

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, JULY 17, 2019**

SUBJECT Wastewater Treatment Project Capital and Operating Budget

ISSUE

The development, construction and operation of the Core Area Wastewater Treatment Project (Wastewater Treatment Project, WTP or the Project) results in capital, financing and operating and maintenance costs. As the construction phase of the Project nears completion, it is important to continue to update forecasts of both one-time and ongoing impacts.

BACKGROUND

On April 17, 2019, the Core Area Liquid Waste Management Committee recommended the Capital Regional District (CRD) Board approve an increase of \$10M to the Project; a revision of the control budget from a business case approval of \$765M to \$775M. Subsequently, the Board approved the increase at the May 8, 2019, meeting. An amendment to the 2019-2023 financial plan will be brought to the Board at the August 2019 meeting.

During the meetings, staff were asked to provide a comprehensive update on both ongoing and one-time impacts.

ONGOING IMPACTS

WTP Business Case and Current Forecast

The approved 2016 business case established ongoing operating and maintenance (O&M) costs of \$13.7M in 2016 \$'s; or, \$15.3M in 2021 \$'s. Updated forecasts as of June 2019 estimate the ongoing O&M impacts at \$20.0M. Table 1 summarizes the changes in the O&M from the approved business case.

Table 1 – Summary of WTP Business Case Changes (million \$)

| Ongoing Impacts Identified in Business Case | Business Case O&M in 2016 \$ | Business Case O&M adjusted to 2021 \$ | Forecasted O&M 2021 \$ | Change \$ Increase/ (Decrease) | Change % Increase/ (Decrease) |
|---|------------------------------|---------------------------------------|------------------------|--------------------------------|-------------------------------|
| O&M Costs | 5.7 | 6.3 | 9.3 | 3.0 | 47% |
| Residuals Treatment Facility P3 Payments | 4.8 | 5.3 | 6.2 | 0.9 | 17% |
| Minor Capital Replacement Reserve | 13.7 | 3.6 | 4.5 | 0.8 | 23% |
| Total | \$ 13.7 | \$ 15.3 | \$ 20.0 | \$ 4.7 | 31% |

Appendix A details a comparison between the business case O&M of \$15.3M and an updated forecast of \$20.0M. The increase of \$4.7M, before any mitigation, is attributed to the following:

- Chemical costs increased by \$2.9M, primarily due to the chemical type (alum vs. ferric chloride). The unit price difference in ferric chloride, limited supply, and additional usage at tertiary filters (based on HRP pilot testing results) contribute to the significant increase.
- Biosolids disposal increased by \$1.0M due to a change in scope. Business case disposal costs were based on a biocell with minimal disposal costs vs the refined scope. The revised disposal estimates are still preliminary and subject to change.
- The remaining net change of \$0.8M consists of various O&M forecast changes and are detailed in Appendix A.

O&M estimates are a consultative process, updated at several points during the project development and construction period. For business case development, high-level cost estimates were provided. As engineering design was advanced and development specifications determined, cost estimates were refined to deliver more accurate operating cost estimates.

2019-2023 5-Year Financial Operating Plan

In the approved 2019-2023 five-year operating budget for the CAWTP, the 2021 estimated cost and revenue (from requisition and invoicing) is \$40M. This revenue is to fund the McLoughlin Point Wastewater Treatment Plant (WWTP) operations, RTF operating and capital costs, debt servicing, and asset replacement / maintenance reserves.

A comparison of requisition and invoicing funded costs including forecasted changes are detailed in Table 2.

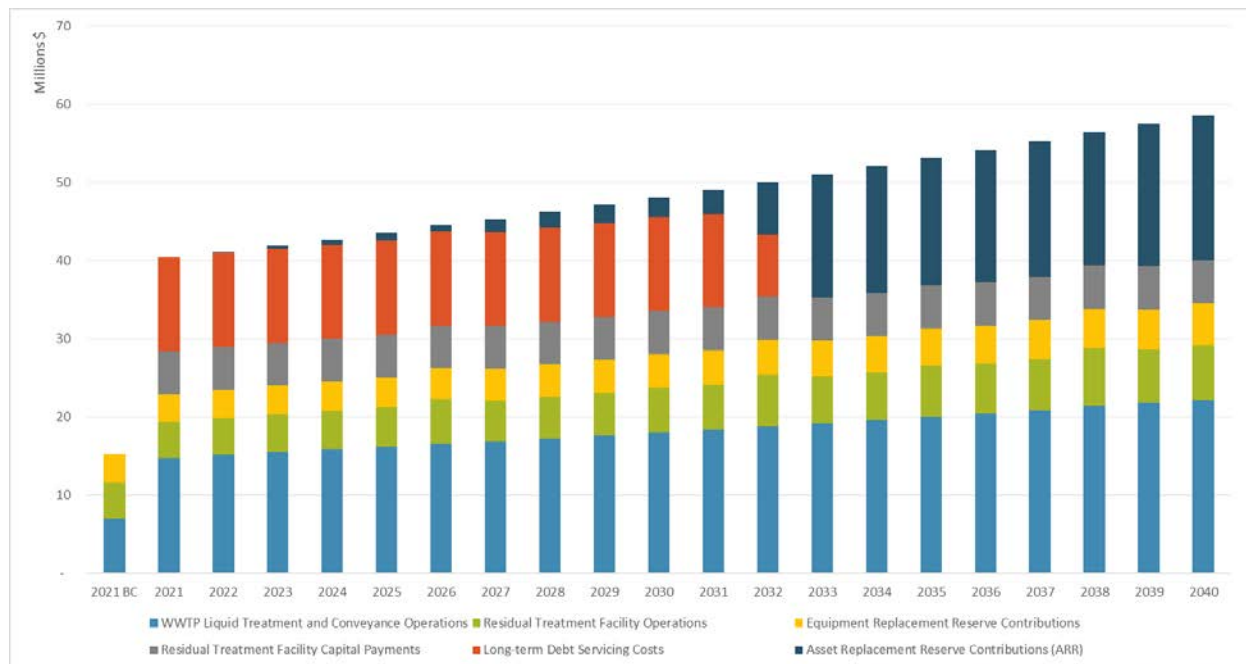
Table 2 – Summary of 2021 Requisition and Updated Forecast

| Budget Component | 2021 Requisition (Financial Plan) | Forecasted 2021 Requisition | Change \$ Increase/ (Decrease) | Change % Increase/ (Decrease) |
|--|--|--|---|--|
| O&M | 15.3 | 20.0 | 4.7 | 31% |
| O&M – not included in business case | 2.5 | 2.5 | - | 0% |
| Residuals Treatment Facility | 5.5 | 5.5 | - | 0% |
| Long term Debt Servicing Costs | 12.0 | 12.0 | - | 0% |
| Equipment replacement reserve (vehicle, minor and IT) | 3.5 | 3.5 | - | 0% |
| Asset replacement reserve | 2.0 | - | (2.0) | -100% |
| PILT | (0.9) | (0.9) | - | 0% |
| Total | \$ 40.0 | \$ 42.7 | \$ 2.7 | 7% |

With updated estimates as of June 2019, and as staff begin the 2020 service planning and budgeting process for the 2020-2024 five-year financial plan, it is anticipated there will be an increase to year 2021 in costs and resulting funding needs for the Core Area Wastewater Treatment Program (CAWTP). As shown above, staff will look to minimize the impacts of the O&M pressures by reducing transfers to the asset replacement reserve.

Figure 1 is a multi-year graphical illustration of the overall CAWTP ongoing costs; WWTP operations, RTF operating and capital costs, debt servicing, and asset replacement / maintenance reserves.

Figure 1 – 20 Year Forecast of CAWTP Ongoing Impacts



In alignment with the WTP financing strategy, approved by the Board in January 2019, and updated to reflect forecasted impacts, contributions to the asset replacement reserve is minimized through 2032 to accelerate repayments of long term debt. The increase to the control budget of \$10M is expected to delay repayment of the CRD Municipal Finance Authority debt by one year to 2032. Following long term debt repayment, the financial capacity is shifted to the asset replacement reserve.

The ability to mitigate ongoing impacts is directly influenced by one-time expenditures and previously approved direction.

ONE-TIME IMPACTS

WTP Control Budget – Capital Scope Changes and Budget Reallocations to Date

The CRD Core Area Wastewater Treatment Project Board (the Project Board) Bylaw No. 1, 2016, states that the role of the Project Board is to, amongst other things:

- oversee Project scope, schedule and budget as the Project progresses through planning, procurement and implementation phases, with particular attention to risk identification and risk management; and
- work with the Project Director to resolve material issues that may arise over the course of the Project.

Under this authority, the Project Board has executed various capital scope changes. Material changes influencing ongoing impacts are summarized below. In addition, the CRD Board has

approved a financing strategy that has resulted in savings to the control budget while locking in the debt payments in the ongoing forecast.

Table 3 – Summary of Reallocated One-Time Impacts

| Control Budget Component | Reallocated Budget (\$M) |
|---|---------------------------------|
| 1. Financing | 6.1 |
| 2. Hartland Temporary Storage Area | 8.6 |
| 3. Refinement of Scope | 5.9 |
| Total Control Budget Reallocated | \$20.6 |

1. Financing

The estimate for financing included in the business case was driven by a financing strategy that utilized temporary borrowing through the duration of construction and converting to long term debt upon completion.

Through construction and forecasting, staff recommended a change to the business case approach by converting to long term debt early. On January 9, 2019, the CRD Board approved a financing strategy that included a debt issuance of \$60M in the Municipal Finance Authority's 2019 Spring Issue. By securing long-term debt early, and paying down the cumulative short-term financing balance, the CRD significantly reduced the control budget financing costs while limiting exposure and risk to interest rate fluctuations.

2. Hartland Temporary Storage Area

On November 18, 2016, the British Columbia (BC) Minister of Environment issued CRD a letter providing conditional approval of Amendment No.11 to the Core Area Liquid Waste Management Plan (CALWMP). As a condition of this approval, the CRD was precluded from incorporating multi-year storage of biosolids within a biocell at Hartland Landfill (as proposed by the CRD); and, additionally, was required to develop a definitive plan for the beneficial reuse of biosolids and submit this plan no later than June 30, 2019. In response, the Project scope was amended to include a temporary storage area at Hartland as a short-term solution while a definitive plan was developed.

The CRD Biosolids Beneficial Use Strategy (Definitive Plan) was received by the CRD Board at their meeting on June 12, 2019, and presented to the BC Ministry of Environment and Climate Change Strategy for consideration on June 21, 2019. Under this Definitive Plan, the CRD is proposing in the near-term to work with the BC lower mainland-based cement industry to utilize biosolids as an alternative fuel.

Currently there are five days of biosolids storage planned at the Residuals Treatment Facility. The budget originally allocated to the construction of the additional temporary storage area (\$8.6M) was reallocated to other construction. At this point there are no plans to augment the storage capacity at Hartland but this may change as operational practices evolve following commissioning of the Residuals Treatment Facility.

The definitive plan has not yet been approved by the BC Ministry of Environment and Climate Change Strategy. The cement manufacturers have indicated to the CRD that they require support

to pay for the capital costs associated with storage of biosolids at their site(s), estimated at \$2M at one site and \$5M at the other site. CRD staff are currently supporting the cement industry to apply for Provincial grants to offset these costs and any amount in excess of grant funding will be the responsibility of the CRD.

3. Refinement of Project Scope

The components of the WTP were identified in 2004 in order to meet the provincial regulation that an overflow must not occur during storm or snowmelt events with a return period of less than five years. Since 2004, there have been many changes to factors influencing the design of these components, including a substantial reduction in water use per person and the collection of a considerable amount of flow data, allowing for more accurate estimates of inflow and infiltration.

The Project team engaged Kerr Wood Leidal (KWL) to develop an updated model of the core area's wastewater system in order to allow the CRD to make informed decisions regarding capital investments required to meet future demands.

As a result of that work, on April 12, 2019, the Project team sought the Project Board's approval to refine the Project scope and remove three components of the conveyance system, as they do not provide a benefit to the CRD's residents and businesses, and are not required to meet the Project's goals.

The Project Board approved that the scope of the Project, as defined in the business case (Appendix 1 to the Project Board report of September 7, 2016, entitled 'Final Report'), be refined to remove the following components:

- a. Upgrades to the Currie Pump Station;
- b. Twinning of the Currie Forcemain; and
- c. Twinning of the East Coast Interceptor.

The approved scope change resulted in a reallocation of budget, originally allocated to the construction of these three components (\$5.9M), to other project components.

Residuals Treatment Facility (RTF)

Biosolids treatment was reviewed and considered appropriate to be delivered under the Design-Build-Finance-Operate (DBFO) model. Under this P3 (Public-Private Partnerships) model, the private partner (HRMG) is responsible for design, construction, partial financing, operations and maintenance over a defined term (20 years). The P3 model anchors and transfers risk during both the construction and operating periods to the private partner as payments to HRMG are based on the availability and performance of the biosolids treatment facility.

After service commencement (est. December 2020), the CRD makes monthly service payments to HRMG over the life of the agreement at a fixed rate that was determined at contract close. These service payments include capital repayment, operations, maintenance, and rehabilitation costs fixed by the agreement. The service payments only commence once the asset is completed in accordance to the contractual requirements.

Under the structure of the contract, the total cost of \$126.8M is payable as:

- i. A lump sum payment of \$63.4M (50%) on service commencement; and
- ii. 240 monthly payments of \$0.5M to be paid over the operating period (after service commencement)

- for (ii) the net present value of the payment stream discounted at the prescribed P3 annual rate is \$63.4M.
- this repayment stream is associated with the private capital that is outstanding after service commencement (a combination of debt and equity).

The project budget includes the net present value of the DBFO agreement. Therefore, of the \$775M project budget, \$63.4M will not be expended at December 30, 2020. Rather, the payment stream is cash flowed and included in the annual requisition. The absence of setting up a reserve to fund the payment stream is expected to save approximately \$25M in interest costs over the operating period.

IMPLICATIONS

With capped funding agreements from senior governments in place, all increases to both the control budget and ongoing impacts are the responsibility of the CRD.

Requisition Capacity

Changes in the ongoing estimates and one time impacts directly influence requisition capacity. In October 2012 the Core Area Liquid Waste Management Committee approved the annual \$5M phasing in of the steady state ongoing impacts. By raising the requisition in a planned and consistent manner over time, funds could be used to reduce long term debt while easing into the ongoing impacts to rate payers. Requisition and invoicing from core area municipalities started in 2013 and have increased annually in \$5M increments (with the exception of 2016 where there was an increment 'holiday'). Based on original assumptions, the final increment was expected to be in 2021. At \$40M ongoing, this was projected to be sufficient for total annual debt and operating costs for variable and fixed expenses including fixed and variable costs, as below.

Fixed costs include:

- a. *RTF capital payments per P3 agreement:*
The CRD entered into a P3 agreement in which 50% of the capital costs for the RTF is paid at substantial completion and 50% is paid over the first 20 years of operation.
- b. *RTF operating and maintenance expenses per the P3 agreement:*
The CRD entered into a P3 agreement in which there are prescriptive operating and maintenance costs.
- c. *Long term debt servicing in alignment with the financing strategy:*
To date, the CRD has issued \$81M of long-term debt: \$6M in 2014; \$15M in 2018; \$60M in 2019. An additional \$33M of long-term debt is estimated to be required, to meet the CRD's revised WTP funding share of \$316M (\$20M Federation of Canadian Municipalities, \$13M final / residual issue be executed at project close-out when the exact value is known).

Variable costs include:

- a. *Operating expenditures:*
These estimates are based on assumptions available and continue to be refined over time. Any changes to the original assumptions, as detailed above, have an impact on the overall operating budget.
- b. *Asset and Equipment Replacement Reserves:*
As discussed, reserve contributions in some cases can be deferred to later years. Transfers to reserve aim to stabilize requisition when expected and unexpected expenditures occur.

CONCLUSION

Staff will continue to refine estimates and forecasts through project completion. Changes to assumptions and variable costs, as detailed in this report, impact ongoing costs. Due to the increases in capital and operating costs and the committed portions of the ongoing requisition, the total forecasted ongoing impact for 2021 has increased from \$40M to \$42.7M (or 7%).

RECOMMENDATION(S)

That the Core Area Liquid Waste Management Committee receive this report for information.

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Appendix A – Business Case O&M Comparison to Estimates at June 2019