Subject: South Niagara Falls Wastewater Treatment Plant – Budget and Property

Report to: Committee of the Whole

Report date: Thursday, August 5, 2021

Recommendations

That a budget increase to the capital projects associated with the new South Niagara Falls Wastewater Treatment Plant **BE CONSIDERED** as part of the 2022 budget process.

Key Facts

- The purpose of this report is to inform Council of the project status, provide an updated budget estimate for the capital projects associated with the new South Niagara Falls Wastewater Treatment Plant (SNF WWTP) including operating budget impacts, and ask Council to consider these project adjustments with the 2022 Capital Budget.
- Region staff will be presenting an offer to the property owner of the preferred site for the new WWTP based on the full narrative appraisal report prepared by an AACI-accredited appraiser. If accepted, staff will request approval to acquire the property from Council through a separate report. In the event that an agreement with the property owner cannot be reached, staff will request approval from Council through a separate report to initiate formal expropriation proceedings to acquire the property on a compulsory basis in accordance with the Expropriations Act.
- The new South Niagara Falls WWTP was recommended from the 2016 Water and Wastewater Master Servicing Plan (MSP) Update and endorsed by Regional Council on June 8, 2017.
- GM BluePlan Engineering Ltd is completing the Schedule 'C' Class Environmental Assessment (Class EA) for the program and is continuing to refine the recommendations from the MSP. The program provides a holistic study addressing the new wastewater treatment plant, major trunk sewer extensions, and the overall wastewater strategy for Niagara Falls, and for parts of the City of Thorold and Town of Niagara-on-the-Lake.

- In March 2020, the Region presented the selected preferred solution at a Public Information Centre (PIC) as part of the Class EA process, with the preferred site on Reixinger Road, east of the QEW.

- In September 2020, the Region and consultant project team provided Council a presentation on the project overview and cost estimate update to support the 2021 budget.
- Class D planning level cost estimates (+/- 50% level of accuracy) indicate that the total capital cost for the entire program could be $399.64M (indexed to the year of cashflow), which includes design, property acquisition, construction and commissioning of all components. This represents an increase of approximately $88.85M which is mitigated by a budget reduction of $14.30M for two of the projects for a combined impact of $74.55M
- Significant fieldwork and conceptual design is underway to improve the certainty of the cost estimate.
- The majority of the budget increase is growth related and the project revised estimates will be included in the 2021 Development Charge background study and 2022 DC by-law
- To better understand risks and costs associated with the preferred solutions, the project team has completed several field investigations during the Class EA, including geotechnical, hydrogeological, environmental site assessment, cultural heritage and archeology. The archaeological assessment has been partially completed on the preferred site. The progress of the remaining field work has been impeded by weather. The results are needed in order to fully understand the archeological potential on the site. The intention is to complete the work by the end of August 2021.
- Construction of most projects, including the new WWTP and trunk sewer are not anticipated to commence until 2023 and 2024, respectively.
- Region is actively pursuing funding from provincial and federal government.

Financial Considerations

The total approved budget for the SNF WWTP projects is $325.1M across ten different projects. As of July 18, 2021, there is approximately $2.8M spent and committed in the projects. The expenditures to date primarily consist of Environmental Assessment costs.

Of the approved budget of $325.1M , approximately $38.7M is initiated for the Class EA, land acquisition and design phases of four of the SNF WWTP projects (outlined in PW 39-2020). The remaining budget dollars will require subsequent reports to Council to initiate funds closer to the construction phases, with initiation contingent on confirmation of external funding. Staff continues to advocate with various levels of government for external funding to support the project.

Based on revised estimates to four of the SNF WWTP projects as described below, a total gross increase of $88.85M will be requested through the 2022 Capital Budget process. There are also two projects with revised cost estimates less than the approved budgets in the amount of $14.30M. The budget for those projects will be appropriately reduced to reflect the revised estimated value. Therefore the net increase to the SNF WWTP budgeted gross expenditures is $74.55M. The full impact of the changes to the budget including funding sources is provided in Appendix 1.

The primary reasons for the increase in cost from the 2020 estimates as outlined in PW 39-2020 to the current 2021 estimates are as follows:

- The 2020 estimates were based on the conceptual information prepared during Phase 2 of the Class EA process. Phase 3 of the Class EA process is nearing completion. Detailed information on the infrastructure and facility requirements has been utilized to develop the current cost estimates.
- Most significantly, new information has been made available regarding the geotechnical conditions (soils) in the area for the WWTP site as well as the trunk sewer alignment. The WWTP site has soil conditions that will require deeper pile foundations and additional costs. The trunk sewer also has difficult soil conditions. The detailed geotechnical work undertaken under Phase 3 indicate these conditions are prevalent across the study area. Based on constructability reviews during the Class EA, a risk management and cost management plan has been developed for the project. Construction teams will be provided information regarding existing conditions, hydraulics and connections to allow the teams to determine their preferred methodology and approach to construct the infrastructure and manage costs. The geotechnical conditions represent an increase from 2020 of approximately $20M at the WWTP site and $15M for the trunk sewer.
- The preliminary design of the new WWTP included best practice review, staff review, and project team workshops. The scope of the facility was optimized to

provide long term benefit for operation and maintenance, consideration for green / energy applications while being mindful of project budget. There are also some elements that have been sized to support future expansions. Areas that contributed to the additional costs (represents $15 million increase) include:

  - Optimal sizing for the inlet pumping station, headworks, digestion, and disinfection
  - Waste activated sludge thickening for improved operations
  - Enhanced road network, RV station and hauled sludge facility to support Region-wide activities

- Capital inflation rate of 4% per year dependent on timing of project cash flow/construction has been estimated

The appraised value of the property is within the approved budget allocated for property purchase. The final purchase price of the property has not been finalized or negotiated. It should be noted that the overall wastewater strategy and capital cost estimates continue to be reviewed and refined under the Class EA process. Finalized Class C cost estimates (with +/- 30% level of accuracy) will be provided at the end of the Class EA.

Cost estimates have been reviewed as part of constructability reviews. Final Class C estimates will be reviewed by a certified cost estimator at the completion of the Class EA. Further to this cost estimate, the costs will continue to be refined and estimated with greater accuracy and detail as the projects move through detailed design and prior to tendering for construction. The cost estimates have been developed in accordance with Canadian construction cost estimation standards and industry best practice.

It should also be noted that during the recent year, particularly influenced by conditions related to COVID-19, it has been difficult to provide improved accuracy for the cost estimates as well predict forward looking indices. There has been significant fluctuation in the construction market conditions including material and equipment costs as well as tendered prices received. There is potential that these fluctuations could persist over the next few years that could further impact the program costs.

The incremental project budget increase of $74.55M is to be funded as follows:

- $36.67M external funding
- $37.88M debt

Of the incremental debt, $29.24M will be recovered by Development Charges (DCs) over the term of the debt (30 years). The difference of $8.64M will be funded by the wastewater operating budget and rate requisition. Note that staff is monitoring the affect of debt on its Standard and Poor Ratio (S&P). Impacts on the S&P rating will be assessed by staff with the 2022 Capital Budget at Budget Review Committee of the Whole in October.

As discussed in PW 39-2020, staff are budgeting for 2/3 of the estimated plant costs as externally funded. External funding estimates are in alignment with the funding formula for the new Niagara-on-the-Lake WWTP of 2/3 grant funding from the Provincial and Federal sources. External funding pertaining to the incremental budget increase of plant construction is estimated at $55.01M x 2/3 = $36.67M.

The 2/3 grant estimate excludes land and design costs as expenditures incurred before formal Federal/Provincial approval were historically ineligible costs under prior funding programs (and land costs in itself not typically eligible for funding). The total revised SNF WWTP budget excluding land and design costs (assuming the budget increase is approved with the 2022 budget) is $217M x 2/3 = $145M total external funding budget.

The revised total estimated capital costs of the projects are $399.64M. The revised total amount of debt to fund the SNF projects is approximately $253.01M. Of this debt, $177.45M will be recovered by development charges over the life of the debt (30 years). The difference of $75.56M will be funded by the operating budget and rate requisition.

To fund the incremental capital budget of $74.55M required for the SNF WWTP projects, an additional $0.6M of non growth related debt charges is required to be funded from the operating budget. This will be accommodated by an equivalent reduction to transfer to capital reserves similar to the 2021 strategy. Staff is preparing the 2022 operating budget on the premise of a 5.15% rate increase in accordance with the W/WW financial plan as per CSD 40-2021. The incremental operating budget impacts are outlined below:

Table 1 – Summary of Annual Operating Budget Impact Changes

Description	2022 Financing Strategy	2021 Financing Strategy	Difference
Annual Debt Charge Budget (net of DC recovery)	$15.0 M (10.6) M $4.4M	$12.5 M (8.7) M $3.8M	$0.6M
Transfer to WW Capital	$12.2M	$12.8M	($0.6M) *
Plant Operations	$5.2M	$5.2M	0

* Reduction in transfer to reserves required to offset increase in debt charges

In accordance to the strategy approved in PW 39-2020, the incremental $0.6M of net debt charges will be transferred to the wastewater capital budget to fund replacement of existing infrastructure within each years capital budget until those funds are required for operating purposes. The above increased debt charges/contributions to capital reserve will be accommodated within the 5.15% financial sustainability plan annual increases.

With these revised capital budgets, the estimated impact on wastewater development charges levied to developers as part of the 2022 DC background study are an increase of 46% assuming all else being equal in the 2017 DC background study. For context, the impact of the SNF WWTP projects estimated an increase of approximately 34% based on project costs included in the 2021 capital budget (increase of 12%). The total increase on residential and non-residential DCs are estimated at 11% and 13% respectively assuming all else being equal in the 2017 DC background study and will be subject to change as the 2022 DC background study is developed.

Given the new information and the 2051 planning basis moving forward, the WWTP and associated projects have been re-evaluated. This has resulted in a change in proportion of costs attributed to Benefit to Existing (BTE), DC eligible, and Post Period Benefit/Out of By-Law (OBL). The DC cost proportions will need to be further reviewed as part of the current Niagara Region 2021 Master Servicing Plan Update and finalized at that time using best available information on the cost estimates and planning projections.

Analysis

Project History

As part of Niagara 2041, there was an update to the Water and Wastewater Master Servicing Plan (MSP). Niagara Region retained GM BluePlan Engineering Ltd. (GMBP)

to review, evaluate and develop water and wastewater servicing strategies for all servicing within the urban areas of the Region. The MSP Update used updated population and employment growth forecasts based on a 2041 planning horizon. Niagara Region is in the early stages of the current 2021 MSP Update which is looking at potential growth out to 2051. Based on the preliminary stages of the Niagara 2051 planning review, the implementation and timing of the preferred solution continues to be supported and is required to support growth.

In Niagara Falls, there is not enough capacity in the existing sewer system nor at the existing treatment plant to meet the increasing system demands resulting from growth as well as the increased wet weather flows due to aging infrastructure and climate change. The SNF Servicing Solution is essential to unlocking the development potential in the broader South Niagara area.

The ability to redirect existing flows to the south, provide additional capacity in the new trunk sewer, provide flexibility for storage in the trunk sewer, and ultimately treat the wastewater flows at the new WWTP all contribute to a significant wet weather management program. In addition, the location of the new WWTP will provide flexibility for the potential for additional wet weather management through potential connections of other service areas such as Chippawa.

Through the analysis undertaken as part of the Class EA process, it is estimated that the new South Niagara Wastewater Solutions strategy, will result in a reduction of over 60% of wet weather volume overflow to the environment.

Development Opportunities

There are increasing development pressures and a strong interest in the South Niagara Falls area for servicing capacity, which is currently impacted by wet weather constraints. The proposed capital program is anticipated to provide the much needed servicing capacity to unlock the development potential in this area. Some developments include Thorold South/Rolling Meadows, Grand Niagara Secondary Plan, redevelopment of existing golf courses, including Oaklands Golf Club and other potential employment interests. The City of Niagara Falls is working on an overall Secondary Plan Study for the South Niagara Falls area with a servicing strategy to align the anticipated growth and optimize this new investment in infrastructure.

This new WWTP is integral to the overall growth servicing strategy that supports the anticipated residential and employment growth in the Niagara Falls, NOTL, and Thorold South service areas. This total growth is estimated to be over 75,000 people and jobs in the area out to the year 2051 with the new WWTP servicing approximately half of this growth along with the existing residents and businesses in South Niagara Falls and Thorold South. The new WWTP and collection system strategy is also considering potential long term growth beyond 2051. There are also ongoing discussions with the Region and City Planning Departments considering the potential for any settlement urban boundary expansions. As the planning for the new WWTP progresses, development interest in South Niagara Falls continues to increase.

The South Niagara Hospital represents a significant investment of approximately $1 Billion for health care in Niagara which will generate associated growth and development surrounding this area. The development along Fourth Avenue near the new St. Catharines Hospital is an example that demonstrates how a new Hospital is a catalyst for growth. The new WWTP will support this development area and timing of construction is being considered with intention to align in-service dates.

The capital program to support the new WWTP will provide greater flexibility for development servicing in St. Catharines, Niagara Falls, Thorold, and Niagara-on-the-Lake.

Environmental Assessment and Conceptual Design

In November 2018, in response to the recommendations from the MSP Update, the Region retained GMBP via a public, competitive bid process (2018-RFP-34) to complete a Schedule C Environmental Assessment (EA) and an enhanced conceptual design for the entire capital program associated with the new South Niagara Falls WWTP. This includes determination of the preferred site, outfall location and sewer alignments. Appendix 2 outlines the overall study area.

Since award, the team has been working diligently to develop a solution that will support servicing for growth, minimize sewage pumping stations, reduce combined sewer overflows and maximize flexibility for the future. The project team is continuing to conduct extensive consultation with key stakeholder groups, approval agencies, property owners, residents, and Indigenous communities. There have been three (3) public information centres held (May 2019, November 2019 and March 2020). The PICs were held prior to COVID-19 restrictions and were open house format with

representation from residents in the study area. The Region invited Councillors and media to dedicated sessions at each of the PICs.

As summarized in PW 39-2020, at the onset of the project, the project team reviewed the study area to determine suitable sites for the new WWTP that were the proper size, close to receiving waterbodies, close to existing and future service areas, and have limited environmental features. There were ten (10) long list site alternatives that were screened from a high level using multiple-bottom line criteria, including environmental, social-cultural, legal-jurisdictional, technical and financial. Four (4) site alternatives were screened for feasibility and were further evaluated using similar multiple-bottom line criteria. A map of the alternatives is available in Appendix 3. The following preferred solution was selected and presented to the public in March 2020:

- New WWTP site located at 6811 and/or 7047 Reixinger Rd.
- Plant outfall location at Chippawa Creek, east of the QEW
- New trunk sewer that will connect existing and future service areas from the existing South Side High Lift Sewage Pumping Station (SPS) to the new WWTP
- New SPS, forcemain and trunk sewer connecting existing and future services areas in South Thorold to the new WWTP
- Decommissioning of existing SPS in the study area that are no longer necessary with the implementation of the gravity sewer.

Throughout the study, the project team has actively been tracking and assessing project related risks. Specifically for due diligence, throughout 2020 and 2021, the project team conducted a comprehensive field study program to help better understand existing conditions and to support the preferred solution. This field study program is above the requirements of the Class EA, but is intended help manage risks and costs early on in the project. These site-specific field studies include archaeology, geotechnical, hydrogeological, natural environment, environmental site assessment (i.e. soil contamination) and cultural heritage. There is some remaining stage 2, as well as marine, archaeological assessment that is expected to be complete by August 2021.

These additional supporting investigations along with more detailed evaluation and engineering led to the refinement of the preferred solution. Supplemental field studies will still be required during detailed design.

The proposed trunk sewer alignment has been confirmed along Montrose Road, on the west side of the QEW. The gravity sewer ranges from 15 to 25m deep, and will connect the South Side High Lift Pumping Station catchment area to the new WWTP, with connections to existing and future growth areas throughout. The project team will formally present this information to the public at the Fall PIC.

The project team completed a comprehensive review and analysis of various layout configurations within the entire preferred site using the multiple bottom line criteria and assessing risks. The new WWTP and outfall pipe is proposed to be constructed solely at 6811 Reixinger Road. Utilization of the full property at 6811 Reixinger Road allows the Region to:

- Provide the maximize buffer from existing and future neighbouring properties
- Ensure available land is secured now for future expansion beyond the planning horizon
- Optimize WWTP layout and process configuration within the preferred site
- Minimize the required archaeological remediation and impact to environmental features.
- Coordinate the property purchase with a single land owner

The Ministry of Environmental Conservation and Parks (MECP) is undertaking amendments to the guidelines related to separation distances between wastewater facilities and sensitive land uses. The amendment includes increasing the minimum separation distance between WWTP similar in size to the new WWTP and sensitive land uses from 150 metres to 500 metres from property line. This is based on 10 years of MECP's documented complaint data for noise, dust and odour.

The project team has considered the applicable guidelines, together with the Region's need to accommodate ultimate build-out and minimize archaeological and environmental impact when developing the land needs for the WWTP site, the plant layout and the configuration within the preferred site.

With these additional risks and field conditions that were discovered and as cost estimates have been refined through the Class EA process, the project team reconfirmed the MSP recommendation of building a new WWTP as well as the proposed associated preferred solution from the EA.

For reference, the MSP had previously evaluated the new WWTP option versus constructing new trunk infrastructure through the existing built area of Niagara Falls and expanding the existing Stanley Ave WWTP ("Go North"). The Go North option would be similarly subject to inflation costs, anticipated poor soils, confined area for construction, additional property acquisition, technical challenges related to twinning Stamford Interceptor through the OPG corridor or surrounding area as well as managing social and environmental issues. The existing Niagara Falls WWTP on Stanley Avenue would require significant structural and process upgrades, management of poor soil conditions, and property acquisition would be challenging given the constraints at each property limit.

Building the new WWTP is still required to support growth, free up capacity in the existing system and at the WWTP, better manage wet weather flows and allow operational flexibility at the existing WWTP. Expanding the existing system through the City would result in significant impact to the businesses, residents, their properties, tourism, major streets and the environment and is anticipated to be subject to similar cost increases. Furthermore, 6811 Reixinger Road is the optimal solution of the short-listed sites when considering all evaluation criteria. The solution best supports growth in South Niagara Falls and Chippawa, has adequate land size to support expansions well into the future will be positioned to minimize impact to sensitive land uses and archaeological and environmental features and is close to receiving water body that MECP supports.

The above-noted review and evaluation supports the recommendation for the South Niagara Falls Wastewater Solution including new WWTP.
It should be noted that the updated servicing strategy outlined above has not yet been presented publicly and is considered draft. Once the final investigations have been completed and the site is confirmed, the project team will provide a full project update, including additional information and evaluation process, to the public and stakeholders. The final Public Information Centre (PIC) is tentatively scheduled for late fall 2021.

The Class EA will fully document the evaluation process as well additional preliminary design details is anticipated to be complete and filed for public review by early 2022.

Property Acquisition

Like with many public infrastructure projects, the acquisition of private property is required to accommodate the construction of the new SNF WWTP. Phase 2 of the Class EA process identified a larger block near Reixinger Road, east of the QEW. From the detailed review during Phase 3 of the Class EA process, it is recommended to locate the WWTP on 6811 Reixinger Road.

Municipally known as 6811 Reixinger Rd, the land comprises an area of 109 acres and is currently held by a single property owner. The land is zoned industrial and the Official Plan identifies it as Resort Commercial. The full 109 acres is required for the ultimate planning for the facility and it is anticipated the full acquisition will benefit the property owner by not severing the block of land and devaluing remaining areas.

Regional staff will be providing the owner with an offer based on an independent opinion of value in the form of a full narrative appraisal report prepared by an AACI-accredited appraiser. In an effort to acquire the property amicably, the owner has been provided a copy of the appraisal report, and staff have offered the owner funds to commission his own independent valuation of the site.

If the offer is not accepted by the property owner, at the appropriate time, Regional staff with external legal counsel will be requesting to initiate formal expropriation proceedings to acquire the property on a compulsory basis in accordance with the Expropriations Act. The Region's external counsel have advised that obtaining possession of the lands through expropriation can take up to 12 to 14 months by virtue of the steps prescribed in the legislation. With that said, they have also undertaken to make every effort to condense this timeframe and have also advised us that negotiations with the owner ought to and can continue in parallel with the expropriation process. The owner has been cooperative to date and understands the need of the wastewater treatment plant. The expropriation process will allow third party adjudication to decide the final purchase price.

In summary with respect to property acquisition, Regional staff will make further efforts to acquire the required lands amicably, but if necessary will proceed with expropriation in the near future to maintain project timelines. The expropriation requirements and Council approval will be provided under separate report at that time.

Project Resources

How We Flow (Master Servicing Plan) (https://www.niagararegion.ca/2041/master-servicing-plan/default.aspx)

SNF WW Solutions Project Webpage (https://www.niagararegion.ca/projects/south-niagara-falls-treatment-plant/default.aspx)

Alternatives Reviewed

The SNF WW Solutions program is being completed as a Schedule C project as part of the Municipal Class Environmental Assessment process. The project team reviewed the study area to determine suitable sites for the new WWTP that were the proper size, close to receiving waterbodies, close to existing and future service areas, and have limited environmental features. There were ten (10) long list site alternatives that were screened from a high level using multiple-bottom line criteria, including environmental, social-cultural, legal-jurisdictional, technical and financial. Four (4) site alternatives were screened for feasibility and were further evaluated using similar multiple-bottom line criteria. The study has included enhanced public and stakeholder consultation.

The information provided within this report aligns with the Class EA process and satisfies the study objectives. Therefore, staff do not recommend the consideration of any further alternatives.

Relationship to Council Strategic Priorities

The SNF WW Solutions capital program achieves several priorities of the 2019-2022 Council Strategic Plan, including the following:

- Supporting Businesses and Economic Growth - The servicing strategy will help support growth by providing new servicing options south of Welland River.

- Healthy and Vibrant Community – Improving wastewater infrastructure in south Niagara Falls supports the Growth Plan for the Greater Golden Horseshoe. This project protects what matters most by improving Niagara's ability to manage wastewater and help mitigate future impacts of climate change that translates into the effective safeguarding of our Great Lakes and generating healthy sustainable communities.

- Responsible Growth and Infrastructure Planning – Planning for growth enables Niagara to remain open for business, strengthens local employment, and delivers the critical infrastructure that meets the needs of residents and businesses

Other Pertinent Reports

CL-C 24-2017 Waste & Wastewater Services Master Servicing Plan (How We Flow) Project Update – South Niagara Falls Treatment Plant Review

PW 8-2019 – South Niagara Falls Wastewater Treatment Plant – Project Update and Award Notice

PW 39-2020 – South Niagara Falls Wastewater Treatment Plant Update

BRC-C-1-2020 – Councillor Information Requests from October 15, 2020 Budget Review Committee of the Whole

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Appendices

Appendix 1 Project Estimates and Funding

Appendix 2 Study Area Overview

Appendix 3 Alternative Wastewater Treatment Plant Sites