



REPORT N° INF2020-41

Date	07/12/2020
Submitted by	Philippe Cormier
Subject	Wastewater Master Study Phase 2
File N°	INF2020-41

1) **NATURE/GOAL :**

The purpose of this report is to recommend (a) the appointment of Jacobs to undertake Phase 2 of the Wastewater Master Plan Update as detailed in this report and (b) approve supplementary funding in the amount of \$165,450 to complete Phase 2 of the Master Plan and \$100,000 for closed-circuit television (CCTV) inspections of the underground infrastructure.

2) **DIRECTIVE/PREVIOUS POLICY :**

The 2019 Capital Works Budget (as approved by Council) included funding for a 2 phased update to the City's Wastewater Master Plan. In view of time constraints, Phase 1 was initiated in 2019 to support the 2020 Development Charge Background study. Phase 2 of the Wastewater Master Plan Update was scheduled to follow the Phase 1 study.

3) **DEPARTMENT'S RECOMMENDATION :**

WHEREAS there is a requirement to initiate Phase 2 of the Wastewater Master Plan Update to consolidate reviews and recommendations for the waste collection system including the existing 8 pumping stations and the wastewater treatment plant (WWTP);

AND WHEREAS the Update will identify capacity constraints, the need for and timing of critical capital projects;

AND WHEREAS Jacobs has been extensively involved in previous sanitary sewer updates (2009, 2016, 2019) and is fully familiar with the municipality's sanitary sewer network;

AND WHEREAS funding was approved in the 2019 capital works budget in the amount of \$200,000 to conduct Phase 1 and Phase 2 of the Wastewater Master Plan Update;

AND WHEREAS after completion of Phase 1, there is only \$142,000 remaining from the approved budget of \$200,000 for the Phase 2 portion of the program;

AND WHEREAS the gross budget to undertake Phase 2 is \$307,450 thereby, requiring the approval of \$165,450 in supplementary funding in order to undertake the Phase 2 Update;

AND WHEREAS staff also recommends that CCTV work be carried out in 2021 to complement the Phase 2 Wastewater Master Plan Update;

BE IT RESOLVED THAT Section 18.4 of the City's Procurement Policy and Procedures requiring approval of the Manager of Supply and City Council be invoked to allow a direct assignment appointment to Jacobs to an upset limit of \$307,450;

AND BE IT FURTHER RESOLVED THAT the supplementary funding requirement of \$165,450 for Phase 2 of the Wastewater Master Plan be taken from the Sanitary Sewer Reserve Fund;

AND BE IT FURTHER RESOLVED THAT funding in the amount of \$100,000 is approved for the proposed CCTV inspection program in 2021 and taken from the Sanitary Sewer Reserve Fund.

ATTENDU QU'IL y a une exigence d'initier la phase 2 de la mise à jour du plan directeur des eaux usées pour consolider l'analyse et les recommandations pour le système de collecte des eaux usées, y compris les 8 stations de pompage existantes et l'usine de traitement des eaux usées.

ET ATTENDU QUE la mise à jour identifiera les contraintes de capacité, la nécessité et le calendrier des projets d'immobilisations critique

ET ATTENDU QUE Jacobs a été largement impliqué dans les précédentes mises à jour des égouts sanitaires (2009, 2016, 2019) et connaît parfaitement le réseau d'égouts sanitaires de la municipalité.

ET ATTENDU QUE le financement a été approuvé dans le budget des travaux d'immobilisations de 2019 d'un montant de 200 000 \$ pour mener les phases 1 et 2 de la mise à jour du plan directeur des eaux usées

ET ATTENDU QU'après l'achèvement de la phase 1, il ne reste plus que 142 000 \$ du budget approuvé de 200 000 \$ pour la partie de la phase 2 du programme

ET ATTENDU QUE le budget brut pour entreprendre la phase 2 est de 307 450\$, ce qui nécessite l'approbation d'un financement supplémentaire de 165 450\$ pour entreprendre la mise à jour de la phase 2.

ET ATTENDU QUE le personnel recommande également que des travaux de vidéosurveillance soient effectués en 2021 pour compléter la mise à jour du plan directeur des eaux usées de la phase 2

QU'IL SOIT RÉSOLU QUE L'article 18.4 de la politique et des procédures d'approvisionnement de la Ville exigeant l'approbation du gestionnaire des approvisionnements et du conseil municipal soit invoqué pour permettre une affectation directe à Jacobs jusqu'à une limite de 307 450\$

ET QU'IL SOIT RÉSOLU QUE les besoins de financement supplémentaires de 165 450\$ dollars pour la phase 2 du plan directeur des eaux usées soient prélevés du fond de réserve des égouts sanitaires;

ET QU'IL SOIT RÉSOLU QU'un financement d'un montant de 100 000 \$ soit approuvé pour le programme d'inspection de vidéo proposé en 2021 et prélevé du Fond de réserve des égouts sanitaires

4) **BACKGROUND :**

Jacobs has been retained by the City on 3 separate occasions to undertake assessments and identify capital planning works for the City's wastewater conveyance system.

Recently, they completed Phase 1 of the Master Planning process in support of the recent Development Charge Update which was formally approved by Council in January 2020. The Wastewater Master Study (Phase 1) undertaken by Jacobs identified the need, cost and timing of required project work to (a) expand existing infrastructure and (b) construct new infrastructure to support anticipated growth in the municipality in the approved planning time period.

To date, there have been several standalone studies conducted on the City's sanitary network. Staff propose that Phase 2 of Wastewater Master Plan Update be a consolidated initiative to assess and make recommendations for the sanitary collection system, the eight (8) pumping stations and the wastewater treatment plant. The update will provide the basis for moving forward into the next phases of planning, budgeting, determination of EA's, design and construction including the timing thresholds for subsequent studies and project implementation.

In the 2019 Capital Works Budget, Council approved funding in the amount of \$200,000 to conduct a Sanitary Sewer Master Plan Update. The funding approval contemplated a 2 phased update process. Phase

1 (as discussed above) was initiated in 2019 in support of the Development Charge update process. Phase 2 of the Master Plan Update will identify future implementation plans and budget projections into a consolidated report that will provide a clear "roadmap" for the municipality to plan for required budgeting, Class EA's, design, construction and will generate implementation schedules.

5) **DISCUSSION :**

The following provides an overview of the scope of work associated with the Phase 2 Master Servicing Plan Update:

Task 1- Project Management, Project Controls, Project Coordination and Meetings

- preparation of project management plan, quality management plan, required health and safety documentation.
- monthly conference calls.
- confirm project objectives, key performance indicators and budget and schedule expectations.

Task 2-Rockland WWTP and Pumping Station Condition Assessment

- identification of major processes, buildings and systems reaching "end-of-life" due to age, obsolescence or other deficiencies.
- identify major capital maintenance upgrades to ensure that the facilities function reliably for an "agreed to" planning period.
- identify miscellaneous issues and concerns (e.g. odor issues etc.).

Task 3- Population and Growth Projections

- validate population and growth projections.
- confirm the planning period for the Master Plan Update.

Task 4- Rockland WWTP Facility Plan

- documentation of the "baseline" capacity status of the existing plant and develop design criteria for an "agreed to" planning period.
- undertake a modelling analysis of the existing plant to define current operations, mass balance, energy use and performance.
- undertake a model calibration for the existing plant.
- define loading criteria for the "agreed to " planning period.
- assess ability of each process and the plant to provide reliable capacity for the design scenario.
- undertake a gap analysis considering both the capacity and condition assessment results.
- develop of alternatives and evaluation criteria.

- recommend facility plan strategy which will identify the design concept and implementation plan.

Task 5- Rockland Wastewater Collection System Update

- will build on the previously completed work conducted in Phase 1 of the Development Charge Update to more accurately assess the capacity of the existing system.
- a model will be developed using existing dry weather and wet weather scenarios based on actual flow data. This will confirm system capacity and "bottlenecks" within the existing network.

Task 6- Master Plan Final Report

- a report will be prepared summarizing the work presented in the technical memoranda completed throughout the project. Final deliverable will include Draft and Final Master Plan Reports and a review meeting.

Project Costs:

The anticipated costs for the Phase 2 Wastewater Master Plan Update are detailed as follows:

Engineering Fees:	\$275,000
HST (1.8%)	\$4,950
Contingency (10%)	\$27,500

Total	\$307,450

The 2019 capital works budget approved \$200,000 to undertake the Phase 1 and Phase 2 updates. Phase 1 was completed in 2019 at a cost of \$58,000 as part of the Development Charge Update. This left a remaining budget of \$142,000. There is, therefore, a budget shortfall of \$165,450 in order to undertake the Phase 2 update as detailed in this report.

The overall cost of Phase 2 is somewhat higher than previous updates since staff has now included a review of the 8 existing pumping stations into this assignment. Historically, costs associated with pumping station updates have been funded and carried out as a separate project. However, staff is now proposing a more comprehensive and consolidated update approach by including the pumping stations in this assignment. This will result in efficiencies and economies of scale.

CCTV Inspection:

To complement the Phase 2 Update detailed above, staff is seeking Council's approval to undertake a CCTV inspection program of the sanitary collection system. The cost of this initiative is estimated at

\$100,000. The CCTV inspection program will be managed separately from the Wastewater Master study Plan Update by internal staff. As per previous inspection programs, this initiative will require staff to enter a competitive tender process to attain the services of a qualified contractor to clean and inspect the underground infrastructure.

Similar inspection programs were carried out on the City's sanitary collection system in 2019 and 2020. These programs have proven to be extremely beneficial by allowing staff to identify sewer related problems (which could result in backups, collapses, etc.) and ensuring that timely corrective measures are taken to correct the problems. By way of example, previous CCTV programs identified about 67 sections of sanitary sewer that exhibited significant problems such as spot cracking, extensive water infiltration, cross connections, grease buildups, etc. Repairs were initiated, such as spot relining, sewer flushing, pipe replacement, prior to any catastrophic impacts to the sewer system.

Recommended Consultant Appointment:

Jacobs (formerly known as CH2M Hill) has been involved in 3 significant update assignments relating to the City's wastewater infrastructure. They were appointed to provide modelling services for the 2009 and 2013 wastewater studies. In 2019, they were retained by the municipality to provide support for the wastewater component of the Background Study for the 2020 Development Charge by-law update. As a result of their involvement in these assignments, Jacobs has acquired a familiarity and a sound understanding of the City's wastewater infrastructure and its operational characteristics. Staff is of the opinion that it is more efficient and cost effective to retain Jacobs for the Phase 2 Wastewater Master Plan update. Accordingly, staff recommends that Section 18.4 of the Procurement Policy (requiring approval of the Manager of Supply and City Council) be invoked to allow the direct assignment of Phase 2 of the Wastewater Master Servicing Update to Jacobs to an upset limit of \$307,450.

6) **CONSULTATION:**

N/A

7) **RECOMMENDATIONS OR COMMENTS FROM COMMITTEE/ OTHER DEPARTMENTS :**

N/A

8) **FINANCIAL IMPACT (expenses/material/etc.):**

In order to undertake the Phase 2 wastewater Master plan update as described in Section 5.0, it is necessary for Council to approve supplementary funding for the update in the amount of \$165,450. This additional funding, in conjunction with the remaining 2019 budget

monies (\$142,000) will be sufficient to undertake the Phase 2 assignment.

It is recommended that the supplementary funding requirement be obtained from the Sanitary Sewer Reserve Fund. Additionally, \$100,000 should be allocated from the Sanitary Sewer Reserve Fund to fund the proposed CCTV program.

9) **LEGAL IMPLICATIONS :**

Completing the comprehensive review of the City's wastewater system and the CCTV program will identify potential service disruptions as a result of substandard infrastructure impacts of development growth, thereby, mitigating the potential for legal actions against the City.

10) **RISK MANAGEMENT :**

The Master plan update and the proposed CCTV program represent proactive initiatives that will identify system deficiencies and enable the municipality to implement timely and cost-efficient rehabilitation strategies.

11) **STRATEGIC IMPLICATIONS :**

The Wastewater Master Plan Update and the CCTV program are both in compliance with the Strategic Plan's Environmental Responsibility objectives which indicate that "the municipality has a significant amount of infrastructure the need to be maintained in an environmentally responsible manner, must ensure that timely rehabilitation works are implemented protect our environment while meeting the needs of the community."

12) **SUPPORTING DOCUMENTS:**

N/A