Comox Valley REGIONAL DISTRICT

Staff Report

DATE: April 9, 2021

FILE: 5330-20/CVSS LWMP

TO: Chair and Members
Comox Valley Sewage Commission

FROM: Russell Dyson
Chief Administrative Officer

Supported by Russell Dyson
Chief Administrative Officer

R. Dyson

RE: Sewer System Conveyance Project – Implementation Strategy

Purpose
To confirm the implementation strategy for the sewage system conveyance project, including the project delivery method and project schedule.

Recommendation from the Chief Administrative Officer:
THAT the Sewage Commission approve the sewage system conveyance project implementation strategy, project delivery method and project schedule in the April 9, 2021 staff report, including breaking out the cut and cover portion through the Town of Comox as a separate Design-Bid-Build contract whilst completing the remainder under a Design-Build contract.

Executive Summary

- Based on results from the Procurement Model Assessment, the Value Engineering process and detailed discussions with the Town of Comox and Sewage Advisory Committee, it is recommended that the sewage system conveyance project be implemented by breaking out the cut and cover portion through the Town of Comox as a separate Design-Bid-Build contract, whilst completing the remainder through Design-Build.
- On February 23, 2021 the Sewage Commission determined that:
    1. Liquid Waste Management Plan (LWMP) conveyance option 2 (tunnel forcemain) be chosen as the preferred conveyance option.
    2. The conveyance project be advanced separately from the LWMP to expedite resolution of the Willemar Bluffs environmental risk.
    3. The conveyance project budget be set at $73 million.
    4. Borrowing for the conveyance project be obtained through an alternative approval process (AAP).
- In spring 2020, the Comox Valley Regional District (CVRD) initiated a Procurement Model Assessment (PMA) for the sewage system conveyance project to review the options and inform the project delivery method. Bundling all scope into one contract and implementing as a Design-Build project was found to be the most advantageous project delivery method for the options evaluated.
- A Value Engineering process was implemented on the project after the PMA was completed, and through this process and subsequent analysis two potential changes to procurement strategy were identified:
    1. Construction Manager At-Risk (CMAR) may be a project delivery model worth considering in lieu of Design-Build. The PMA was expanded to review CMAR for this project; however, Design-Build continues to be confirmed as the preferred approach.
    2. Breaking out the cut and cover portion of the project within the municipal bounds of the Town of Comox as a separate contract, delivered through Design-Bid-Build. This has

been reviewed in detail between staff at the CVRD, the Town of Comox and Sewage Advisory Committee, separately from the PMA, and is confirmed to be the preferred option.

- A detailed schedule, incorporating the timing of the project procurement phases and AAP can be found in Appendix A, showing significant decision milestones for the Sewage Commission in Fall/Winter 2021 and project completion in 2024. Highlights of the detailed schedule are also on page four and five of this report.

Prepared by:	Concurrence:	Concurrence:
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Government Partners and Stakeholder Distribution (Upon Agenda Publication)

City of Courtenay	✔
Town of Comox	✔
K'ómoks First Nation	✔
Ministry of Environment and Climate Change Strategy	✔

Background and Current Status

Project Delivery Method

- The CVRD's standard delivery model for wastewater infrastructure projects is Design-Bid-Build (DBB): CVRD utilise a design consultant to complete a detailed design before tendering the projects construction to a contractor.
- With larger, more complex projects, there are several other project delivery models that are shown to have advantages over DBB and are worth considering. A good example of this is the $126 million Comox Valley Water Treatment Project (CVWTP), which is being successfully delivered as a Design-Build (DB).
- In line with the process that was completed for the CVWTP, the CVRD engaged Deloitte to complete a Procurement Model Assessment (PMA) to inform a project delivery method decision for the sewage system conveyance project.

Procurement Model Assessment

- The Procurement Model Assessment was initiated in spring 2020 and was completed through Q2/Q3 2020. The process involved several components:
    1. A market sounding: reaching out to known contractors and ascertaining their interest in different project delivery methods and bundling scenarios.
    2. A scenario selection: due to the large number of possible combinations of conveyance project options, procurement methods, and bundling possibilities, a shortlist of scenarios that were more likely had to be created to analyse them in depth.
    3. A multi-criteria assessment (MCA): an evaluation of relative merits of each scenario based on assessment categories, criteria and weighting.
    4. An analysis of the MCA to determine the most advantageous project delivery model.
- The market sounding was a process of reaching out to several local contractors, as well as several larger North American contractors, all who have worked in the region previously. The aim of the market sounding was to determine market interest in the project and get contractor feedback

regarding changes to their level of interest with different procurement models or bundling. The results are summarized in Section 2.3 of the PMA.

- The scenario selection was complicated. With three conveyance project options, two procurement methodologies and three different project components that could be bundled in any combination (pump station upgrades, cut and cover forcemain and trenchless forcemain), there were far too many possible scenarios to do a full assessment on each. In light of this, the MCA team decided upon 10 scenarios that were determined to be most likely. These are summarized in Table 4. It is important to note that none of the 10 scenarios were based on project Option 2, which was selected by the Sewage Commission on February 23 as the preferred option, as at the time of the assessment this option was seen as unlikely. This issue is addressed in the report in Section 3.8: it was found that as Option 2 is essentially Option 3 with immediate and future work completed at once, the findings for Option 3 are equally applicable to Option 2.
- The multi-criteria assessment included two main processes:
    1. Determining MCA categories, criteria and weightings. These are subjective, and allow staff to apply the project's specific local context to how each scenario is assessed. The categories, criteria and weightings were influenced by the LWMP process: the MCA team included staff from the TACPAC group, allowing the priorities raised in that process to be included in the criteria and influence weightings. The selected MCA criteria and weightings are summarized in Table 3.
    2. Completing the assessment on each scenario. This involved each team member assigning scores privately and then coming together to agree on the scores by consensus. The scenarios were grouped by project option and were evaluated in batches, with the results summarized in Tables 6 and 7.
- An analysis of the MCA results calculates a total score for each scenario based on the weightings and scores given to each criteria. The results were grouped by project option and the MCA calculated that bundling all scope into one Design-Build contract was the most advantageous project delivery method.
- To understand if certain criteria weightings swayed the results significantly, a sensitivity analysis was also performed to see how easily the results would change. This sensitivity analysis showed that the results were not sensitive to minor changes in criteria weightings.
- One item of note, which is detailed in the conclusions and recommendations, was that bundling the trenchless forcemain work with the other project scope is not seen as significantly more advantageous than keeping it as a separate Design-Build contract, and that specialist trenchless contractor availability for this scope should be reviewed prior to finalization of procurement strategy. Per the report's recommendations, staff will conduct further market soundings closer to release of the RFQ to determine the best path forward regarding the bundling of the trenchless scope.

Value Engineering impacts to Procurement Model Assessment

- A Value Engineering process was undertaken in December 2020 to review the project scope and cost estimate, after the MCA was completed. This process highlighted two items which impacted the PMA:
    1. Increased risk with continuing to use the existing forcemain from Courtenay Pump Station to Marina Park, which increased the likelihood of project Option 2 being selected. This was not evaluated in any of the scenarios in the MCA, and so it was analysed separately and incorporated into the PMA. It was noted that Option 2 includes the same project components as Option 3, just more cut and cover and trenchless scope, which further reinforces the results found by the MCA, that a bundled Design-Build is preferable.

2. Suggested the use of Construction Manager at Risk (CMAR) as the procurement methodology. This was not evaluated in any of the scenarios in the MCA, as CVRD has no experience in this procurement method. An additional assessment, including reaching out to other local governments, was undertaken by staff to understand its relative benefits for this project. Based on this assessment, CMAR was evaluated and found to not be as beneficial as Design-Build for this project as the requirements of the project are well defined.

Town of Comox Cut and Cover

- During the Value Engineering workshops, which municipal staff participated in, the procurement methodology for the cut and cover portion through the Town of Comox was also raised. It was noted that due to the complexity of building within municipal streets with many existing utilities, as well as aligning the work with other necessary upgrades that are required along the route, a Design-Build approach may not be appropriate.
- CVRD staff reviewed the advantages and disadvantages of combining the Town of Comox cut and cover section within the large Design-Build scope, and concluded that separating it out as a separate Design-Bid-Build contract was preferred. Rationale for this change includes:
    1. The cross-over between the project's scope and other municipal upgrades required within the same municipal streets requires input from municipal staff at every level of detail design. This would be challenging to achieve through a Design-Build, where the contract is formed on performance based specifications set prior to procurement.
    2. The Design-Build provides key advantages by optimizing the hydraulic design, influenced by pump selection, pipe sizing and tunnel profile, to market conditions such as HDD rig availability and pipe pricing. However, the hydraulic design is not affected by the details of the cut and cover portion through the Town of Comox, so it is not affected by separately contracting this scope. The Design-Bid-Build contract for the Town of Comox portion will be tendered after the Design-Builder has set the pipe size for the entire conveyance project alignment.
    3. Local north island contractors have strong experience with cut and cover pipe installation, and have been shown to provide very competitive pricing. Tendering this scope as a Design-Bid-Build allows our local contractors to manage this portion of the project as the Prime Contractor.
    4. The battery limits for this portion—from the Comox Hill HDD to the Lazo Hill HDD—make it very easy to isolate the scopes of work from impacting each other.

Schedule

Appendix A of this staff report is a detailed schedule, defining the timeline for the implementation of the project. Some highlights of this schedule include:

Design-Build Scope (Pump Stations, Cut and Cover and Tunneling)

July – Nov 2021	Owner's Engineer – finalize project scope
Jul 2021 – Mar 2022	SRW planning and negotiations
Nov 2021	Sewage Commission approve scope
Dec 2021 – July 2022	Design-Build Procurement
Fall 2022	IR1 Pre-dig
Sep 2022 – Apr 2023	Detail Design
Mar 2023 – Aug 2024	Construction

Design-Bid-Build Scope (Town of Comox Cut and Cover)

Feb – June 2021	Preliminary Design for Cut and Cover within Town of Comox
June – Sep 2021	Town of Comox review of preliminary design and adjacent infrastructure discussions
Oct – Dec 2021	Town of Comox and CVRD negotiate terms of infrastructure agreement
Jan 2022	Sewage Commission approves Town of Comox / CVRD infrastructure agreement
Oct 2021 – Aug 2022	Detailed Design
Nov 2022 – Apr 2023	Pipe Procurement
Mar 2023 – Jul 2024	Construction

Policy Analysis

At its February 23, 2021 meeting, the Comox Valley Sewage Commission approved the following recommendations.

> *THAT the preferred conveyance option for the Comox Valley Sewer System, as developed through the Liquid Waste Management Plan (LWMP), be determined as the tunnel forcemain (Option 2), which includes a combination of trenching and tunneling from the Courtenay and Jane Place Pump Stations to the treatment plant and related equipment;*
>
> *AND FURTHER THAT the conveyance component of the LWMP be advanced separate from the LWMP to more quickly mitigate the environmental risk of the current conveyance line that is located along Willemar Bluffs;*
>
> *AND FURTHER THAT the public approval required for funding the conveyance project be obtained through an Alternative Approval Process;*
>
> *AND FURTHER THAT further discussions take place with the Town of Comox regarding the final route, infrastructure replacement standards and community impacts;*
>
> *AND FINALLY THAT staff report back with a proposed Sewage System Conveyance Project implementation strategy, including project delivery method, project schedule and Alternative Approval Process logistics to the March 9, 2021 Sewage Commission meeting*

Options

The Comox Valley Sewage Commission could consider the following options when deciding the best path forward for the sewage system conveyance project:

1. Direct staff to proceed with procuring the cut and cover portion through the Town of Comox using a Design-Bid-Build methodology, and procure the remainder of the project scope through Design-Build methodology.
2. Direct staff to proceed with procuring the entire scope of the project through a bundled Design-Build contract, per the recommendation of the Procurement Model Assessment.
3. Direct staff to re-evaluate the implementation strategy and schedule with further direction on concerns that need to be addressed.

Based on the collaboration between CVRD and municipal staff, staff are confident that Option 1 is in the best interest of the Sewage Commission. This option allows the necessary collaboration between CVRD and Town of Comox staff through the detail design process to ensure that the complexities of building through the town are able to be adequately addressed. Staff are therefore recommending Option 1.

Financial Factors
Implementation strategy, including procurement methodology, does not affect project budget. All strategies have their advantages and disadvantages and it is a matter of clear procurement documentation and strict contract management that ensures projects are delivered on budget.

Legal Factors
None.

Intergovernmental Factors
The Comox Valley Sewerage Service is governed by the Comox Valley Sewage Commission whose membership includes representation from the Town of Comox, the City of Courtenay and the Department of National Defence. The project also collects sewage from the K'ómoks First Nation and proposes to install the forcemain across Indian Reserve No.1 (IR1).

Whilst the K'ómoks First Nation and the Town of Comox will be the most affected by the construction of this project, the Town of Comox are most affected by the implementation strategy. In light of this, the Town of Comox has been consulted specifically on procurement strategy and have collaborated in helping to define the methodology as proposed by this report.

Interdepartmental Involvement
The Engineering Services branch is leading this work with support from Financial Services, who provide procurement management, Legislative Services and the Office of the Deputy CAO, which provides stakeholder relations and community engagement support through the External Relations department.

Citizen/Public Relations
This project is the result of a significant public engagement effort, through the Liquid Waste Management Plan, and will require continued public engagement through to project completion. The proposed infrastructure crosses through K'ómoks First Nation IR1, along an area with high archaeological potential, through the heart of the Town of Comox and underneath Lazo North (Electoral Area B), whose residents rely on groundwater sources for drinking water supply. Managing communications with all stakeholders on this project will be key to its success.

The timeline below details engagement efforts from now through the end of 2021, when the project scope is finalized. A public engagement plan will be brought forward early in 2022 to detail consultation efforts in advance of project construction, which will start in 2023.

Ongoing
- Engagement with KFN on project milestones, archaeological mitigation along pipe route and compliance with Cultural Heritage Policy.
- Responding directly to concerns from residents via phone, email and Zoom – or in-person where health and safety guidelines are met.
- Continued outreach to participants of Electoral Area B groundwater monitoring program.

Spring
- Engagement with municipal staff, including finalizing alignment through the Town of Comox.
- Produce backgrounder handout and provide key messages for front line municipal and CVRD staff to respond to inquiries from the public about impact to tax bills (April).
- Video posted to project page highlighting benefits of the project and explaining how it will be funded and how residents can participate in the AAP process (April).

- Online meeting/webinar for Lazo residents to discuss groundwater monitoring program, technical and safety considerations for tunnelling, examples of similar projects in other jurisdictions, emergency response plans and next steps to finalize alignment and right-of-way negotiations. (May 2021).
- Annual Alternative Approval Process campaign rollout including print advertisements, news release and social media promotion (May 2021).

Summer

- Communicate AAP results (July 2021).
- Owners Engineer design due diligence working towards finalizing project scope of work, no active communications outreach (summer 2021).

Fall

- Direct outreach to landowners along sewer pipe Right of Way (Fall 2021).
- Direct outreach to communities impacted by construction and pipe laydown (Fall 2021).
- Following Sewage Commission approval of project scope in November 2021:
    - Community meetings will be planned to discuss next steps for project (late 2021/early 2022).
    - A public engagement plan will be brought forward early in 2022 to detail consultation efforts in advance of project construction, which will occur in 2023.

Attachments: Appendix A – "Sewerage System Conveyance Project Schedule"

Appendix A - Project Schedule