
HALDIMAND COUNTY

Report WEC-01-2020 Budget Amendment – Dunnville Wastewater Treatment Plant Upgrades Project



For Consideration by Committee of the Whole on January 28, 2020

OBJECTIVE:

To obtain approval for a budget amendment in the capital funding for the Dunnville Wastewater Treatment Plant Upgrades Project.

RECOMMENDATIONS:

1. THAT Report WEC-01-2020 Budget Amendment – Dunnville Wastewater Treatment Plant Upgrades Project be received;
2. AND THAT the revised budgets as outlined in Report WEC-01-2020 Budget Amendment – Dunnville Wastewater Treatment Plant Upgrades Project be approved.

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Approved: Craig Manley, MCIP, RPP, Chief Administrative Officer

EXECUTIVE SUMMARY:

The Dunnville Wastewater Treatment Plant Upgrades Project requires a budget amendment to increase total funding for the project. The proposed budget amendment impacts only the capital reserve fund balances noted within the report, and therefore have no impact on the proposed rates included in the 2020 Rate Supported Operating Budget and Capital Forecast.

BACKGROUND:

In May 2017, through Report PW-ES-13-2017 Dunnville Wastewater Treatment Plant Upgrades – Award of Construction Tender, Council approved construction of necessary upgrades to the Dunnville Wastewater Treatment Plant (WWTP). These upgrades were required to address deficiencies identified in a Comprehensive Performance Evaluation and Facility Condition Assessment conducted on the facility in 2008 and 2010 respectively and included:

- a new headworks/pre-treatment process to enhance screening and grit removal capability;
- a new waste sludge thickening process;
- replacement of nearly 60% of existing electrical infrastructure; and
- the construction of a new process control building.

Construction of the upgrades at the Dunnville WWTP began in July 2018 and the project has now reached substantial completion. During construction, additional costs and schedule delays were encountered to allow for minor design modifications and address unforeseen work required to

accommodate existing site conditions that were not accurately detailed on the facility's as-built drawings, which date back to 1967. Additionally, unforeseen equipment, work and time was required to address a change in hydro servicing requirements that resulted from the purchase of Haldimand Hydro by Hydro One.

The extra costs incurred have used all of the \$255,000 contingency allowance, plus the \$176,500 in credits received through a value engineering exercise conducted at the onset of the construction phase. As a result, staff are seeking a budget reallocation in order to complete the works associated with the upgrades to the Dunnville WWTP and close out the project.

In accordance with Procurement Policy 2013-02, Council must approve the reallocation of funds for a capital project where there is a budget shortfall of \$75,000 or more (or 20% of the approved budget), or where insufficient funds are currently available.

ANALYSIS:

Through Report PW-ES-13-2017, budgets were established to award the Dunnville Wastewater Treatment Plant Upgrades construction tender to H.I.R.A. Limited in the amount of \$7,459,000, including applicable taxes and a \$255,000 contingency budget. Additionally, through the same report, an upset limit of \$496,950 including applicable taxes was established for Contract PW-ES-15-072 with Hatch Corporation for the engineering work related to the Dunnville WWTP upgrades.

The debt financing of this project took place in the summer of 2019. At that time, the total debt issued through FIN-06-2019 Debt Issuance was \$9,178,950 (\$8,720,000 non-growth related and \$458,950 growth related). This resulted in an increase in total debt issued for this project by \$1,249,400 (\$1,153,700 non-growth related and \$95,700 growth related) and was issued to account for overages known at the time of the debt issuance.

To date, thirty-four change orders including seventy eight change directives, have been approved in the amount of \$726,476. The approved change orders with a cost greater than \$15,000 include the following:

- Modifications to existing potable water and wastewater line routings from adjacent Public Works Yard building, found within foundation footprint of new process control building (\$15,000).
- Relocation of supernatant tank 6 m to avoid existing underground piping found during excavation (\$20,000).
- Modifications to Motor Control Center (MCC) #2 and the addition of a 250 amp breaker and raceway to re-feed the Septage Building (\$48,000).
- Modifications to existing potable water service and distribution system to allow for one water meter as per County by-law (\$45,000).
- Re-routing of new wastewater line from process control building to avoid underground interferences at blower building (\$37,000).
- Re-routing of 500-RSE line to avoid underground interferences around blower building (\$23,000).
- The addition of four disconnect switches, installed in line with new Variable Frequency Drives (VFD's) (\$18,000).
- Recycle Activated Sludge (RAS) and Waste Activated Sludge (WAS) pumping/piping revised layout to accommodate chamber conditions discovered once tank was taken out of service (\$85,000).
- Re-routing of waste line to sludge lagoons to avoid underground interferences (\$18,500).
- Piping revisions for screenings and grit disposal system (\$24,000).

- Re-routing of effluent water line from contact tank and extra work to address obstruction encountered while coring (\$19,000).
- Telecommunications equipment and system install for new process control building (\$20,000).
- Modifications to roofing assembly and curbs on headworks and wet well buildings (\$24,000).
- Additional asphaltting (\$103,000).

In addition to these approved change orders, a settlement was reached with the General Contractor on two outstanding items for which the General Contractor had filed a Notice of Claim. Staff worked with the design engineer and obtained support from Sullivan Mahoney LLP to refute components of the claim, successfully reduce the claim value and complete a settlement process that avoided litigation.

The first item was associated with the costs and delay incurred to the project that stem from a change in the hydro servicing requirements as a result of the sale of Haldimand Hydro that took place while the project was underway. The change in ownership of the hydro service provider resulted in the need for the supply and installation of a high voltage load break switch on the primary service to the WWTP. Considerable time was required to complete the design, approvals, procurement and delivery of the load break switch and resulted in not only a delay of sixty working days to the overall project schedule but also the inability to connect primary power to the new process control building and headworks building in advance of the 2019 winter months, resulting in additional winter heating costs. This claim was settled with the General Contractor at a cost of \$380,000.

The second item was related to the accumulated impact that the change orders had on the overall project schedule. While the project team worked hard to address design issues as they arose, the time required to resolve a few of the more complex on site challenges as well as the time to work through the change management process for all change directions, resulted in a further extension of 211 working days. During this construction schedule extension, the General Contractor and the electrical and mechanical subcontractors were required to keep in place and provide; bonding, insurance, project managers, site supervisors and labourers, site trailers, utilities, site equipment and other appurtenances. This claim was settled with the General Contractor at a cost of \$1,200,000.

Similarly, the additional effort and time for the design engineer to work through the design challenges encountered and to provide on site inspection and contract administration throughout the extension period, resulted in additional costs being incurred by the consulting engineer. To offset these additional engineering costs, an increase of \$488,500 is required to the current engineering budget.

Retro-fitting of wastewater treatment plants tend to be very complex and pose various internal and external risks. The Dunnville Wastewater Treatment Plant Upgrade Project has not been an exception, with a series of technical, logistical and management issues being encountered over the course of the project. Going forward, Engineering and Capital Works staff will strive to:

- Reduce technical risks by ensuring adequate site investigation is completed and reflected in the design.
- Reduce logistical risk by continuing to work closely with operations.
- Reduce management risk by ensuring adequate oversight is being provided to the project and that the project team, including the design engineer and the contractors are comprised of sufficiently skilled people.

FINANCIAL/LEGAL IMPLICATIONS:

The following table shows the current budget related to the Dunnville Wastewater Treatment Plant Upgrades project, as well as the proposed revised budget amounts:

	Current Budget	Budget Amendment through FIN-06-2019	Additional Funds Required (per WEC-01-2020)	Proposed Revised Budget
Capital Expenditures:				
Project Expenditures	8,035,950	1,249,400	1,382,100	10,667,450
Temporary Financing	389,950			389,950
Total Capital Expenditures:	8,425,900	1,249,400	1,382,100	11,057,400
Financing:				
CRRF-Sewer	451,830		1,276,200	1,728,030
DCRF - Sewer	44,520		105,900	150,420
Debenture Financing	7,566,300	1,153,700		8,720,000
DCRF - Sewer Debt	363,250	95,700		458,950
Total Financing:	8,425,900	1,249,400	1,382,100	11,057,400

As mentioned previously, during the County's 2019 debt issuance process, the debt issued for the Dunnville Wastewater Treatment plant was increased by \$1,249,400 (\$1,153,700 non-growth related and \$95,700 growth related), based on known costs at the time of issuance. This resulted in a total debt issuance of \$9,178,950 (\$8,720,000 non-growth related and \$458,950 growth related).

The additional overages noted in this report are to be funded from CRRF-Sewer and DCRF-Sewer, as noted in the chart above. These changes in financing will affect the applicable reserve fund balances, and are not currently captured in Capital Appendix C – Capital Replacement Reserve Funds – Water and Wastewater and Capital Appendix E – Development Charges Reserve Funds – Water and Wastewater of the 2020 Draft Rate Supported Operating Budget and Capital Forecast.

As these changes impact only the capital reserve funds noted above, there will be no impact on the 2020 Rate Supported Operating Budget and Capital Forecast as a result of these changes, and therefore no impact on the proposed rates included in Operating Appendix F of the budget document.

STAKEHOLDER IMPACTS:

Not applicable.

REPORT IMPACTS:

Agreement: No

By-law: No

Budget Amendment: Yes

Policy: No

ATTACHMENTS:

1. None