

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 7, 2020**

SUBJECT Core Area Wastewater Service - 2021 Operating and Capital Budget

ISSUE SUMMARY

To provide an overview of the 2021 Core Area Liquid Waste Management Service budget including 2020 year end budget projections and transitional budget highlights, as the operating budget is set for the new and existing conveyance systems and the new treatment plant, and the capital budget is set for the longer term infrastructure renewal and future capacity upgrades on the existing systems.

BACKGROUND

By the end of this year, the Core Area Wastewater System will provide wastewater collection, conveyance and tertiary treatment for the sewered areas of the seven participating municipalities and two First Nations, serving a population equivalent of approximately 320,000 and treating an average of almost 82 million litres of wastewater per day. The Capital Regional District (CRD) will achieve compliance with the federal effluent quality standards under the Canadian Wastewater Systems Effluent Regulation and the conditions of the provincially approved Core Area Liquid Waste Management Plan.

This 2021 Core Area Liquid Waste Management Service budget has been prepared for the Core Area Liquid Waste Management Committee's (Committee) consideration. The Committee will make budget recommendations to the CRD Board, who has the authority to approve the budget. The 2021 budget will be the first budget that reflects the operating costs of the new McLoughlin Point Wastewater Treatment Plant (WWTP) and new conveyance system combined with the existing conveyance system. Also new for 2021 are the combined capital costs and reserve fund contributions. The operating budget has been developed based on:

- Advice from consultants with extensive wastewater treatment design and operational experience, particularly with the Biological Aerated Filter Process (Secondary Treatment) and Disk Filter Process (Tertiary Treatment).
- An assessment of the Operations and Maintenance (O&M) requirements for all of the WWTP components and processes and new conveyance infrastructure, including the new wastewater/combined stormwater pumping stations at Clover Point and Macaulay Point, the interconnecting gravity and pressure mains, and the Arbutus Attenuation Tank, as submitted through the various contracts.
- A detailed analysis of staffing requirements for the 24/7 WWTP and support services such as trade and technology services, as well as a review of existing conveyance operations staffing capacity and operational requirements for the new conveyance infrastructure.
- More recent confirmation of biosolids end-use and trucking costs and Residuals Treatment Facility costs
- Review of operational readiness documents by EMA Canada Inc.

The operating budget will continue to be refined over the next two to three years as:

- The operation of the WWTP is optimized through the two year contractual performance period.
- Actual field O&M requirements are compared to equipment/process supplier O&M recommendations that were used as the basis for the maintenance management plans
- The outcome of the disk filter chemical pilot testing is known and the future chemical requirements (alum or ferric chloride) are confirmed
- Biosolids disposal solutions and costs are determined (beyond three year time period)

2020 Year End Financial Projections

The 2020 budget for Trunk operations and Core Area Wastewater Treatment Project (CAWTP) operating start-up costs totals \$13.0 million. Expenses are forecast at \$12.0 million for year-end 2020. Combined Trunk operations are trending over budget by \$0.4 million. This is mostly due to Clover Point and Macaulay Point Pump station handovers being later than planned in the 2020 budget. CAWTP start-up operating costs are trending under budget and forecast to end 2020 in a \$1.5 million surplus position. In parallel with the forecast deficit in Trunk operations, this surplus is predominantly as a result of handover timing. Savings from plan are generated through decreased staffing costs due to Q3 and Q4 hiring, reduced departmental allocations supporting operations start-up, and reduced power and water costs in 2020. The surplus was split and used to offset 2021 budget costs with a \$0.7 million carryforward and, used to support CAWTP capital funding with a \$0.7 million transfer which, in turn, will reduce debt issuances required at project completion.

The 2020 budget for trunk and CAWTP revenues totals \$43.9 million. Revenues are forecast at \$48.0 million for year-end 2020. This \$4.1 million in additional revenues is comprised of \$0.4 million in transfers from operating reserve to support the 2020 existing trunk operations cost variance plus \$4.5 million from proceeds on sale of the Viewfield property, including surplus from lease operations, less \$0.7 million surplus carryforward to 2021. CAWTP Debt costs in 2020 were \$1.6 million less than budget primarily due to receipt of Provincial grant funding ahead of plan. Cumulatively, with increased revenues and reduced debt costs the total transfer to the CAWTP capital reserve increased by \$6.8 million. This increased transfer will reduce future debt levels.

2021 Operating Budget

Conveyance and Treatment Operations

The 2021 operating budget for conveyance and treatment operations reflects non-discretionary expenses such as negotiated staff wages/salaries, regulatory program and corporate support services, residuals treatment and disposal costs, and other operating expenses such as chemicals and electricity. The 2021 budget also includes \$0.2 million in one-time expenses for carbon replacement (existing odour control systems – \$0.1 million funded from maintenance reserve fund), final lease payment for Tennyson Operations Building (temporary operations centre during WWTP/Macaulay Point Pumpstation construction), and WWTP optimization consulting support.

The total 2021 operating expenditures are budgeted at \$28.2 million, of which \$8.1 million is associated with conveyance system operations, including the new and existing collection system

and new residual solids conveyance infrastructure. The remaining \$20.1 million is associated with liquid and solids treatment operations.

The previous 2021 estimate as approved in the 2020 5-Year Financial Plan was \$19.2 million. Since then, updates to assumptions and estimates have been incorporated into the current 2021 budget. Operating costs such as electricity, insurance, environmental programs and permit fees have increased (through costing refinement) while costs such as general office and some allocations have decreased. Partial cost increases in 2021 are offset by increases in recoveries from payments in lieu, other municipal solids tipping fees and Hartland leachate fees as well as a surplus carry forward from the 2020 operating budget.

Environmental Services Programs Operations

There are several environmental programs that the Core Area Wastewater Service participates in as part of the liquid waste management function which are also critical to achieving the CRD's commitments under the LWMP. These programs and 2021 requisition budget adjustments are summarized below and within the benchmark increase of CPI or 1.7% unless otherwise noted. In addition, municipal participation varies across the various programs.

Regional Source Control Program – The program is aimed at reducing contaminants that industries, institutions and households discharge into sanitary sewers. The program will be more important than ever in point-of-discharge contaminant reduction in order to protect the sewage collection and treatment systems, the quality of the treatment plant sludge and biosolids, the marine receiving environment, and public and worker health and safety.

Septage Disposal Program – The program provides oversight for the contract between the CRD and SPL Wastewater Recovery Ltd. who provides septage receiving and processing services for the CRD.

Onsite Sewage System Management Program – The program manages septic system maintenance through bylaw compliance monitoring and educational materials in order to reduce the impacts of failing septic systems on human health and the environment. The 2021 requisition for the program remains the same as 2020.

Core Area Liquid Waste Management Plan Administration – The program manages the LWMP and oversees implementation of the commitments. The program also conducts all reporting and plan amendment preparation for the service.

Harbours Studies Program – The program provides for the CRD to work in partnership with other stakeholders, including communities, local governments and senior governments, to protect and improve the environmental quality of Victoria and Esquimalt harbours. The 2021 requisition for the program remains the same as 2020.

Core Area Stormwater Quality Management Program – Using an integrated watershed management approach, the program coordinates the management of stormwater quality, including investigations to assess shoreline discharges and contaminant sources, in order to protect the marine environment.

Inflow and Infiltration Enhancement Program – The program provides for the CRD to engage with the participants to identify and reduce the amount of rain and ground water that enters the sanitary sewer systems. The program budget is funded through the conveyance and treatment budget.

Marine Monitoring Program - The program provides for the marine environment sampling and testing and regulatory reporting related to the effluent discharges from CRD wastewater facilities. The program budget is funded through the conveyance and treatment budget.

2021 Capital Budget

Capital Plan

As noted in previous reports, for over ten years while the treatment and conveyance options were being considered and the project scope was being determined, the capital program that would normally address on-going infrastructure renewal and capacity upgrades was largely deferred to ensure that investments were not being made in infrastructure that could become redundant. A long term capital plan has now been prepared for the 5, 10, 20 and 30 year time horizons for the major asset categories. The plan includes projects that will replace infrastructure at end of service life to ensure the system continues to operate reliably without service interruptions or risk to property, public health or the environment. The plan also includes projects that add conveyance capacity 'just in time' in order to convey flows to 2045 and utilize the ultimate design capacity of existing conveyance facilities, such as pump stations, and the McLoughlin WWTP. The value of the 30 year capital plan is estimated at \$116.4 million.

The project list originally set out in Section 16 of the (2005) Core Area Liquid Waste Management Plan (LWMP), formed the basis for the current, updated long term capital plan. The 2005 plan called for \$140.6 million (2004 dollars) in conveyance system improvement projects that were to be completed between 2005 and 2045. The value of the completed projects under this plan is approximately \$32 million (2004 dollars). The value of the projects originally identified in this plan but that were completed under the CAWTP scope is approximately \$51.3 million (2004 dollars). The value of the projects originally identified in this plan but no longer required due to the final CAWTP conveyance and treatment configuration is approximately \$36.2 million (2004 dollars). The value of the projects originally identified in this plan but not yet completed is \$22.7 million (2020 dollars based on original 2004 project budgets).

The capital budget for 2021 is \$11.7 million (excluding CAWTP debt); the 2021-2025 capital budget is \$56.7 million (see Appendix A). This capital program will be funded entirely by long-term debt as there are currently no capital reserve funds in place. There are projects planned in each of the major asset categories including pump stations upgrades, gravity sewer and manhole upgrades and replacements, pressure pipe upgrades, flow meter installations and replacements, system control and communications upgrades, and outfall retrofits.

Loan authorization bylaws will be required for the new loan which will be approximately \$57.0 million. In most cases a loan authorization bylaw requires approval of the electors in the service area or municipal consent (on behalf of the electors). However, under the Provincial Environmental Management Act and the Regional District Liabilities Regulation, approval is not required if the loan is incurred to implement an approved Liquid Waste Management Plan (LWMP). Given that the currently approved LWMP includes \$22.7 million of the \$56.7 million 2021-2025 capital plan, staff are recommending that approval be obtained through the municipal

consent process, for the value of the capital plan that is not currently in the LWMP, or approximately \$34.3 million. This process will address the legislated requirements through this transitional period, while staff undertake an amendment of the LWMP to reflect the updated long term capital plan. As with past loan authorization bylaws for the service, future loan authorization bylaws will be approved in accordance with the above noted Act and Regulation. The loan authorization bylaws will be considered under a separate report.

Capital Funding

There are two primary elements to the capital program funding. There are reserve funds established through annual contributions to allow accumulation of funds for future expenditures or pay-as-you-go funding; there are four reserve funds for the Service which are explained in more detail below. Then there are debt servicing costs (principal and interest payments) associated with long term capital infrastructure financing; in summary, for treatment and conveyance, there are three different debt programs, one associated with legacy conveyance system project financing (debt outstanding estimated at the end of 2020 of \$2.8 million which will be retired by 2025), one associated with the CAWTP financing (debt outstanding estimated at the end of 2020 of 77.5 million which will be retired by 2032 based on current financing strategy), and one associated with the new financing proposed to begin in 2021 as noted above, for the on-going conveyance system renewal and capacity upgrades (anticipated initial loan/debt outstanding estimated at \$11.7 million at the end of 2021, noting that only \$117,000 in debt servicing expenses impact the 2021 budget). In summary, future capital funding will be a combination of reserves and debt financing. Debt financing in this case is supporting an appropriate level of investment in system capital while balancing a lower annual funding requirement. As the capital program progresses, any project surpluses will be used to fund upcoming capital and offset future borrowing requirements.

The 2021 budget for the Residuals Treatment Facility (RTF) Hartland Resource Management General Partnership (HRMG) payment under the P3 Agreement is set at \$5.5 million. Based on the terms of the agreement, this budget amount is fixed over the next 20 years.

Reserve Funding

As previously noted, there are four reserve funds for the service, two of which require establishment bylaws covered by a separate report.

The Operating Maintenance Reserve fund is used to pay for significant O&M expenses that do not occur on an annual basis, such as odour control system carbon replacement, marine outfall inspections and pipe pigging/cleaning.

The Equipment Replacement Reserve fund is used to pay for 'minor' equipment replacement that typically has a service life of less than five years and/or a value of less than \$25,000. The 2021 reserve fund contributions are set at \$1.3 million. Based on projected expenses to meet operational requirements, this is the anticipated level of annual funding, with inflationary adjustments over time.

CAWTP Debt Retirement Reserve Fund – is used to accumulate funds sufficient to pay down the treatment program debt issuances, in full, as they hit their 10 year renewal option. The establishment of this fund aligns with the financing strategy approved by the Board in 2019 which

was designed to deliver the most cost effective financing structure, with the lowest overall cost to the participants. The combined annual contribution to the Debt Retirement Reserve and the debt servicing costs for the CAWTP financing totals \$12 million (plus issuance costs in 2021).

Capital Replacement Reserve Fund – This fund is used to pay for ‘major’ equipment and infrastructure replacement that has a service life of 5 to 25 years or more, such as major mechanical, electrical and instrumentation equipment, treatment process and odour control equipment and WWTP building equipment such as heating and cooling systems. The replacement and funding of other components of the wastewater system that have a service life of up to 75 years, such as gravity trunk sewers and forcemains, large pumps, electrical distribution systems, concrete tanks and superstructures and major building components, will be part of the long term capital plan and largely funded through a combination of reserves and long term financing. The 2021 reserve fund contribution has been set at \$2.7 million. Based on an evaluation of the service lives and value of the assets that would be replaced using this fund, and given that the need for the funding will significantly increase 20 to 25 years from now, the annual contribution will likely be smaller and vary for the next ten years while the CAWTP debt is paid down, then it is proposed to increase the annual contribution to a level in the range of \$12 million in order to ensure there is sufficient funding in reserves when required.

Existing capital reserve funds held for each participant are expected to be credited to the each participant, subject to Ministry approval.

In summary and to illustrate the long range forecasts of the operating, capital and reserve expenditures, Appendix B demonstrates the allocation of total budget.

2021 Budget Context – Conveyance and Treatment

The following tables summarize the total 2021 wastewater conveyance and treatment expenditures and revenues. The totals are also summarized in Appendix C, along with 2020 year end projections and 2022-2025 budget projections.

Table 1: 2021 Budgeted Expenses

Budget Component	2021 Budget (millions)	% of Total
Treatment Plant O&M	13.4	26.3%
Conveyance System O&M	8.1	16.0%
Residuals Treatment Facility Operating	6.7	13.2%
Residuals Treatment Facility Capital	5.5	10.9%
Operating Reserve Fund Contributions	1.0	2.0%
Equipment Replacement Reserve Fund Contribution	0.3	0.5%
Long-term Capital Reserve Fund Contribution	2.7	5.4%
CAWTP Debt Retirement Reserve Fund Contribution	6.3	12.4%
CAWTP Debt Servicing	6.6	13.0%
Capital Renewal & Capacity Upgrades Debt Servicing	0.1	0.2%
Total	\$ 50.8	100.0%

Table 2: 2021 Budgeted Revenue

Budget Component	2021 Budget (millions)	% of Total
Other Municipal Solids - SPWWTP	0.9	1.8%
Hartland Leachate	0.2	0.4%
Core Area Wastewater Operations - Surplus Carryforward	0.7	1.4%
Core Area Wastewater Operations - Ops Reserve	0.1	0.1%
Core Area Wastewater Operations Payments in Lieu	0.8	1.6%
Core Area Wastewater Operations - Requisition	27.5	54.2%
Core Area Wastewater Capital - Payments in Lieu	0.6	1.1%
Core Area Wastewater Capital - Requisition	20.0	39.3%
Total	\$ 50.8	100.0%

Note regarding Other Municipal Solids Revenue –The Saanich Peninsula Wastewater Treatment Plant has been landfilling dewatered raw sludge resulting from the treatment process since 2012, when the biosolids production and land application ban was implemented. However, the Saanich Peninsula Liquid Waste Management Plan commits the CRD and the service's participating members to beneficially use biosolids produced with the residuals. The RTF has been designed and constructed with capacity to accept wastewater residuals (raw sludge) from other wastewater facilities in the CRD. As discussed previously with the Committee, it is proposed to utilize this available capacity by accepting approximately 4,000 tonnes of dewatered sludge (>20% solids content) from the Saanich Peninsula Wastewater Treatment Plant. Staff have evaluated the range of likely costs associated with the RTF operation and beneficial use, and have recommended a tipping fee of \$225/tonne for the sludge. The Saanich Peninsula Wastewater Commission has agreed to this rate and directed staff to incorporate this expense in the service's 2021 budget. This results in an estimated \$0.9 million in annual revenue for the Core Area Liquid Waste Management service.

Requisition

The 2021 requisition is \$47.5 million after incorporating the requisition for capital and debt servicing of the new and existing conveyance and treatment system works, as well as system operations. Appendix C, illustrates the difference between the combined expenditures and revenues and the target requisition excluding existing operations and the new capital renewal program.

ALTERNATIVES

Alternative 1

That the Core Area Liquid Waste Management Committee recommends that the Capital Regional District Board:

1. Review and approve the 2021 Core Area Liquid Waste Management Service operating and capital budgets as presented, at the October 28, 2020 provisional budget meeting; and
2. Direct staff to balance the 2020 actual revenue and expenses on the transfer to the debt retirement reserve fund at year end.

Alternative 2

That the Core Area Liquid Waste Management Committee refer the budget back to staff for additional information for the Capital Regional District Board's consideration at its October 28, 2020 provisional budget meeting.

IMPLICATIONS

Environmental & Climate Implications

With the operation of the McLoughlin WWTP in 2021, the CRD will be in compliance with the provincial and federal effluent quality regulations. Disinfection of treated effluent is not required to meet the regulations at this time. However, future consideration of the need to disinfect effluent will be subject to on-going monitoring of the impact of wet weather overflows and treated discharges. Management of wet weather discharges will be advanced through the on-going implementation of CRD and municipal inflow and infiltration reduction programs. Progress on inflow and infiltration initiatives and other commitments under the Core Area LWMP will be reported regularly to the Committee.

Staff are developing several performance indicators for the Core Area Liquid Waste Service that will be tracked once the new liquid and solids treatment systems are in full operation, including the following indicators with an environmental and climate focus:

- Compliance with Operational Certificates
- Total volume and cost per megalitre of wastewater collected and treated
- Energy use per megalitre of wastewater treated
- Beneficial use of biosolids
- Utilization of gas generated at the Residuals Treatment Facility

Intergovernmental Implications

Staff will continue to work closely with Esquimalt and Songhees First Nations to finalize Wastewater Service Agreements for each Nation.

With respect to residual solids treatment operations, the province recently confirmed acceptance of the short-term biosolids contingency plan. As directed by the province, the CRD will continue to develop the long-term biosolids strategy for implementation by January 1, 2025. The budget implications of the final strategy will be considered by the Committee in advance and will be reflected in future budgets.

Social Implications

The potential neighbourhood impacts related to the operation of the conveyance system and WWTP, including noise and odour, will be closely monitored by the CRD. The CRD will continue to respond to concerns and engage with the Esquimalt Liaison Committee

Financial Implications

As forecasted in previous reports to the Committee, the 2021 operating and capital budgets include requisitions to offset projected expenditures associated with the operation of the

expanded conveyance system and new WWTP, as well as on-going capital investment and longer-term reserve contributions. The operating and capital cost apportionments for each participant will be as per CRD Bylaw No. 4304, adopted by the CRD Board in August 2020.

Alignment with Board & Corporate Priorities

The 2019-2022 CRD Corporate Plan is aligned to the Board direction. It highlights the initiatives the CRD needs to deliver over the Board's four-year term to address the region's most important needs. The Corporate Plan identified six initiatives under the Wastewater initiative, that fall under the Core Area Liquid Waste Management Committee's mandate. Progress on these initiatives to date and upcoming initiatives affecting the 2021 budget are set out for the Committee and Board in the Service Planning report.

CONCLUSION

This 2021 Core Area Liquid Waste Management Service budget has been prepared for the Core Area Liquid Waste Management Committee's (Committee) consideration. The Committee will make budget recommendations to the Capital Regional District (CRD) Board, who has the authority to approve the budget. The 2021 budget will be the first budget that reflects the operating costs of the new McLoughlin Point Wastewater Treatment Plant (WWTP) and the existing and new conveyance system, as well as the existing and new capital costs and reserve fund contributions. The operating budget will continue to be refined over the next two to three years as the operation of the WWTP is optimized through the two year contractual performance period and the CRD gains experience with the new operation. The CRD will resume investment in the renewal of the existing conveyance system, once funding is in place, to ensure the system continues to operate reliably and without impacts on public health or the environment. The financial implications of the 2021 operating and capital budget vary by participant, depending on the operating and capital cost apportionments associated with annual flow and allocated treatment capacity.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee recommends that the Capital Regional District Board:

1. Review and approve the 2021 Core Area Liquid Waste Management Service operating and capital budgets as presented, at the October 28, 2020 provisional budget meeting; and
2. Direct staff to balance the 2020 actual revenue and expenses on the transfer to the debt retirement reserve fund at year end.

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ATTACHMENTS

Appendix A: Five Year Capital Plan

Appendix B: Long-term Budget Overview

Appendix C: Combined Core Area Wastewater Service Committee Summary