

DATE: November 09, 2016

FILE: 5340-01

TO: Chair and members
Comox Valley sewage commission

FROM: Debra Oakman, CPA, CMA
Chief Administrative Officer

RE: Sewerage service updated 10-year capital plan

Purpose

To provide an updated 10-year capital plan for the Comox Valley sewerage service.

Policy analysis

Bylaw No. 2541, being the “Comox Valley Sewerage Service Establishment Bylaw No. 2451, 2003” was adopted to convert the function to a service as defined in the bylaw. This bylaw also determines cost recovery from the participants.

Bylaw No. 71, being the “Comox Valley Sewerage Service Regulations, Fees and Charges Bylaw No. 71, 2010” sets the fees and charges for septage and grey-water disposal and compost sales.

Executive summary

The Comox Valley sewerage service is entering a time of significant capital infrastructure spending requirements. The majority of infrastructure associated with the Comox Valley water pollution control center (CVWPCC), pump stations and forcemains are approaching their original design capacity. The completion of the long term capital plan in 2014 has provided a list of required projects to the year 2029. This staff report serves to update the capital project lists, cost estimates and timing based on recently completed study work and sewerage system needs.

The 10-year capital plan represents the best and most current planning information available to the sewerage service, however it is a long term planning document and should be reviewed on a regular basis in order to incorporate the latest population growth information, project populations, study work and project timing within the plan. Prioritization of the projects within this plan have been determined based on factors such as expected remaining service life of existing infrastructure, growth based demand for additional capacity, changes to regulations and social influences.

The updated 10-year capital plan totals approximately \$48 million in capital spending over the next 10 years. A major development cost charge (DCC) review is currently underway and the project list and costs within the 10-year capital project will be used to inform the study. New debt will be required to fund future capital projects, however by maximizing the use of reserve funds and operating transfers to capital, increases to the requisition over the approved current financial plan should not be required. Increasing the municipal requisition to \$6.4 million by 2020 will be sufficient for operations, capital projects and replenishment of reserve funds for future capital projects past the ten year planning horizon.

Recommendation from the chief administrative officer:

THAT the 10-year capital plan as summarized in table no. 1 of the staff report titled “Sewerage service 10-year capital plan” and dated November 09, 2016, be adopted;

AND FINALLY THAT the 2017-2021 financial plan for the Comox Valley sewerage service 2017-2021 be updated to include capital project timing and costs based on the sewerage service 10-year capital plan staff report dated November 09, 2016.

Respectfully:

D. Oakman

Debra Oakman, CPA, CMA
Chief Administrative Officer

Background/current situation

The Comox Valley sewage service was commissioned in 1984 and over 30 years later, parts of the service are reaching the end of their original design capacity. In order to meet existing system demands, provide system capacity increases to accommodate growth, mitigate environmental risk and meet future Ministry of Environment permit requirements, major system improvements are required over the next several years.

In 2011 the Comox Valley Regional District (CVRD) completed the sewer master plan and the 10-year prioritized capital plan. In 2014 the 10-year capital plan was revised to distribute spending over a 16 year time period in order to smooth out capital spending and minimize debt. Since 2014 this schedule has been used to inform the CVRD’s annual budgeting process.

Since the completion of the long term financial plan in 2014, significant study work has been completed assessing required capacity increases, age of infrastructure and replacement and new permitting requirements. Based off past and recently completed study work the 10-year capital plan for 2017-2026 has been reviewed and updated based on the following criteria:

- System capacity - As stated above the CVWPCC and its associated pump stations and forcemain are approaching their maximum design capacity. Based on a combination of remaining system capacity, historical community growth, past study work and the recently completed CVWPCC capacity assessment completed by ISL Engineering in 2016, the 10-year capital plan recommends several major treatment system capacity upgrades. The year of need and cost estimate for each capital upgrade is based on the most recent cost estimate for each capital project, these estimates have been completed over a range of years and provide varying levels of accuracy.
- Compliance with regulations – Regulations are changing and compliance to these changes is required. Upgrades to alleviate capacity concerns will trigger the requirement for the CVWPCC to become registered under the *Municipal Wastewater Regulations* (MWR), requiring additional capital projects for compliance with regulations including upgrades to improve effluent quality. In addition, improvements to the odour control system may be required to reduce odours to nearby residents and to ensure compliance should any regulations come into effect in BC.
- Work plan constraints - Internal CVRD resources are tasked with providing ongoing service as well as completing major capital infrastructure upgrades when required. The fluctuating needs of capital project priorities can create a higher than normal demand on staff resources at peak times.

Table no. 1 shows capital projects for the Comox Valley sewerage service. These projects have been previously identified as part of the long term capital plan and have been reviewed based on the above criteria. Odour control upgrades are also expected however study work and estimated costs are not yet complete, this report is expected late November.

Table No.1: Capital Project List-Summary

Overall Priority	Project Name	Description	Projected Year of Completion	Estimated Costs (\$)
1	Comox No. 2 pump station and forcemain to CVWPCC	New pump station and forcemain req'd to bypass Willemar Bluffs	2019	11,750,000
2	Biosolids composting expansion	Double capacity of existing compost facility, current facility at capacity	2018	2,895,000
3	Hudson trunk	New gravity sewer main to serve development (residential)	2017	2,374,000
4	Greenwood trunk	New gravity sewer to serve development	2017	4,133,000
5	Odour control system	Upgrades to odour control system to improve odour control	2018	To come
6	CVWPCC-Phase 1 capacity upgrades	Phase one of major treatment plant upgrades to increase plant capacity	2018	8,083,600
7	Effluent quality upgrades	Installation of UV technology and cloth media filter (MWR compliance)	2019	10,554,600
8	CFB Comox pump station upgrade	New larger pumps	2018	400,000
9	Colby pump station	Increase capacity of existing pump station. Existing station at 80%.	2022	100,000
10	Jane Place upgrades	Increase capacity of existing pump station	2023	1,200,000
11	CVWPCC-Phase 2 capacity upgrades	Phase two of major treatment plant upgrades to increase plant capacity	2025	6,610,000

The above list recommends that approximately \$48 million of capital improvements be completed over the next 10 year period. The revised 10-year capital plan is based on the best planning information available to the sewerage service, however it is a long term planning document and should be reviewed on a regular basis in order to incorporate the latest population growth information, project priorities and project timing within the plan. A development cost charge (DCC) major update study is currently underway and will incorporate updated capital projects and associated costs.

Financial implications related to the revised 10-year capital plan are discussed in detail in the financial factors section of this report.

Options

The commission has the following options:

1. To adopt the 10-year capital project list as presented in table no. 1.
2. To not adopt the 10-year prioritized capital project list as presented in table no. 1.

The 10-year capital project list was developed utilizing recent study work and cost analysis that have been completed for the Comox Valley sewerage service. This table serves to update the capital project list based on updated cost and timing requirements. Based on the above, only option no.1 is recommended.

Financial factors

The 10-year capital plan totals approximately \$48 million in capital spending over the next 10 years. A major DCC review is currently underway and the project list and costs within the 10-year capital project are being used to inform the study. New debt will be required to fund future capital projects, however by maximizing the use of reserve funds and operating transfers to capital, increases to the requisition over the approved current financial plan should not be required. Increasing the municipal requisition to \$6.4 million by 2020 will be sufficient for operations, capital projects and replenishment of reserve funds for future capital projects past the ten year planning horizon. Table no.2 below compares the requisition from the 2014 long-term financial plan, the current 2016-2020 financial and the proposed 2017 10-year capital plan.

Table No.2: Comparison of the municipal requisition

Year	2014 Long-term Financial Plan		Current 2016-2020 Financial Plan		2017 10-Year Capital Plan	
	Requisition	Increase From Prior Year	Requisition	Increase From Prior Year	Requisition	Increase From Prior Year
2017	5,727,461	9%	5,367,286	6%	5,367,286	6%
2018	6,185,658	8%	5,689,323	6%	5,689,323	6%
2019	6,618,654	7%	6,030,682	6%	6,030,682	6%
2020	7,015,773	6%	6,392,523	6%	6,392,523	6%
2021	7,015,773	0%			6,392,523	0%
2022	7,015,773	0%			6,392,523	0%
2023	7,015,773	0%			6,392,523	0%
2024	7,015,773	0%			6,392,523	0%
2025	7,015,773	0%			6,392,523	0%
2026	7,015,773	0%			6,392,523	0%

The 10-year capital project list will have an impact on financial planning for the sewerage service. When a service collects revenue that exceeds its requirements for operation and maintenance, some of the excess revenue may be available to fund capital work. These funds can be transferred directly from operating to capital revenue or the excess revenue can be deposited into a capital works reserve fund in years when transfers to capital are not required. In this way the service can accumulate reserve funds to put towards large future capital infrastructure requirements. Debt is utilized to fund capital projects in years when funding is not available from other sources, debt is estimated off a 20 year borrowing term at four per cent interest. Actual debt terms will be determined at the time of borrowing. Table no. 3 below shows the yearly transfer to capital, reserve contribution and the requirement for new debt for the proposed above 10-year capital plan.

Table No.3: 10-year reserve fund contribution, transfer to capital and new debt

Year	Transfer to Capital (\$)	Contribution to Reserves (\$)	New Debt (\$)
2017	1,686,274		
2018	1,860,000	17,679	14,776,425
2019	1,200,000	30,245	5,036,251
2020	150,000	1,073,433	
2021		1,176,162	
2022	100,000	1,012,645	
2023	84,000	963,856	
2024	1,447,584		
2025	1,380,179		
2026		1,556,171	

In order to fund the capital projects and mitigate the need to increase the municipal requisition over and above current amounts, reserve funds will be drawn to minimum levels in the coming years.

Table no. 4 shows the total reserve fund balance at the end of each year.

Table No.4: Total reserve fund balances

Budget Year	Total Reserve Funds Balance (\$)
2017	10,181,471
2018	4,699,150
2019	2,069,395
2020	3,642,828
2021	5,318,990
2022	6,831,635
2023	8,295,491
2024	7,966,075
2025	3,897,254
2026	5,953,425

Total capital project cost are less as compared to the past long term financial plan, however expenditures occur earlier within the spending horizon. Due to proactive planning in the past, the municipal requisition does not require further increases and can fund capital works projects including debt payments through a combination of reserves, transfer to capital and debt as shown above. If maintained at projected levels, the 2021 requisition should provide sufficient reserve contributions that will help to fund portions of future capital upgrades that are outside the current 10-year planning horizon. Capital expenditures outside the 10-year planning horizon include replacement of the outfall, additional upgrades at the CVWPCC and a new forcemain from the Courtenay pump station.

Legal factors

None.

Regional growth strategy implications

The regional growth strategy contains several targets surrounding efficient and effective infrastructure that conserves land, water and energy resources. All capital projects will work to improved conservation of resources and will consider waste flows as a resource.

Intergovernmental factors

The Comox Valley sewerage service is governed by the sewage commission whose membership includes representatives from the Town of Comox, the City of Courtenay and the Department of National Defence.

Interdepartmental involvement

The engineering services branch is leading this work.

Citizen/public relations

Significant capital spending will result in increases to the municipal requisition. These increases will affect users within the City of Courtenay and Town of Comox.

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Attachment: Appendix A – “Updated capital project cash flow”

2017-2031 Long Term Captial Plan

Project Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Future years							
											2027	2028	2029	2030	2031			
Switchboard replacement	117,000																	
Motor control centre "B" AMP	97,000																	
Motor control centre "C" AMP	71,000																	
Motor control centre "D" AMP	104,000																	
Motor control centre "E" AMP	91,000																	
Jane place PS main switchboard MCC	68,000																	
Primary sludge pump M103 B and motor	55,000																	
Centrifuge feed pump and motor, M502 A	77,000																	
Comox No.2 Pump Station (Engineering)	293,750																	
Odour Control Measures																		
Expand compost facilitiy (cfwd) (construction mngt)	100,000																	
Expand compost facilitiy (cfwd) (construction)	1,000,000																	
Hudson Trunk (cfwd) (construction mngt)	72,991																	
Hudson Trunk (cfwd) (construction)	2,210,000																	
Greenwood Trunk (engineering)	258,300																	
Greenwood Trunk (construction mngt)	184,500																	
Greenwood Trunk (construction)	3,690,000																	
Effluent Quality Upgrades (Engineering)	738,822																	
CVWPCC Phase 1 Upgrades (engineering)	565,852																	
CVWPCC Phase 1 Upgrades (construction mngt)		404,180																
CVWPCC Phase 1 Upgrades (construction)		7,113,568																
Effluent Quality Upgrades (construction mngt)		263,865																
Effluent Quality Upgrades (construction)		4,644,024																
Centrifuge feed pump and motor, M502 B		77,000																
Courtenay PS main switchboard MCC replacement		85,000																
CFB Comox PS upgrade (engineering)		52,000																
Loader replacement		250,000																
Comox No.2 Pump Station (Engineering)		293,750																
Comox No.2 Pump Station (cosntruction mngt)		160,500																
Comox No.2 Pump station (construction)		7,161,000																
Expand compost facilitiy (cfwd) (construction mngt)		100,000																
Expand compost facilitiy (cfwd) (construction)		1,383,774																
Effluent Quality Upgrades (construction mngt)			263,865															
Effluent Quality Upgrades (construction)			4,644,024															
Replace sludge theckener drive A			150,000															
Primary sludge pump M103 A and motor			55,000															
Rotary drum screen and motor M113			61,000															
Jane place pump station valve replacement			63,000															
CFB Comox PS upgrade (construction)			468,000															
Comox No.2 Pump Station (Engineering)			100,000															
Comox No.2 Pump Station (cosntruction mngt)			160,500															
Comox No.2 Pump station (construction)			3,580,500															
Replace sludge theckener drive B				150,000														
Colby PS						100,000												
Jane Place Upgrades(engineering)							84,000											
Jane Place Upgrades (construction)								1,116,000										
CVWPCC Phase 2 Upgrades (engineering)								661,000										
CVWPCC Phase 2 Upgrades (construction)									5,949,000									
Courtney Pump Station Upgrades													7,500,000					
Replace Outfall sections																		19,528,600
Total Yearly Costs	9,794,215	21,988,661	9,545,889	150,000	0	100,000	84,000	1,777,000	5,949,000	0	0	7,500,000	0	0	0	0	0	19,528,600

*Estimates are calculated using the average annual DCC revenue of \$500,000

2017-2026 Long Term Financial Plan

Fund #	Class	Description	Budget Year									
			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Operating	Revenue	REQN Municipal	-5,367,286	-5,689,323	-6,030,682	-6,392,523	-6,392,523	-6,392,523	-6,392,523	-6,392,523	-6,392,523	-6,392,523
		DND Operating Contr	-275,000	-275,000	-275,000	-275,000	-275,000	-275,000	-275,000	-275,000	-275,000	-275,000
		Septage Disposal	-225,000	-225,000	-225,000	-225,000	-225,000	-225,000	-225,000	-225,000	-225,000	-225,000
		User Rates	-39,965	-39,965	-39,965	-39,965	-39,965	-39,965	-39,965	-39,965	-39,965	-39,965
		Compost Sales	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000
		Recoveries	-3,747	-3,822	-3,898	-3,976	-4,056	-4,137	-4,219	-4,304	-4,390	-4,478
		Prior Year Surplus										
	Revenue Total		-5,960,998	-6,283,110	-6,624,545	-6,986,464	-6,986,544	-6,986,625	-6,986,707	-6,986,792	-6,986,878	-6,986,966
	Expenditure	Operating	2,962,452	3,006,280	3,053,981	3,117,559	3,179,910	3,243,508	3,308,379	3,374,546	3,442,037	3,510,878
		Existing Debt Payments	1,069,272	970,622	970,622	970,622	970,622	970,622	970,622	504,812	504,812	260,067
		New Debt (Payments)		295,529	1,241,697	1,529,850	1,529,850	1,529,850	1,529,850	1,529,850	1,529,850	1,529,850
		Minor Capital-336	233,000	123,000	118,000	135,000	120,000	120,000	120,000	120,000	120,000	120,000
		Minor Capital-337	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
		Minor Capital-338	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
		Transfer to capital	1,686,274	1,860,000	1,200,000	150,000		100,000	84,000	1,447,584	1,380,179	
Expenditure Total		5,960,998	6,283,110	6,624,545	6,986,464	6,986,544	6,986,625	6,986,707	6,986,792	6,986,878	6,986,966	
Capital	Finances Acquired	Grants										
		Contribution fr others	-200,000									
		Development cost charges			-700,000						-500,000	
		Long term debt		-14,776,425	-5,036,251							
		Transfer fr reserves	-7,907,941	-5,500,000	-2,660,000	0	0	0	0	-329,416	-4,068,821	0
		Transfer fr operating	-1,686,274	-1,860,000	-1,200,000	-150,000		-100,000	-84,000	-1,447,584	-1,380,179	0
		Finances Acquired Total		-9,794,215	-22,136,425	-9,596,251	-150,000	0	-100,000	-84,000	-1,777,000	-5,949,000
Finances Applied	Capital projects & equipment	9,794,215	21,988,661	9,545,889	150,000		100,000	84,000	1,777,000	5,949,000		
	Debt Issue expense		147,764	50,362								
Finances Applied Total		9,794,215	22,136,425	9,596,251	150,000	0	100,000	84,000	1,777,000	5,949,000	0	
Grand Total												
Reserve Fund Balances												
Capital Works Reserve												
		Contributions	-	17,679	30,245	1,073,433	1,176,162	1,012,645	963,856	-	-	1,556,171
		Expenditures	-2,221,472	-5,500,000	-2,660,000	0					-2,398,237	
	Fund Balance		10,181,471	4,699,150	2,069,395	3,142,828	4,318,990	5,331,635	6,295,491	6,295,491	3,897,254	5,453,425
DCC Funds												
		Contributions				500,000	500,000	500,000	500,000			500,000
		Expenditures	-5,686,469							-329,416	-1,670,584	
	Fund Balance		0	0	0	500,000	1,000,000	1,500,000	2,000,000	1,670,584	0	500,000
Total Reserve Funds			10,181,471	4,699,150	2,069,395	3,642,828	5,318,990	6,831,635	8,295,491	7,966,075	3,897,254	5,953,425

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