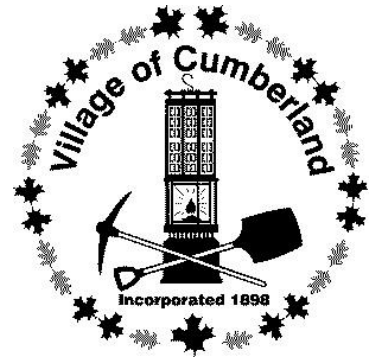


COUNCIL REPORT



REPORT DATE: November 17, 2016
MEETING DATE: November 17, 2016

TO: Mayor and Council
FROM: Paul Nash, LWMP Project Coordinator
SUBJECT: Clean Water & Wastewater Funding Application for Wastewater Treatment Plant Project

RECOMMENDATION

- I. THAT Council approve the Village of Cumberland submitting an application for grant funding to the Canada-British Columbia Clean Water and Wastewater Fund for an amount up to \$21,000,000 for the Cumberland Wastewater Treatment Project;
- II. AND THAT Council supports the Cumberland Wastewater Treatment Project and commits the Village of Cumberland to its share up to \$4,310,650 of the project;
- III. AND THAT Council acknowledges that without the Canada-British Columbia Clean Water and Wastewater Funding the Cumberland Wastewater Treatment Project could not proceed;
- IV. AND THAT Council direct staff to proceed with the Alternative Approval Process for borrowing up to \$4,310,650 for the completion of the Cumberland Wastewater Treatment Project on behalf of the residents in accordance with requirements as described in the Community Charter and Local Government Act.

SUMMARY

The LWMP Project Coordinator and Village staff are currently working on completing a grant application under the Canada-British Columbia Clean Water and Wastewater Fund with the assistance of the Wastewater Advisory Committee (WAC) and the LWMP Technical Consultants, TetraTech. The scope of the grant application is the construction of a new wastewater treatment plant. Other work elements within the LWMP, such as seasonal storage, reclaimed water systems are not part of the scope of this project, and will be studied by the WAC in 2017.

This report is a summary of the estimated project costs including the amount the Village will need to contribute under the grant program. In order to submit the funding application Council will need to provide a resolution, and will also need to direct staff to move forward with borrowing of funds for our portion of the costs.

BACKGROUND

The WAC was formed in May 2016, and to date has considered three main areas of the LWMP;

1. Setting the overall goals and producing an appropriate evaluation system , with the most important criteria being the tax burden
2. Considering the options for discharge of treated water, and producing a Short List, with the most preferred options being a storage wetland or storage reservoir
3. Considering the options for wastewater treatment systems, that could be built within the March 2018 timeframe of the Clean Water and Wastewater Fund.

Consideration of treatment options was originally planned for 2017, but has been advanced in order to make an application to the CWWF by the Nov 23 deadline.

The goal of this process has been to come up with some treatment options, that;

- Meet the mandatory requirements of Ministry of Environment,
- Achieve as many of the goals of Cumberland as possible (as captured in the evaluation system),
- Are likely to score high on the grant funding criteria, and
- Can be built in the 16 month timeframe

To this end, the technical consultants have been working hard to come up with viable treatment options for evaluation by the WAC and public.

The WAC has held four meetings (#7-10) on development and consideration of treatment options, and a public Open House on November 1.

The design criteria for the options were;

Population	7,000 (year 2038)	Effluent Quality
Average dry weather flow	1,800 cu.m./day	10-10, 2 NTU turbidity (reuse quality)
Tertiary treatment threshold	3,600 cu.m/day	10-10, 2 NTU turbidity (reuse quality)
Peak Wet weather flow (secondary treatment threshold)	15,000 cu.m/day	10-10
Treatment for Excess wet weather flows	>15,000 cu.m/day	Screening and disinfection only

The options presented at the open house fell into four categories;

- 1 An upgraded lagoon system (est. Cost \$12-19)
- 2 A mechanical based system that would make the lagoons redundant Est cost \$10-17M)
- 2B A mechanical based system with a constructed reed bed and habitat wetland in the redundant lagoons (est cost \$12-19M)

2C A mechanical based system with a constructed reed bed and habitat wetland in the redundant lagoons, and with charcoal media in the reed bed for enhanced treatment and carbon sequestration (est cost \$12-19M)

The public response was overwhelmingly in favour of 2C, as was the WAC on at mtg#9 on Nov 3. The four options were put through the evaluation system and 2C came out with the highest score, and was recommended by the WAC as the preferred option.

As the technical consultants did more detailed evaluation of the mechanical treatment system, the project costs moved higher than originally estimated, warranting consideration of a reduced scope option – doing “base flow treatment” to 3600 cu.m/day, and maintaining the aerated lagoon in operation for wet weather flows above this level. This would be several millions of dollars cheaper than the “full flow” option, but at the cost of lesser quality storm flow treatment, and the storm flow being used anywhere from 50 to 90 days per year. In both options, the charcoal media reed bed and constructed wetland are retained, but the base flow option has the aerated lagoon continuing to operate on wastewater and thus being fenced from public access.

Option	“Full Flow”	“Base Flow”
Secondary Treatment system	MBBR (Moving Bed Biofilm Reactor) with Ballasted Flocculation	MBR (Membrane BioReactor)
Tertiary treatment	Disk Filter	Integral membranes
Tertiary flow threshold	3,600 cu.m/day	3600 cu.m/day
Storm flow threshold	15,000 cu.m./day	3,600 cu.m/day
Days per year for storm flow	0-5	50-90
Capital cost (incl 25% contingency)	20.75M	18.25M
Annual Operating Cost (incl 10% contingency)	\$440k	\$440k

The WAC met again (mtg#10) on Nov 17 to consider the revised options, and run them through the evaluation system. The results of the evaluation are summarised below;

Category	Value	“MBBR Full Flow”	“MBR Base Flow”
Affordability (tax burden + grant probability)	40	25.1	22.2
Economic Benefits	20	12.4	11.8
Environmental Benefits	20	15.9	14.1
Social Benefits	20	12.4	11.6
Total	100	65.6	59.8

On the basis of this evaluation, the WAC has unanimously recommended that Council adopt the Option of “Full Flow Treatment by MBBR, with Charcoal Media Reed Bed and constructed Wetland

FINANCIAL IMPLICATIONS

A grant that funds 83% of all of the eligible capital costs of Cumberland Wastewater Treatment Project would relieve borrowing and eventual parcel tax charges of approximately \$16,361,375. Based on Cumberland’s limited borrowing capacity the Wastewater Treatment project could not proceed without program funding.

Staff has estimated parcel taxes that would be payable if the grant is approved. For simplicity and to provide a high level estimate, the estimated parcel taxes payable is calculated equally per parcel; however, if Council approves moving forward with this project, staff would analyze parcel taxes based on the three options outlined in the Community Charter: 1) calculations per parcel 2) based on parcel frontage and 3) based on parcel area.

Including any costs that would be ineligible, and assuming that there will be some reserves to offset some of the borrowing, the following outline provides an estimate of the parcel taxes that would be payable with funding from the Canada-British Columbia Clean Water and Wastewater Funding based on a capital project cost of \$20,750,000:

Treatment Option	Estimated Parcel Tax For Borrowing Terms	
	20 Years at 4% Interest	30 Years at 4.5% Interest
15,000 cubic meters per day	\$ 234	\$ 200

The operating costs associated with the new treatment plant are estimated to be \$427,000 per year which equates to \$244 per year for a single family residential customer. The proposed Sewer Rates Amendment Bylaw that Council gave first and second reading to includes a place holder for treatment operating costs of \$250,000 starting in 2018 which equates to approximately \$145 for a single family residential customer. This will be updated once future costs are confirmed.

The following is a summary of the unit costs for a typical size lot for a single family residential unit for the proposed sewer treatment option as compared to the costs associated with the South Sewer Treatment project that Council has previously considered.

Residential Per Unit Costs for each Option	30 year debt term	20 year debt term	South Sewer (no PPP Grant)	South Sewer (with PPP Grant)
Annual capital debt repayment*	\$ 200	\$ 234	\$ 780	\$ 365
<i>Existing O&M costs per unit</i>	\$ 575	\$ 575	\$ 575**	\$ 575**
Sewer Treatment O&M costs	\$ 244	\$ 244	\$ 275	\$ 275
Additional I&I Treatment			\$ 120	\$ -
Total	\$ 1,019	\$ 1,053	\$ 1,750	\$ 1,215

* Assuming a 4.5 per cent interest rate over a 30-year debt term and 4 per cent interest rate over 20-year debt term (current borrowing capacity approximately \$8.5 million).

** Original Cumberland O&M costs used for South Sewer Project was \$355. Existing O&M costs estimated for sewer operations in the year 2019 is \$575 based on updated infrastructure replacement costs (does not include sewer treatment operating costs).

Council also approved an application for the Water Supply Capital Improvements Project at the October 24, 2016 meeting. If the water supply improvement grant is approved, the borrowing for Cumberland's share of the water supply project costs would be \$1,050,100. If the grant applications for both water and sewer are successful, the total amount borrowed by the Village would use \$5,360,750 out of total estimated remaining borrowing capacity of \$8.5 m. If the Water Supply Capital Improvements Project application is unsuccessful the Village will still be able to borrow for the full cost of the water treatment project within our overall debt capacity, but we would not be able to borrow for the full cost of the wastewater treatment project.

STRATEGIC OBJECTIVE

This work ties in directly with the strategic objective to "Establish an adequate and high quality source of water for the current and future residents of the Village"

ATTACHMENTS

None

CONCURRENCE

Michelle Mason, Financial Officer

OPTIONS

1. THAT Council approve the Village of Cumberland submitting an application for grant funding to the Canada-British Columbia Clean Water and Wastewater Fund for an amount up to \$21,000,000 for the Cumberland Wastewater Treatment Project;
2. AND THAT Council supports the Cumberland Wastewater Treatment Project and commits the Village of Cumberland to its share up to \$4,310,650 of the project;
3. AND THAT Council acknowledges that without the Canada-British Columbia Clean Water and Wastewater Funding the Cumberland Wastewater Treatment Project could not proceed;
4. AND THAT Council direct staff to proceed with the Alternative Approval Process for borrowing up to \$4,310,650 for the completion of the Cumberland Wastewater Treatment Project on behalf of the residents in accordance with requirements as described in the Community Charter and Local Government Act.
5. Any other action deemed appropriate by Council.

Respectfully submitted,



Paul Nash
Project Coordinator
Liquid Waste Management Planning
Village of Cumberland



Sundance Topham
Chief Administrative Officer