target October 2024.
- Courtice Trunk Sanitary Sewer and Watermain on Baseline Road from Courtice Road to Trulls Road and Trulls Road from Baseline Road to Bloor Street, the project includes the reconstruction Baseline Road from Courtice Road to Trulls Road, Courtice – construction has commenced with completion target December 2023.
- Watermain and sanitary sewer replacement on Balsam Street from Old Simcoe Road to Rosa Street, Scugog – construction to commence Spring 2023 with completion target July 2023.
- Cannington Water Supply System new well and pumphouse with standby power, Brock – construction has commenced with completion target November 2023.

4.3 The multi-year modernization of data management continues with water supply and sanitary sewerage operational areas with a focus on municipal well systems and wastewater solids management.

4.4 The Enterprise Maintenance Management System (EMMS) has been fully implemented. Plant and maintenance operations are now utilizing this

comprehensive work management system to manage activities, capture life cycle cost data and provide real time maintenance information.

- 4.5 Works staff, in conjunction with Utility Finance, initiated a three-year project in 2022 to retrofit existing water meters with radio frequency remote reading devices (RF) to eliminate manual meter readings. The total estimated cost of this initiative over a three-year period is \$10.0 million funded from the Water Rate Stabilization Reserve Fund and is included in the Utility Finance portion of the Consolidated Water Supply and Sanitary Sewerage Business Plans and Budget. This is a significant enhancement from a customer service perspective and has been much anticipated as the follow up step to the MyDurhamWater project.

5. 2023 Priorities and Highlights

- 5.1 To maintain sustainable and compliant water supply and sanitary sewerage systems, the 2023 capital program includes items with a total estimated project value for implementation of approximately \$288.24 million such as:
- Planning, detailed design and construction of 5.3 kilometres (km) of linear pipe and four vertical facilities as identified within the Asset Management Plan.
 - Planning, detailed design and construction of several Water Supply facilities and Sanitary Sewerage vertical assets, including the expansion of the Whitby Water Supply Plant, Lake Simcoe and Duffin Creek Water Pollution Plant, and Liberty Street Zone 1 Reservoir and pumping station.
 - Planning, detailed design and construction of 15.1 km of linear pipe in co-ordination with Regional and Municipal Road Programs and 3.7 km of independent watermain projects.
 - Phases 3 and 4 regulatory works to be tendered related to Technical Standards and Safety Authority (TSSA) fuel tank replacement/upgrades.
 - Planning, detailed design and property acquisition for Depot expansion and modernization projects as recommended by the Depot Rationalization study.
- 5.2 A total of 7.389 new full-time equivalent employees (FTEs) are proposed in 2023. These positions represent new permanent resources to support the delivery of capital projects and operating activities. The cost of some of these positions is allocated at varying levels to capital projects or maintenance activities:
- Emergency Management Coordinator – Compliance 0.500 FTE
(costs are shared with Water Supply, Sanitary Sewerage,

Works General Tax and Waste)		
• Inspector 3 – Capital Construction – Construction		0.642 FTE
(costs are shared with Water Supply and Sanitary Sewerage and Works General Tax)		
• Supervisor – Maintenance Operations (Water Supply)		1.000 FTE
• Supervisor – Facilities Design, Construction and Asset Management		0.657 FTE
(costs are shared with Water Supply, Sanitary Sewerage, Works General Tax and Waste Management)		
• Junior Project Engineer – Environmental Services Design		2.000 FTE
(costs are shared with Water Supply and Sanitary Sewerage)		
• Works Technician 2 - Environmental Services Design		
(costs are shared with Water Supply and Sanitary Sewerage)		
• Works Technician 5 – Environmental Services Design		1.000 FTE
(costs are shared with Water Supply and Sanitary Sewerage)		
• Business Analyst – Systems, Policies, Process		0.590 FTE
(costs are shared with Water Supply, Sanitary Sewerage and Works General Tax)		

6. 2023 Risks and Uncertainties

6.1 Areas of potential risks that could impact the operating and capital budgets of the Works Department include:

- Increasing costs of operations due to unprecedented inflation on materials and supplies critical for service provision and capital project delivery.
- Ongoing supply chain and labour challenges.
- Changes in local market demands for engineering and construction services can impact industry capacity for infrastructure projects.
- Increasing legislative requirements from provincial and federal approval agencies.
- Uncertainty surrounding the level and availability of revenues from Development Charges.
- Revenue/Funding pressures (e.g., provincial/federal infrastructure programs which require matching Regional investment).
- Debt carrying costs as a result of the current volatile debt markets and impacts of Federal monetary policies.

- Operating Pressures, such as:
 - (a) Growth across the Region, which includes development of several new communities in Seaton, West Whitby, North Oshawa, Bowmanville and Newcastle Village, will increase the demand for services to support residents and businesses as well as the operational and maintenance requirements for Regional infrastructure;
 - (b) Ensuring sufficient staff resources to deliver a growing capital program to avoid impacts to the delivery schedules of projects or delays in response times for reactive maintenance activities; and
 - (c) Changing and unpredictable weather patterns impact treatment operations as well as preventative and reactive maintenance activities for the Regional Water Supply and Sanitary Sewerage linear infrastructure network.

7. Future Budget Pressures

- 7.1 Items proposed in the 2023 Works Department Water Supply System and Sanitary Sewerage System Budgets will result in impacts to the 2024 budget, including:

Annualization of new positions proposed in 2023

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|---------------------|-----------|
| • Water Supply | \$308,463 |
| • Sanitary Sewerage | \$215,899 |

- 7.2 Looking forward over the next four years, the following significant budget pressures include:

- Infrastructure requirements to address Regional growth.
- Increased demands for infrastructure maintenance.
- Operating costs related to major facility and system expansions including:
 - a) Whitby, Ajax and Bowmanville Water Supply Plant expansions;
 - b) Zone 1 Feedermain from Highway 2 to Liberty Reservoir in Clarington;
 - c) Zone 4 Reservoir and Water Pumping Station in Whitby;
 - d) Thickson Road Zone 3 Water Pumping Station expansion in Whitby;
 - e) New Sunderland Well and Pumphouse with Standby Power in Brock;
 - f) Zone 4 Reservoir and Water Pumping Station in Oshawa;

- g) Bowmanville Zone 1 Reservoir and Water Pumping Station in Clarington;
 - h) Newcastle Water Pollution Control Plant and Sanitary Sewage Pumping Station;
 - i) Corbett Creek, Lake Simcoe and Courtice Water Pollution Control Plan expansions;
 - j) New Well and Treatment System in Port Perry;
 - k) New Water Pollution Control Plants in Sunderland and Cannington; and
 - l) York Durham Sewage System primary trunk twinning in Pickering.
- The Region has been collecting development charges to help finance the growth portion of these large infrastructure expansion projects. It is projected that these reserve funds will be drawn down significantly over the next five years. Additional information on the Consolidated 2023 Capital Budget and Nine-Year Forecast for Water Supply and Sanitary, including financing plan will be included in Report 2022-F-22 being presented to Finance and Administration Committee at their December 13, 2022, meeting.
- Ongoing asset management and infrastructure maintenance requirements.
- Refurbishment of existing Water Supply and Water Pollution Control Plants.
- Expansion and modernization of Maintenance Operations Depots.
- Implementation of the recommendations from the Integrated Resource Recovery Studies for Water Pollution Control Plants, including ongoing exploration of district heating and cooling opportunities.
- Continued review of district heating opportunities utilizing sanitary sewerage infrastructure.
- Maintenance and replacement of building elements such as roofing, envelope, HVAC systems, windows, etc. with enhancements to reduce energy consumption and carbon emissions.
- Legislative and Regulatory Requirements:
 - (a) Bill 23-Supporting Growth and Housing in York and Durham Regions Act, 2022 suddenly received Royal Assent on November 28th in the Provincial Legislature. This legislation will impact the amount of development charges available to fund new and expanded infrastructure to service growth. Without development

charges this infrastructure will need to be funded from user rates. The provincial direction to develop 1.5 million homes in an expedited manner and allowing the development of Greenbelt lands with restricted timelines will be another development pressure competing for Regional infrastructure funds. Staff will be working on the financial impacts on future Regional budgets through the update to the Region's Development Charges Background Study and specific Bill 23 impact reports in early 2023. A thorough review of the proposed legislation details is not available in time for this report approval so impacts will be primarily accommodated beginning in the 2024 Business Plans and Budgets.

- (b) Schedule 10 within Bill 23 provides the provincial direction for the wastewater servicing for the Upper York Sewage Solution which includes the Lake Ontario option of conveying wastewater south to the York Durham Sewage System. A detailed review of the proposed servicing option will need to be conducted in consultation with Region of York to determine infrastructure planning impacts.
- (c) Perfluoroalkyl (PFAS) substances are an emerging regulatory issue in Canada and the United States of America. The sources of PFAS substances can originate from fire-fighting foams, consumer products, packaging, landfills and industrial processes. The regulatory requirements for drinking water are developing and emerging as there is limited data on the substances. There is currently considerable variation in the magnitude of guidelines between regulatory agencies.
- (d) Potential impacts to the Region's SCADA system, including proposed changes to Industry Canada regulations related to radio communications, and continuing review of potential adjustments to the radio frequencies that the Region currently uses for the SCADA communications as proposed by the Innovation, Science and Economic Development Canada (ISED) - Spectrum Management and Telecommunications. The proposed adjustments will require modification to the Region's Wide Area Network base to a new frequency, involving significant changes to equipment at Regional facilities.

8. Conclusion

- 8.1 The recommended Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budgets can be financed from the proposed combined water and sanitary sewer user rate increase as detailed in Report #2022-F-23 – Recommended 2023 Water and Sanitary Sewer User Rates.
- 8.2 It is recommended that the Works Committee approve the Works Department's portion of the 2023 Water Supply System and Sanitary Sewerage System Business Plans and Budgets and forward this report to the Finance and Administration Committee for consideration during the budget deliberations of the 2023 Consolidated Business Plans and Budgets for the Water Supply System and the Sanitary Sewerage System.
- 8.3 This report has been reviewed by the Finance Department and the Commissioner of Finance concurs with the recommendation.
- 8.4 For additional information, contact: Jenni Demanuele, Director, Corporate Infrastructure and Strategic Business Services, at 905-668-7711, extension 3456.

9. Attachments

- 9.1 Detailed 2023 Business Plans and Budgets for the Works Water Supply and Sanitary Sewerage Systems.

Respectfully submitted,

Original signed by:

John Presta, P.Eng., MPA
Commissioner of Works

Recommended for presentation to Committee.

Original signed by:

Elaine C. Baxter-Trahair
Chief Administrative Officer