



The Corporation of the City of Cornwall
Regular Meeting of Council
Report

Department: Infrastructure and Municipal Works
Division: Environment
Report Number: 2020-338-Infrastructure and Municipal Works
Prepared By: Carl Goodwin, Division Manager
Meeting Date: September 14, 2020
Subject: Wastewater Treatment Plant Capital Project Reallocation of Funds

Purpose

This report will explain the rationale behind the decision to reallocate funds from the 2020 capital project entitled *Piping and Control for Using Excess Blower Capacity to Primary Clarifier* in order to offset additional costs necessary to complete a 2018 capital project entitled *Odour Control Dewatering Building – Thickened Sludge Modification Project*.

Recommendation

That Council receive Report 2020-338-Infrastructure and Municipal Works.

Financial Implications

The reallocation of funds was outlined in the Second Quarter Financial Report Capital Report June 30, 2020. There is no financial impact. Both projects are funded through the Wastewater Budget.

Strategic Priority Implications

Economic development and pursuing diverse population growth of 50,000.

4. Continue to invest in infrastructure

Being leaders in sustainability and climate change impact.

6. Identify what the City could take the lead on

Background / Discussion

During energy efficiency studies conducted at the Wastewater Treatment Plant (WWTP), the examining consultant engineer developed an energy savings calculation associated with the 2020 capital project entitled *Piping and Control for Using Excess Blower Capacity to Primary Clarifier* project. This project proposed directing excess air blower capacity from the secondary treatment biological aerated filters (BAF) blowers to the primary clarifier headworks thereby eliminating two older existing blowers currently used at the headworks. If feasible, potential energy savings was estimated in the order of \$50,000 annually.

Upon a subsequent in-depth review, the consultant confirmed that energy savings were available although it was indicated that significant unknowns needed further review. Major concerns expressed included how air flow can be controlled from the BAF blowers to the clarifier headworks and the potential to not have enough supply to feed both should the BAFs demand more air to meet a low oxygen condition. To confirm feasibility of this proposal, a more detailed engineering analysis would be required. Therefore, at this point, it was recommended that this opportunity not be pursued as other alternatives may be considered preferable.

The 2018 capital project entitled *Odour Control Dewatering Building* involved determining the sources of odour in and around the dewatering building. One of the sources of odour was the sludge tank that serves as storage and feed to the dewatering centrifuges at the plant. Dewatering occurs during day-time operating hours and is turned off when the plant is unstaffed. During the unstaffed time, feed sludge for the centrifuges is stored in the feed tank. This sludge, if left undisturbed, causes anerobic bacterial activity which develops hydrogen sulfide generating what is known as the “rotten egg” smell. To mitigate odours, the mixing system upgrades comprised of installing equipment designed to provide turbulent mixing throughout the bottom of the tank. More turbulent mixing will discourage anerobic bacterial activity.

As a result of the nature of the existing tank design, pricing for this project was more expensive than estimated by the design engineers due to the requirement of larger pumps and piping systems to promote turbulent mixing along the bottom of the tank. WWTP staff felt the mixing system project was the higher priority and

therefore recommended reallocation of funding from the 2020 capital project entitled *Piping and Control for Using Excess Blower Capacity to Primary Clarifier* in order to offset extra costs incurred in the 2018 capital project entitled *Odour Control Dewatering Building*. In the meantime, WWTP staff require more time to thoroughly investigate a new control strategy for the blowers. Administration feel comfortable that this reallocation of resources will generate the greatest value for the capital budget funding at this time.

A secondary consideration for the reallocation of funds was findings of the complementary study projects ongoing at the WWTP around net zero (Co-digestion and Energy Generation). There may be government subsidy available for the blower control project in the immediate future through potential energy reduction grants from Federal and Provincial sources in order to meet the Federal Government's target of Net Zero Carbon by 2050. Accordingly, the Division will investigate these funding possibilities.

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Attachments:	
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This report and all of its attachments were approved and signed as outlined below:

Bill de Wit - Sep 4, 2020 - 3:21 PM

Tracey Bailey - Sep 8, 2020 - 11:04 AM

Maureen Adams - Sep 8, 2020 - 11:22 AM