2020 Details of Recommended Projects **Appendix B**

Project Name:	WW0023 Departure Bay Pump Station Upgrade
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Southern
Participants:	Nanaimo and Lantzville
Operating Plan Action #:	RCU- GM-4.2-12 Continue developing Preventative Maintenance Plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$7,400,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	400,000	3,500,000	3,500,000		
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
DCC	200,000	1,750,000	1,750,000		
Southern Wastewater Reserve	200,000	1,750,000	1,750,000		
	400,000	3,500,000	3,500,000	-	-

Scope:

The Hydraulic Modeling Study of the Nanaimo Interceptor completed by GeoAdvice Engineering Inc. in 2017 identified the Departure Bay Pump Station as a key capacity bottleneck with respect to future estimated capacities of the system. This work is included in the 5 year capital plan.

Increasing pumping capacity of the Departure Bay Pump Station has four major components that will need to be addressed. These components are linked, and the current plan is for a phased approach through engineering design, planning and scheduling to minimize the impact to the system as well as spread the cost over three years.

The components of the system that require upgrade are:

1: Engineering and Design

2: Forcemain: The pressurized pipeline downstream of the pump house can support the increased flow from a design velocity standpoint. The intent is to improve the integrity of the existing pipeline to extend its operating life.

3: Pumphouse Electrical Service and Infrastructure: Increasing pumping capacity will increase the electrical demand of the pump station. There is currently insufficient capacity in the existing BC Hydro service to the Departure Bay Pump Station. This project phase will be to increase the capacity of the service provided by BC Hydro and the RDN owned high voltage electrical infrastructure such as transformers; switchgear and back-up power generator.

4: Pumping capacity increase: With pipeline capacity confirmed and upgraded electrical supply in place, phase 4 will increase the pumping capacity by installing larger pumps; internal pumphouse piping; motor control centres and process control.

The engineering design of this upgrade will also need to take the predicted sea level rise into consideration due to the location of the pump station.

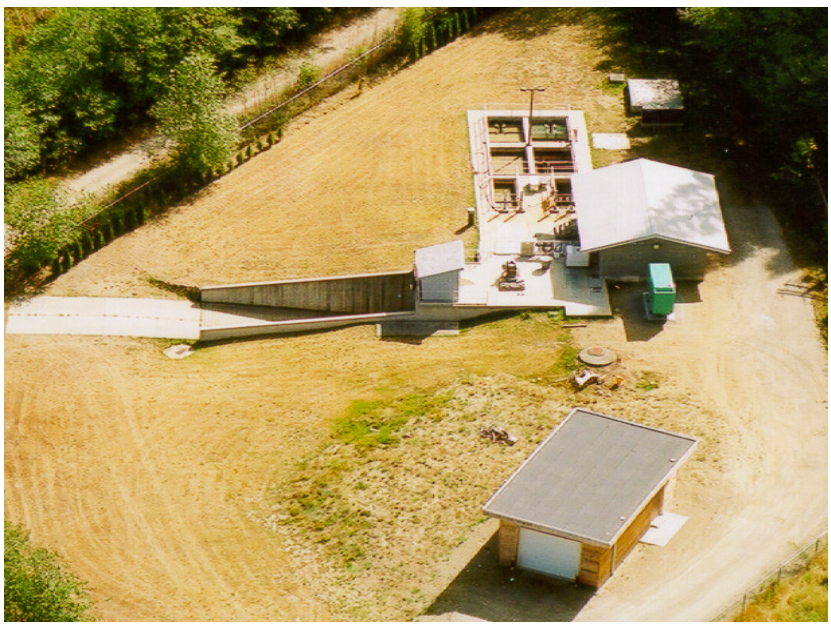
2020 Details of Recommended Projects **Appendix B**

Project Name:	Nanoose Bay Pollution Control Centre Secondary Upgrade (WW0011)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Nanoose
Participants:	EA E
Operating Plan Action #:	RCU-ES-2.4-05 Completion of Greater Nanaimo, and Expansion of French Creek Pollution Control Centre, including secondary treatment and odour control upgrades
Project Cost:	$5,200,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	150,000	350,000	2,700,000	2,000,000	
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
DCC			337,463		
Fairwinds Sewer (Treat) Reserve	150,000	350,000	782,537		
Borrowing			1,580,000	2,000,000	
	150,000	350,000	2,700,000	2,000,000	-

Scope:

An upgrade is required for the Nanoose Pollution Control Facility (serving approximately 800 connections) from a primary treatment facility to a secondary treatment facility in order to meet both federal and provincial effluent quality regulations. Preliminary engineering design will be carried out in 2020. This work is part of the 5 Year Capital Plan, and grants are being sought to assist in funding the work.



2020 Details of Recommended Projects **Appendix B**

Project Name:	FR0005 - Dashwood Fire Hall Replacement
Division:	Transportation & Emergency Services
Service Area:	Fire Protection - Dashwood
Participants:	EA F, G, H
Op Plan Action #:	TES-GM-4-20 Replacement of the Dashwood Fire Hall
Project Cost:	$4,000,000
Tax Implication:	$40,000

	2020	2021	2022	2023	2024
Capital Budget:	4,000,000				
Operating Budget:	40,000				
Asset Management Costs:					
Funding Sources:					
Borrowing	4,000,000				
Taxation/User Funded	40,000				
	4,040,000	-	-	-	-

Scope:

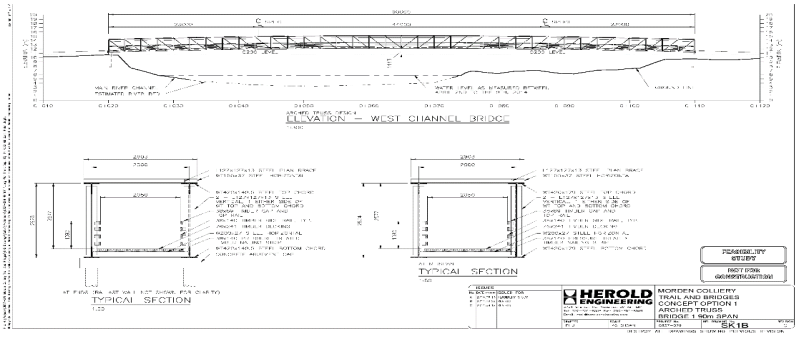
The Dashwood Fire Hall is in need of replacement as the seismic upgrade and building addition is not feasible. The RDN obtained elector approval on July 26, 2019. The replacement of the Fire Hall is a budgeted item in the 5 year plan.

Project Name:	PR0010 Nanaimo River Bridge - Morden Colliery Regional Trail
Division:	Recreation & Parks Services
Service Area:	Regional Parks and Trails
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Operating Plan Action #:	RP-SWB-8-17 Nanaimo River Bridge Crossing on Morden Colliery Trail
Project Cost:	$2,437,875
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	200,000	467,875		1,770,000	
Operating Budget:					25,000
Asset Management Costs:					
Funding Sources:					
Regional Parks Development Reserve	200,000	430,000		1,770,000	
Grants		37,875			
Taxation/User Funded					25,000
	200,000	467,875	-	1,770,000	25,000

Scope:

The planning for a crossing over the Nanaimo River and trail development to link the two sections of the Morden Colliery Regional Trail have been underway since 2015. A concept plan was completed and reviewed by the public and the Regional Board provided direction to design the bridge for equestrian use. An application was made to the Agricultural Land Commission (ALC) for this project and their approval was received in July 2018. The ALC approval will expire in June 2021 and an extension request will be required if the work is to be completed beyond this date. Detailed design and studies will be re-initiated and the budget has been increased to include parking and trail upgrades between Morden Colliery Provincial Park and the river. A consultant will be hired in Spring 2020 to create a functional design.



2020 Details of Recommended Projects **Appendix B**

Project Name:	SW0001 - Cell 1 Closure (Regional Landfill)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Op Plan Action #:	RP-GM-4-27 Complete design for Cell 1 closure and flare station upgrade
Project Cost:	$2,049,311
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	135,000	1,788,311	126,000		
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Taxation User Funded	135,000	1,788,311	126,000		
	135,000	1,788,311	126,000	-	-

Scope:

2020 costs are for engineering and closure of Cell 1 Stage 2a consistent with the Ministry of Environment approved Design and Operation Plan, which is a regulatory requirement.

2020 Details of Recommended Projects **Appendix B**

Project Name:	WW0031 Chase River Pump Station Upgrades
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Southern
Participants:	Nanaimo and Lantzville
Operating Plan Action #:	RCU-ES-2.4-07 Repair and Upgrade Chase River Pump station
Project Cost:	$1,870,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	1,870,000	-			
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Southern Wastewater Reserve	1,870,000				
	1,870,000	-	-	-	-

Scope:

Equipment upgrades and replacements are required due to the age of this facility (40+ years). The work will address risks of spills to the environment, maintenance and service interruptions. The work is included in the 5 Year Capital Plan. The first part of these upgrades were completed in 2019 with the replacement of a force main and piping and valve chamber outside the station. The next step is to upgrade the required areas inside the pump Station. This phase will involve:

- Replacing eroded process piping and pipe supports within the pump station.
- Replacement of obsolete programmable Logic Control System.
- Replacement of obsolete pump motor control centres and
- Replacement of corroded structural steel platform within the pump station

2020 Details of Recommended Projects **Appendix B**

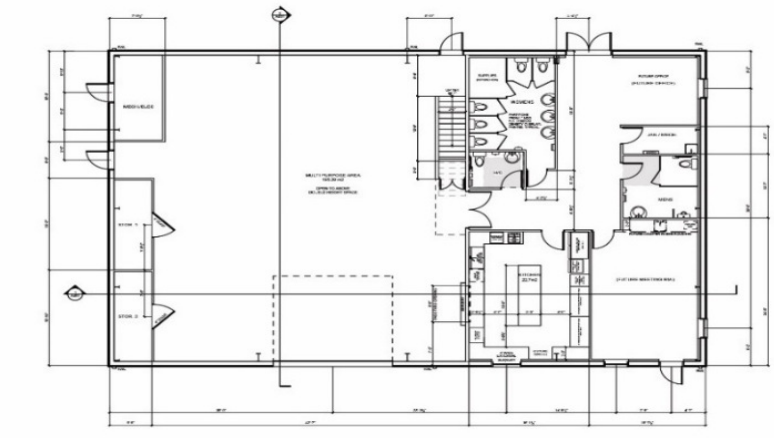
Project Name:	PR0032 Meadowood Recreation Centre Construction
Division:	Recreation & Parks Services
Service Area:	Electoral Areas F Community Park
Participants:	EA F
Operating Plan Action #:	RP-SWB-8-11 Site and facility plan for new Meadowood Community Park and Community Centre.
Project Cost:	$1,350,000
Tax Implication:	$35,000

	2020	2021	2022	2023	2024
Capital Budget:	1,350,000				
Operating Budget:	30,000	33,150	34,145	35,169	36,224
Asset Management Costs:	5,000	5,000	5,150	5,305	5,464
Funding Sources:					
Grants	1,350,000				
Taxation/User Funded	35,000	38,150	39,295	40,473	41,688
	1,385,000	38,150	39,295	40,473	41,688

Scope:

Board Resolution #18-196

The Class B cost estimate to complete this project is $1.35 million. ***Currently the Board has approved a budget of $915,000 funded by Community Works Funds.*** EA F Community Parks has a service level increase request for the proposed Meadowood Recreation Centre. These include $20,000 for maintenance and utilities, $10,000 transfer to the Corcan Meadowood Residents Association for operating the building and $5,000 transfer to reserves for asset replacement. ***The viability of this project is still under review and will be determined before the end of 2019.***



2020 Details of Recommended Projects **Appendix B**

Project Name:	PR0006 Village Way Path
Division:	Recreation & Parks Services
Service Area:	EA B Community Parks
Participants:	EA B
Op Plan Action #:	RP-TT-5.4-06 Village Way Path (Develop an Active Transportation)
Project Cost:	$1,200,000
Tax Implication:	$12,500

	2020	2021	2022	2023	2024
Capital Budget:	1,200,000				
Operating Budget:	-	1,000	1,030	1,061	1,093
Asset Management Costs:	12,500	12,875	13,261	13,659	14,069
Funding Sources:					
Grants	1,200,000				
Taxation/User Funded	12,500	13,875	14,291	14,720	15,162
	1,212,500	13,875	14,291	14,720	15,162

Scope:

The design phase of the Village Way Path project is projected to be completed by April 2020. The construction phase of the project is planned to begin in mid-September 2020 with an estimated three months for its completion.
The latest estimate to construct the Village Way path is $1,200,000 which includes the construction cost, a contingency amount of $100,000 and $100,000 to cover the cost of an engineering firm to manage and oversee the project from tender to completion.
In summary, a total budget of $1.2M is proposed to support the completion of the Village Way path project in 2020.

An on-going operating amount of approximately $1,000 per year is required to cover the cost of a contractor for cleaning, sweeping, re-resurfacing and maintaining the amenities of the path.

2020 Details of Recommended Projects **Appendix B**

Project Name:	GNPCC Basement Motor Control Centres Replacement (WW0032)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Southern
Participants:	Nanaimo and Lantzville
Operating Plan Action #:	RCU-ES-2.4-06 Completion of Greater Nanaimo, and Expansion of French Creek Pollution Control Centre, including secondary treatment and odour control upgrades
Project Cost:	$1,090,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	90,000	1,000,000			
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Southern Wastewater Reserve	90,000	1,000,000			
	90,000	1,000,000	-	-	-

Scope:

The Motor Control Centres (MCCs) located in the Basement at the GNPCC Facility are past the design life and are a risk to plant reliability should through failure of components that are now obsolete. This project is required to be carried out subsequent to the current upgrades project to maintain operational integrity. It has been determined though historical projects that it is most cost effective and the least disruptive to the operation to purchase pre-assembled Electrical Cabinets that are fabricated in a controlled workshop environment and replace complete MCC panels as opposed to retrofitting and replacing components in the field. This shop assemble process also allows for strict quality control and Factory Acceptance Testing, where RDN personnel and Engineering Specialist from the design consultant can witness the performance of the assembled panels through simulated testing prior to shipping to site and installation. This process substantially reduces installation time on site and risk of delayed start up to the operation

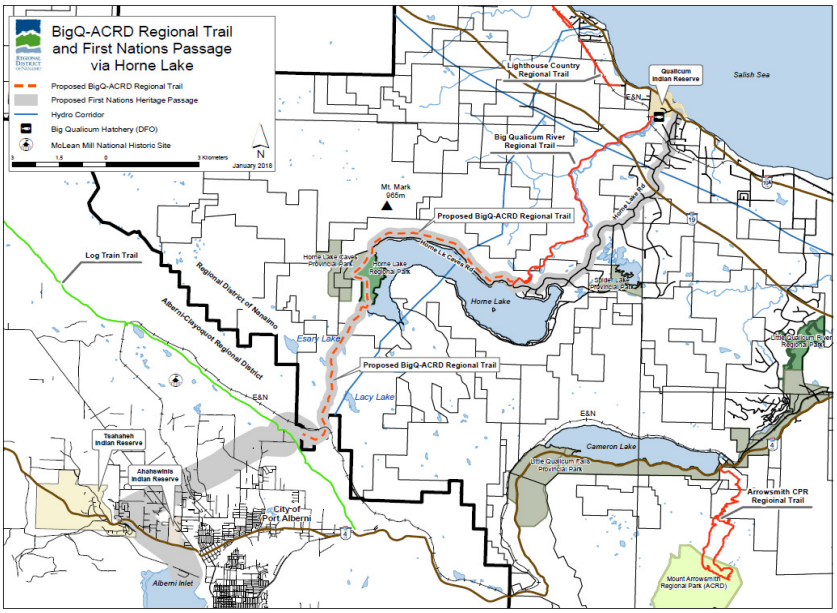
2020 Details of Recommended Projects **Appendix B**

Project Name:	PR0027 Qualicum to Alberni Clayquot Regional District Regional Trail
Division:	Recreation & Parks Services
Service Area:	Regional Parks and Trails
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Op Plan Action #:	RP-SWB-8-03 Plan/develop the Big Qualicum-Alberni-Clayoquot Regional District Regional Trail
Project Cost:	$950,000
Tax Implication:	$200,000

	2020	2021	2022	2023	2024
Capital Budget:	200,000	750,000			
Operating Budget:			10,000	10,300	10,609
Asset Management Costs:					
Funding Sources:					
Regional Parks Development Reserve		200,000			
Grants		550,000			
Taxation/User Funded	200,000		10,000	10,300	10,609
	200,000	750,000	10,000	10,300	10,609

Scope:

The 2020 Budget includes funds for the planning of the route between the Big Qualicum River Estuary and the Alberni Clayquot Regional District. This route reflects the historical First Nations trading routes Design work includes resolving a survey issue and design of the trail and structures. Construction will follow in 2021. First Nations will be involved in the naming of the trail. Historical designation for the route will be pursued once the trail is completed.



2020 Details of Recommended Projects **Appendix B**

Project Name:	Nanoose Forcemain Replacement (WW0022)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Nanoose
Participants:	EA E
Operating Plan Action #:	RCU- GM-4.2-12 Continue developing Preventative Maintenance Plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$1,000,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	500,000	300,000	200,000		
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Borrowing	500,000	300,000	200,000		
	500,000	300,000	200,000	-	-

Scope:

Wastewater Forcemains were installed by a contractor hired by the Fairwinds Developer. Once installed and operational, the sewer system was turned over to the RDN to operate and maintain.

Poor quality workmanship by the contractor and lack of quality control oversight by the developer has resulted in inferior piping installation from a piping material perspective and lack of protection of the piping through the use of inferior or, in places, no suitable pipe bedding material. These pressurized pipes have been prone to several failures, typically caused by sharp rocks penetrating the pipe wall.

This project will start replacing the pressurized forcemains that have been prone to failure in a systematically staged approach to eliminate the risk of a breach of untreated sewage to the environment.

2020 Details of Recommended Projects **Appendix B**

Project Name:	Nanoose Pump Station Upgrades (MJ2851)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Nanoose
Participants:	EA E
Operating Plan Action #:	RCU-GM-4.2-12 Continue developing preventative maintenance plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$900,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	300,000	300,000	300,000		
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Fairwinds Sewer (Treat) Reserve	300,000	250,000	250,000		
Taxation/User Funded		50,000	50,000		
	300,000	300,000	300,000	-	-

Scope:

Wastewater Lift Stations in Nanoose have been in service for over 30 years and are requiring major maintenance to replace worn and corroded piping, valves and pump electrical and control infrastructure to ensure asset reliability. The configuration of the piping and valves will be upgraded to minimize the hazard of confined space work for operating personnel during routine maintenance.

2020 Details of Recommended Projects **Appendix B**

Project Name:	Wellington Pump Station Electrical Upgrades (WW0030)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Southern
Participants:	Nanaimo and Lantzville
Operating Plan Action #:	RCU-ES-2.4-06 Completion of Greater Nanaimo, and Expansion of French Creek Pollution Control Centre, including secondary treatment and odour control upgrades
Project Cost:	$900,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	500,000	400,000			
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Southern Wastewater Reserve	500,000	400,000			
	500,000	400,000	-	-	-

Scope:

Equipment upgrades and replacement are required at this facility due to its age (40 + years). The work will increase reliability. These upgrades include:
1:Upgrade of the BC Hydro Service to support future pump station capacity.
2:Replacement of ageing motor control centre and obsolete programmable logic controller.
3:Replacement of ageing flow meter.
4:Upgrade to the odor control system (reducing potential impacts to the community).
5:Replacement of obsolete process control instrumentation.
6: Addition of a back-up generator

Project Name:	PR0030 Little Qualicum River Bridge Construction
Division:	Recreation & Parks Services
Service Area:	Regional Parks and Trails
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Operating Plan Action #:	RP-SWB-8-18 Replacement of bridge crossing over Little Qualicum River Regional Park
Project Cost:	$889,363
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	889,363				
Operating Budget:		1,000	1,030	1,061	1,093
Asset Management Costs:		10,000	10,300	10,609	10,927
Funding Sources:					
Regional Parks Development Reserve	889,363				
Taxation/User Funded		11,000	11,330	11,670	12,020
	889,363	11,000	11,330	11,670	12,020

Scope:

In 2017, the bridge over the Little Qualicum River in the park was removed due to extensive damage. As directed by the Regional Board, a new bridge for pedestrians and emergency vehicle access was designed. The Board committed funding for the project per Resolution #19-089 and directed the project to go to tender in February 2020 per Resolution #19-090. The bridge will link the two sides of the park and provide access to crown land beyond the park. The bridge was designed for ATV use in addition to being capable for emergency vehicle use. Currently, ATVs drive through the river causing environmental damage. The design and costing was approved by the Board. Grant programs are being explored to help fund the bridge construction in 2020.

2020 Details of Recommended Projects **Appendix B**

Project Name:	VH-2023 Nanoose Bay Fire Truck Replacement
Division:	Transportation & Emergency Services
Service Area:	Fire Protection - Nanoose
Participants:	EA E, F, G
Op Plan Action #:	Regulatory Requirement
Project Cost:	$800,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	400,000	400,000			
Operating Budget:		1,000			
Asset Management Costs:					
Funding Sources:					
Nanoose Fire (Veh/Equip) Reserve	400,000	300,000			
Borrowing		100,000			
Taxation/User Funded		1,000			
	400,000	401,000	-	-	-

Scope:

Unit#16 is a 1,050 gal pumper that needs replacing. The replacement was budgeted in the approved 2019-2023 5 year financial plan for $500,000. Costs to replace apparatus has increased significantly and the anticipated cost is at least $700,000. Nanoose is requesting up to $800,000 for customizations. The Fire Underwriters (FUS) ratable life span of fire apparatus is 20 years. Fire Underwriters do permit departments in small to medium-sized communities to apply to extend the grading recognition status of older apparatus when the apparatus condition is acceptable and successfully passes required testing (NFPA 1901). Apparatus exceeding 20 years of age may not be considered to be eligible for insurance grading purposes regardless of testing. An application must be made in writing to FUS for an extension. Nanoose Fire Department has submitted a written request to extend their apparatus for another 5 years. If unsuccessful, the apparatus will need to be replaced in 2020.

2020 Details of Recommended Projects **Appendix B**

Project Name:	PR0037 Huxley Park Skateboard Park and Parking Construction
Division:	Recreation & Parks Services
Service Area:	Area B Community Parks
Participants:	EA B
Operating Plan Action #:	RP-SWB-8-14 Complete Huxley Park Phase II planning and construction
Project Cost:	$773,700
Tax Implication:	$121,346

	2020	2021	2022	2023	2024
Capital Budget:	773,700				
Operating Budget:		5,890	6,067	6,249	6,436
Asset Management Costs:		1,300	1,339	1,379	1,421
Funding Sources:					
Grants	567,354				
Donations	30,000				
Comm Parks EA B Reserve	55,000				
Taxation/User Funded	121,346	7,190	7,406	7,628	7,857
	773,700	7,190	7,406	7,628	7,857

Scope:

The project encompasses the construction of a skateboard park including a bowl area and street run, a parking area, pathway and landscaping for Huxley Community Park. This is a continuation of the park upgrades outlined in the Huxley Community Park Master Plan approved by the Board in 2015. Community members are fund raising for the project and have raised $30,000 and are continuing to raise money. On going operation costs include garbage pick-up, power washing, general maintenance and specialty maintenance for the skatepark. Costs also include asset management replacement scheduled every 5 and 15 years. A grant application was submitted for this project and a decision will be made in fall 2019. In the event that the grant application is declined, the project will not proceed in 2020.

2020 Details of Recommended Projects **Appendix B**

Project Name:	VH-2027 Extension Volunteer Fire Department - Pumper Truck Replacement
Division:	Transportation & Emergency Services
Service Area:	Fire Protection - Extension
Participants:	EA C
Op Plan Action #:	Regulatory Requirement
Project Cost:	$700,000
Tax Implication:	$0

	2019 Carry-Forward	2020	2021	2022	2023	2024
Capital Budget:	250,000	450,000				
Operating Budget:						
Asset Management Costs:						
Funding Sources:						
Extension Fire Reserve	250,000	450,000				
Borrowing						
	250,000	450,000	-	-	-	-

Scope:

The Fire Underwriters (FUS) ratable life span of fire apparatus is 20 years. Fire Underwriters do permit departments in small to medium-sized communities to apply to extend the grading recognition status of older apparatus when the apparatus condition is acceptable and successfully passes required testing (NFPA 1901). Apparatus exceeding 20 years of age may not be considered to be eligible for insurance grading purposes regardless of testing. The 1994 Freightliner pumper truck Unit #4 is 25 years old and needs replacing. The truck replacement was approved in 2018 at $500,000 and was carried over to 2019/20. An RFP was issued and the cost to purchase is $693,000. Extension Fire Department is requesting an increase to the approved amount of up $700,000. This considers additional funds to negotiate minor amendments to the agreement.

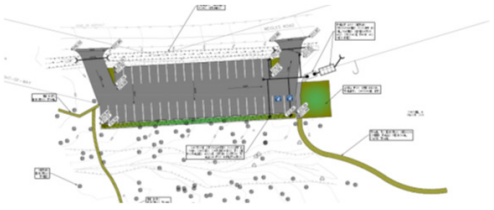
Project Name:	PR0018 Benson Creek Falls Access Improvements
Division:	Recreation & Parks Services
Service Area:	Regional Parks Capital
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Operating Plan Action #:	RP-SWB-8-19 Design and Construct Access Improvements for Benson Creek Falls
Project Cost:	$670,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	670,000				
Operating Budget:		6,000	6,180	6,365	6,556
Asset Management Costs:		13,300	13,699	14,110	14,533
Funding Sources:					
Regional Parks Development Reserve	670,000				
Taxation/User Funded		19,300	19,879	20,475	21,090
	670,000	19,300	19,879	20,475	21,090

Scope:

The Benson Creek Falls Regional Park Management Plan (2014) identifies park access improvements that support user safety, limit liability, improve parking, and reduce erosion and vegetation damage from ongoing access to steep slopes and environmentally sensitive areas. The Benson Creek Falls Regional Park Access Improvements project will provide trail improvements to Ammonite Falls, including a viewing platform, new stairs and trail section, erosion control, and habitat rehabilitation measures. Access through the park will be improved with a new truss bridge over Benson Creek and related trail upgrades. Access to the park will be enhanced with a new 40-stall parking lot at the northern trail head on Weigles Road.

A report was presented to the October 2018 Regional Parks and Trails Select Committee and the December 2018 Regional Board meeting. Detailed design is underway to be followed by construction in 2020. Staff have applied for grant funding to offset the cost of this project.



2020 Details of Recommended Projects **Appendix B**

Project Name:	SW0012 - Flare Station Replacement
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Operating Plan Action #:	RP-GM-4-27 Complete design for Cell 1 closure and flare station upgrade
Project Cost:	$304,859
Tax Implication:	$304,859

	2019 Carry-Forward	2020 Additional	2021	2022	2023	2024
Capital Budget:	193,000	111,859				
Operating Budget:						
Asset Management Costs:						
Funding Sources:						
Taxation/User Funded	193,000	111,859				
	193,000	111,859	-	-	-	-

Scope:

The Flare Station at the Regional Landfill is necessary to combust non-utilized landfill gas in compliance with provincial regulations. The Flare Station has been operational since 2009 and is in need of replacement due to aging equipment and changes in regulatory requirements. The 2019 approved budget amount has been increased and the project deferred to 2020 based on subsequent engineering and the need for backup power generation. Maintaining function of the landfill gas system when the hydro is down is a critical requirement to prevent the release of hazardous and greenhouse gases.

2020 Details of Recommended Projects **Appendix B**

Project Name:	VH-1203 Compactor Rebuild
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Operating Plan Action #:	RCU- GM-4.2-12 Continue developing Preventative Maintenance Plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$420,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	420,000				
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Taxation/User Funded	420,000				
	420,000	-	-	-	-

Scope:

To rebuild the 2011 CAT Compactor at the Regional Landfill as part of asset management. The compactor has over 14,000 hours and will be upgraded with rebuilt engine, drive-train, hydraulic system and wheels. Generally rebuilds are scheduled after 10,000 hours to extend the operational life of the machine. The cost to rebuild compares favourably to approximately $1,000,000 for a new unit.

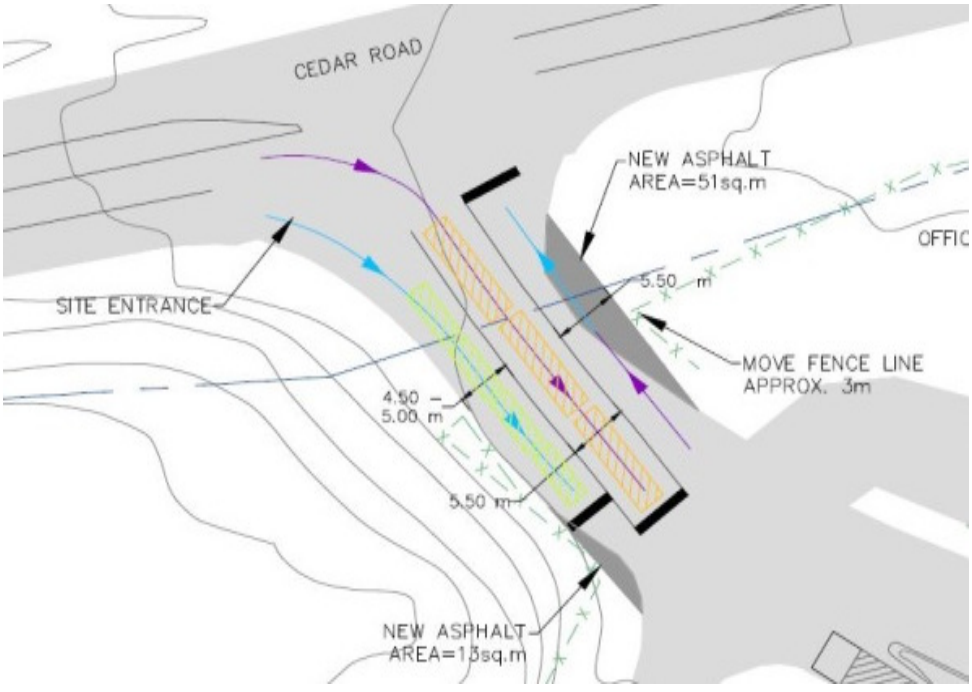
2020 Details of Recommended Projects **Appendix B**

Project Name:	MJ-1203 Commercial Lane (Regional Landfill)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Op Plan Action #:	RCU- GM-4.2-12 Continue developing Preventative Maintenance Plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$350,000
Tax Implication:	$350,000

	2019 Carry-Forward	2020 Additional	2021	2022	2023	2024
Capital Budget:	180,000	170,000				
Operating Budget:						
Asset Management Costs:						
Funding Sources:						
Taxation/User Funded	180,000	170,000				
	180,000	170,000	-	-	-	-

Scope:

The Approved 2019 Capital Budget provided for this project in the amount of $180,000. Preliminary engineering reports resulted in a projected cost of $350,000 and therefore the project was deferred to 2020 with an increased budget. No budget funds were expended in 2019. The Commercial Lane will provide commercial traffic expedited access, reducing idling time and thereby lowering greenhouse gas emissions.



2020 Details of Recommended Projects **Appendix B**

Project Name:	MJ-1202 Residential Transfer Building Upgrade/Repair
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Op Plan Action #:	RCU- GM-4.2-11 Complete Condition Assessments/Capital Plans for all Water Service Areas to provide better definition and clarity for future asset replacements and upgrades
Project Cost:	$300,000
Tax Implication:	$300,000

	2020	2021	2022	2023	2024
Capital Budget:	300,000				
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Taxation/User Funded	300,000				
	300,000	-	-	-	-

Scope:

The Residential Transfer Building (Church Road, District 69) is being upgraded to meet WorkSafeBC Airborne particulate regulation and increase asset lifespan. The upgrade will also include widening the entrances and increasing the lighting to facilitate easier access and make screening of loads more effective. The work will reduce accidents, damages, and risks to staff and the public. This work is included in the 2019 five year capital plan.

Project Name:	VH-1203 Backhoe (310SJ) Replacement
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Solid Waste Disposal
Participants:	Nanaimo, Parksville, Qualicum Beach, Lantzville, A, B, C, E, F, G, H
Op Plan Action #:	RCU- GM-4.2-12 Continue developing Preventative Maintenance Plan to monitor equipment failure and repair costs and prioritize asset replacement
Project Cost:	$250,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	250,000				
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Taxation/User Funded	250,000				
	250,000	-	-	-	-

Scope:

The John Deere Backhoe (310SJ) purchased in 2009 is due for replacement. Replacement of this unit is included in the 5 year plan. The Backhoe is used to pack transfer trailers to maximize transport efficiency.

Project Name:	French Creek Auto Thermophilic Aerobic Digester Mixing (MJ-2872)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Northern
Participants:	Parksville, Qualicum Beach, E, G
Operating Plan Action #:	RCU-ES-2-09 Continue to implement a capital works strategy and adjust operational procedures to mitigate on site odours (FCPCC)
Project Cost:	$200,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	200,000				
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Northern Community Wastewater Reserve	200,000				
	200,000	-	-	-	-

Scope:

The Auto Thermophilic Aerobic Digester (ATAD) tanks at FCPCC do not have permanently installed agitators. Submersible agitators are lowered into the tanks to provide agitation and reduce the accumulation of solids on the floor and in the corners of the rectangular vessels. Heat is generated through the digestion process. Fluid temperatures in the digesters can reach 60 degrees celsius, exceeding the existing submersible agitators rating of 40 degrees celsius. This high temperature substantially shortens the life of the submersible agitator motors resulting in ongoing maintenance and repair costs.
This project is to select and install agitators with external motors to improve reliability, process performance, and reduce maintenance and repair costs associated with the agitators. This work, included in the 5 year Capital Plan, addresses deficiencies in the existing facility, not part of the expansion project.

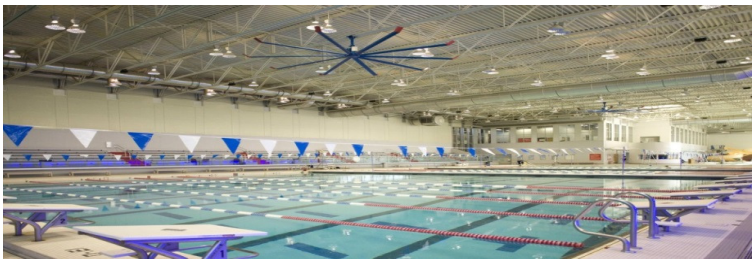
2020 Details of Recommended Projects **Appendix B**

Project Name:	Ravensong Aquatic Energy Efficiencies Upgrade
Division:	Recreation & Parks Services
Service Area:	Ravensong Aquatic Centre
Participants:	Parksville, Qualicum Beach, F, G, H
Op Plan Action #:	Strategic Plan: Goal 4 - Provide effective regional land use planning and responsible asset management for both physical infrastructure and natural assets
Project Cost:	$236,000
Tax Implication:	($12,100)

	2020	2021	2022	2023	2024
Capital Budget:	236,000				
Operating Budget*:	-21,100	-21,733	-22,385	-23,057	-23,748
Asset Management Costs:	9,000	9,270	9,548	9,835	10,130
Funding Sources:					
Ravensong Aquatic Centre Reserve	236,000				
Taxation/User Funded	-12,100	-12,463	-12,837	-13,222	-13,619
	223,900	-12,463	-12,837	-13,222	-13,619

Scope:

Natatorium ceiling fan installation and solar panel/heat exchanger upgrades were identified by Mechanical Consultant Rocky Point Engineering as energy saving and air quality initiative and part of an overall emission and energy reduction strategy for the operation of the Ravensong Aquatic Centre. This is part of a $304,000 energy project that will save $21,100* annually in energy costs and reduce greenhouse gas emissions by 10.18 tonnes per year and is compatible should the facility be expanded.



2020 Details of Recommended Projects **Appendix B**

Project Name:	RDN EV Charging Station Installations
Division:	Strategic & Community Development
Service Area:	Long Range Planning
Participants:	EA A, C, F, G, H and part of EA E
Op Plan Action #:	SCD-CC-1.3-04
Project Cost:	$222,222
Tax Implication:	$6,575

	2020	2021	2022	2023	2024
Capital Budget:	222,222				
Operating Budget:	6,575	6,575	6,575	6,575	6,575
Asset Management Costs:					
Funding Sources:					
Grant	162,222				
Climate Action Reserve	60,000				
Taxation	6,575	6,575	6,575	6,575	6,575
	228,797	6,575	6,575	6,575	6,575

Scope:

A Provincial grant from Clean BC has been submitted requesting funding for the installation of 10 Level 2 EV charging stations in the Regional District electoral areas and member municipalities. This project is contingent upon a successful grant application and creation of a service area. The 10 proposed EV charging stations are planned for installation in 2020 and will be fully operational by 2021. A Service Area needs to be established in 2020 to provide funding starting in 2021. The participants will be Electoral Areas B, E, F, G, and H once the service is established. The EV Service Area function will be used to fund future EV operations, maintenance, and replacement, and may be used for future expansion in the Electoral Areas. As an interim measure, the 2020 Long Range Planning budget has been increased by $6,575 for the provision of creating a funding source to maintain RDN's EV Charging stations until the service area is established. Once completed, the RDN will be eligible to apply for the $162,222 in grant funds. The grant will replenish the Climate Action reserve fund.

Project Name:	Fairwinds #1 Well In-Situ Replacement (MJ-2047)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Nanoose Peninsula Water Service Area
Participants:	EA E
Op Plan Action #:	RCU-GM-4.2-09 Replace Fairwinds #1 Groundwater Well In-Situ
Project Cost:	$180,000
Tax Implication:	$0

	2020	2021	2022	2023	2024
Capital Budget:	180,000				
Operating Budget:					
Asset Management Costs:		6,000	6,180	6,365	6,556
Funding Sources:					
Nanoose Bay Peninsula Water Reserve	180,000				
Taxation/User Funded		6,000	6,180	6,365	6,556
	180,000	6,000	6,180	6,365	6,556

Scope:

Fairwinds #1 Well is one of the four main groundwater wells that supply water to the Nanoose Water Treatment Plant. It has been in service since the 1980's and for the past few years has been limited in water production, despite consistent and high groundwater levels. A hydrogeological report suggests that poor screen design coupled with overly aggressive well operation in the past has resulted in over compaction in the well capture zone outside the well screen. This limits the transmission of water to the screen to be extracted.

A similar problem was identified in nearby West Bay #3 Well in 2018, and the well was replaced in-situ in 2019. Production from the new well has returned to historical (normal) levels.

The scope of this capital project involves drilling and developing a new well adjacent to the existing Fairwinds #1 Well, and connecting it to the existing supply main.

2020 Details of Recommended Projects **Appendix B**

Project Name:	MJ-2872 French Creek Pollution Control Centre Contact Tank Gate Repairs
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Northern
Participants:	Parksville, Qualicum Beach, E, G
Operating Plan Action #:	RCU-ES-2.4-05 Completion of Greater Nanaimo Expansion of French Creek Pollution Control Centre, including secondary treatment and odour control upgrades
Project Cost:	$120,000
Tax Implication:	$120,000

	2020	2021	2022	2023	2024
Capital Budget:	120,000				
Operating Budget:					
Asset Management Costs:					
Funding Sources:					
Taxation/User Funded	120,000				
	120,000			-	-

Scope:

Due to the age of the Contact tank (40 + years) and its infrastructure, the following work is required to ensure its continued proper operation: Replacement of all Aluminum gates and frames to 316 Stainless steel; Replacement of all piping in the contact tank and piping going from the tank wall into the pipe chase; Complete replacement of aeration network in the tank as recommended by AECOM; Relocation of some electrical and other piping to allow safe completion of the needed work.

2020 Details of Recommended Projects **Appendix B**

Project Name:	French Creek Auto Thermophilic Aerobic Digester Gantry Crane Repl. (MJ-2872)
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Wastewater - Northern
Participants:	Parksville, Qualicum Beach, E, G
Operating Plan Action #:	RCU-ES-2.4-05 Completion of Greater Nanaimo Expansion of French Creek Pollution Control Centre, including secondary treatment and odour control upgrades
Project Cost:	$100,000
Tax Implication:	$100,000

	2019 Carry-Forward	2020 Additional	2021	2022	2023	2024
Capital Budget:	50,000	50,000				
Operating Budget:						
Asset Management Costs:						
Funding Sources:						
Taxation/User Funded	50,000	50,000				
	50,000	50,000			-	-

Scope:

The Auto Thermophilic Aerobic Digester (ATAD) Gantry Crane does not have a powered travel system installed. When maintenance is to be performed, the gantry is manually pushed into place by FCPCC personnel. This project is to upgrade the gantry to have electrically powered travel, allowing one person operation to move the gantry into place to perform maintenance, as well as reduce the risk of injuring personnel through the manual labour of pushing the existing gantry with wheels than bind in the tracks. Of this $100,000 project, $50,000 will be carried over from the 2019 approved budget. This work in the existing facility is not part of the expansion project.

Project Name:	MJ-FS SPLIT Utilities Pipe Inspection Crawler
Division:	Regional & Community Utilities & Solid Waste
Service Area:	Sewer Collection Services
Participants:	EA A, E, G
Op Plan Action #:	RCU-ES-2-13 Administer source control strategies aimed at reducing contaminants that industries and businesses discharge into the sanitary sewer system
Project Cost:	$100,000
Tax Implication:	$20,000

	2020	2021	2022	2023	2024
Capital Budget:	100,000				
Operating Budget:					
Asset Management Costs:		1,000	1,030	1,061	1,093
Funding Sources:					
Sewer Collection LSA Reserves	80,000				
Taxation/User Funded	20,000	1,000	1,030	1,061	1,093
	100,000	1,000	1,030	1,061	1,093

Scope:

Current utilities practice is to routinely inspect sewer collection systems every second year, and on an ad-hoc basis as required for troubleshooting. Currently this work is accomplished by a contractor, and requires a vacuum truck on standby to deal with any issues as they are found. This is an expensive process and difficult to schedule as these services are in demand in the optimum season for the work.

The scope of this capital project is to purchase a crawler camera to be used by the utilities crew to self-perform the video inspections. The actual cost will be between $60,000 and $100,000 based on budget quotations from several vendors.

This acquisition will increase efficiency and reduce costs. It will reduce the need to have a vacuum truck on standby as it can be scheduled only if any blockage is discovered, and allow the inspections to be done in the optimum season (winter) when manpower and equipment is available. We currently budget $30,000 per year to do this work. It is difficult to get the work done due to scheduling conflicts, so we have not been able to keep to the schedule of bi-annual inspections of all services. Of the $30,000 budgeted annually, more than $20,000 is typically spent on vacuum trucks and most of that is stand-by time rather than actual use. With our own equipment to do the inspections, stand-by time for the vacuum trucks will be virtually eliminated. We anticipate ongoing savings in the order of $20,000 per year, and increased confidence that the inspections are being done in a timely fashion to ensure uninterrupted service. The equipment and trained operators would also be available on an ad-hoc basis to assist Wastewater Services and Solid Waste Services with troubleshooting issues with their infrastructure. Our neighboring municipalities and a large number of regional districts in the province have previously made the decision to own this equipment.