DISTRICT OF SQUAMISH
2017-2021 DRAFT FINANCIAL PLAN
CAPITAL PLAN - UTILITIES AS AT JANUARY 24, 2017

Projects carrying forward from 2016

Ref		Project	Total Cost	2017 Budget	2018 Budget	2019 Budget	2020 Budget	2021 Budget	Summary Of Funding Over The Five Year Plan: Accum Surplus or Provision	Short Term Borrowing	Approved Borrowing	New Borrowing	Reserve	Grants & Other (Dev Front End)	DCC	Fund From Revenue	2017 Funded From Fees
Solid Waste Utility																	
1		Landfill Vertical Expansion	6,257,048	2,453,250	2,108,130	1,486,689			-	-	-	6,048,069	-	-	-	-	
Total Solid Waste Utility			**$ 6,257,048**	**$ 2,453,250**	**$ 2,108,130**	**$ 1,486,689**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,048,069**	**$ -**	**$ -**	**$ -**	**$ -**	$ -
Water Utility																	
2		Water Meter Installations (CFWD)	1,710,524	1,710,524					-	-	500,000	646,686	-	563,838	-	-	
3		Annual Watermain Replacement (Annual-CFWD)	6,686,805	1,094,422	1,100,000	1,100,000	1,100,000	1,100,000	-	-	-	2,000,000	-	729,615	-	2,764,807	364,807
4		DCC W6- Government Road- Watermain - Mamquam to Amblepath Entrance	556,000	556,000					-	-	-	-	-	316,896	108,888	130,216	130,216
5		Annual PRV Replacement (Annual-CFWD)	545,000	175,000				110,000	-	-	-	-	-	-	-	285,000	175,000
6		Fleet Replacement- F550 (V9420)	150,000	150,000					-	-	-	-	76,905	-	-	73,095	73,095
7		Well Protection Plan (CFWD)	150,000	136,286					87,165	-	-	-	-	-	-	49,121	49,121
		Water Connections	384,550	76,910	76,910	76,910	76,910	76,910	-	-	-	-	-	384,550	-	-	
8		New Fire Hydrant Installation - Annual	150,000	30,000	30,000	30,000	30,000	30,000	-	-	-	-	-	-	-	150,000	30,000
9		Water Distribution Flow Meters (CFWD)	38,355	25,000					25,000	-	-	-	-	-	-	-	
10		Water Distribution System Turbidity & Chlorine Analyzer Replacement & New Installations	20,000	20,000					-	-	-	-	-	-	-	20,000	20,000
11		Water Quality Sampling Stations	20,000	20,000					-	-	-	-	-	-	-	20,000	20,000
12		Water Meter Reading Hardware Replacement	16,000	16,000					-	-	-	-	-	-	-	16,000	16,000
13		Temporary Storage Containers (CFWD)	33,000	6,600					-	-	-	-	-	-	-	6,600	6,600
14		Surface Water System	100,000		100,000				-	-	-	-	-	-	-	100,000	
		Fleet Replacement- Super Cab 4X4 (V9423)	37,000			37,000			-	-	-	-	30,171	-	-	6,829	
		Fleet Replacement - F550, Service Body (V9431)	110,000					110,000	-	-	-	-	79,754	-	-	30,246	
Total Water Utility			**$ 10,707,234**	**$ 4,016,742**	**$ 1,306,910**	**$ 1,243,910**	**$ 1,206,910**	**$ 1,426,910**	**$ 112,165**	**$ -**	**$ 500,000**	**$ 2,646,686**	**$ 186,830**	**$ 1,994,899**	**$ 108,888**	**$ 3,651,914**	$ 884,839
Sewer Utility																	
15	cm	Annual Sewer Replacement and Rehabilitation (Mains)	6,019,352	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000	500,000	-	-	-	-	-	-	5,000,000	1,000,000
16	cm	Buckley Lift Station Reconstruction	1,050,000	950,000					115,000	-	-	-	-	-	-	835,000	835,000
17	cm	WWTP Upgrade Bar Screens	625,000	600,000					275,000	-	-	-	-	-	-	325,000	325,000
18	cm	M1 Lift Station Upgrade	280,000	270,000					270,000	-	-	-	-	-	-	-	
19	cm	DCC S8 S10 Chiefview and Tantalus Road Sewer Upgrade	1,474,690	200,000	1,250,000				14,500	-	-	-	-	-	1,435,500	-	
20	cm	WWTP Electrical SCADA Upgrades (CFWD)	300,000	200,000					200,000	-	-	-	-	-	-	-	
21	cm	DCC S2 WWTP Older Bioreactor Upgrade	1,100,000	165,000	935,000				-	-	-	-	-	-	696,960	403,040	60,456
22	cm	WWTP Odour Monitoring System	115,000	115,000					115,000	-	-	-	-	-	-	-	
		Sewer Connections	204,595	40,919	40,919	40,919	40,919	40,919	-	-	-	-	-	204,595	-	-	
23	cm	Back up RAS SM11 Pump	25,000	25,000					-	-	-	-	-	-	-	25,000	25,000
24	cm	WWTP Exterior Lights	25,000	25,000					-	-	-	-	-	-	-	25,000	25,000
25	cm	WWTP Female Locker Room	20,000	20,000					-	-	-	-	-	-	-	20,000	20,000
26	cm	Sewer Camera	15,000	15,000					-	-	-	-	-	-	-	15,000	15,000
27		Sewer Main Right of Way	20,000	20,000					20,000	-	-	-	-	-	-	-	
28	cm	DCC S3 and S7 Government and Judd Sewer Upgrades	1,291,500		100,000	1,191,500			-	-	-	-	-	-	430,665	860,835	
29	cm	DCC S4 and S9 Cheakamus and Tantalus Sewer Upgrade	448,000		50,000	398,000			-	-	-	-	-	-	227,304	220,696	
	cm	DCC S2 Anaerobic Digester	2,500,000			375,000	2,125,000		-	-	-	-	-	-	1,584,000	916,000	
	cm	DCC S2 WWTP Convert New Bioreactor to MBBR	2,000,000				300,000	1,700,000	-	-	-	-	-	-	1,267,200	732,800	
	cm	WWTP Office Roof and Door Upgrades	80,000				80,000		-	-	-	-	-	-	-	80,000	
Total Sewer Utility			**$ 17,593,137**	**$ 4,145,919**	**$ 3,375,919**	**$ 3,005,419**	**$ 3,545,919**	**$ 2,740,919**	**$ 1,509,500**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 204,595**	**$ 5,641,629**	**$ 9,458,371**	$ 2,305,456
TOTAL ALL DISTRICT FUNDS			**$ 34,557,419**	**$ 10,615,911**	**$ 6,790,959**	**$ 5,736,018**	**$ 4,752,829**	**$ 4,167,829**	**$ 1,621,665**	**$ -**	**$ 500,000**	**$ 8,694,755**	**$ 186,830**	**$ 2,199,494**	**$ 5,750,517**	**$ 13,110,285**	**$ 3,190,295**

DISTRICT OF SQUAMISH
2017-2021 DRAFT FINANCIAL PLAN
CAPITAL PLAN - UTILITIES AS AT JANUARY 24, 2017

Projects carrying forward from 2016

Ref		Project	Total Cost	2017 Budget	2018 Budget	2019 Budget	2020 Budget	2021 Budget	Accum Surplus or Provision	Short Term Borrowing	Approved Borrowing	New Borrowing	Reserve	Grants & Other (Dev Front End)	DCC	Fund From Revenue	2017 Funded From Fees
									Summary Of Funding Over The Five Year Plan								
		NEWPORT BEACH															
			Total Cost	**2017 Budget**	**2018 Budget**	**2019 Budget**	**2020 Budget**	**2021 Budget**	**Accum Surplus or Provision**	**Short Term Borrowing**	**Approved Borrowing**	**New Borrowing**	**Reserve**	**Grants & Other**	**Developer Contribution**	**Fund From Revenue**	**2017 Fund From Operating**
Water																	
30		SODC- DCC- W19 Peninsula Road B Watermain	277,200	277,200					-	-	-	-	-	-	274,428	2,772	2,772
31		SODC- DCC- W18- Peninsula Watermain- Interim Second Connection	192,500	192,500					-	-	-	-	-	-	190,575	1,925	1,925
32		SODC- DCC- W16 peninsula Watermain Connection- Galbraith Avenue (CF)	154,000	152,057					-	-	-	-	-	-	150,536	1,521	1,521
33		SODC- DCC- W2 Logger's Lane Feedermain Watermain	1,890,000	-	1,890,000				-	-	-	-	-	-	1,871,100	18,900	
		SODC- DCC- W11b- New Blind Channel PRV	150,000	-	-	150,000	-	-	-	-	-	-	-	-	148,500	1,500	
		SODC- DCC- W11a- Decommission Logger's Lane/High Shool PRV's	86,000	-	-	86,000	-	-	-	-	-	-	-	-	85,140	860	-
		SODC- DCC- W15- New Reservoir	3,069,000			3,069,000			-	-	-	-	-	-	3,038,310	30,690	
			5,818,700	**621,757**	**1,890,000**	**3,305,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**5,758,589**	**58,168**	**6,218**
Sewer																	
34	**cm**	SODC DCC S22 Vancouver Street Collector	1,366,231	1,366,231					-	-	-	-	-	-	1,352,569	13,662	13,662
			1,366,231	**1,366,231**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,352,569**	**13,662**	**13,662**
TOTAL ALL DISTRICT FUNDS			**7,184,931**	**1,987,988**	**1,890,000**	**3,305,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**7,111,158**	**71,830**	**19,880**

DISTRICT OF SQUAMISH
2017-2021 DRAFT FINANCIAL PLAN
UTILITIES: 2017-2018 CAPITAL PROJECT DESCRIPTIONS AND JUSTIFICATIONS

No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
1	2017	Solid Water	Landfill Vertical Expansion	Engineering	Design, build and manage vertically expanding the landfill. Consists of engineered vertical walls around two sides of the existing landfill increasing the airspace by approximately $34,000 cubic metres over the next five years and thereby extending the life of the landfill.	The landfill must either be expanded or waste will need to be trucked to other facilities - at an estimated cost of $200 per tonne. District Engineering team capacity is already challenged to manage development and growth. Managing this project in house would require a Project Engineer resources for four years so this contracted partnership is being explored.		
2	2017	Water	Water Meter Installations	Engineering	Council adopted a motion to begin metering Industrial, Commercial and Institutional properties, multi-family residential and District facilities in 2016 and 2017. This project will install roughly 400 meters on those properties throughout Squamish including installation of in-ground meter boxes on many properties. This will enable billing based on water consumption in future years.	Installation of water meters provides many benefits including equitable billing for customers, promoting water conservation and providing information to the District on where water is being consumed.		Operations meter reading staff - $9,600
3	2017	Water	Annual Watermain Replacement	Engineering	70% of the water system is anticipated to reach the end of its life within the next 10 years. This project accounts for annual replacement of water mains and includes design by an engineering consultant and construction by a qualified contractor.	Based on the Public Works Infrastructure Asset Management Plan (endorsed by Council in 2011), the District should be investing approximately 2% annually in capital asset rehabilitation. Currently, over 70% of the water system is comprised of AC (asbestos concrete) pipe at or nearing the end of its life. Replace these mains will reduce frequency of breaks and emergency repairs resulting in lower overall costs. Replacement will also reduce water loss due to leaking pipes.		
4	2017	Water	DCC W6 - Government Rd watermain - Mamquam to Amblepath Entrance	Engineering	This project will replace an old, undersized main to correct an existing deficiency and allow for future growth.	This project will allow future growth and reduce risk related to a current deficiency in fire flow availability. There is a real risk of failure of this line in the near future.		
5	2017	Water	Annual PRV Replacement	Engineering	Replacement of aging Pressure Reducing Valve (PRV) stations. Many of the stations are near the end of their useful life and present confined space entry risk to Operations crews.	Based on the Public Works Infrastructure Asset Management Plan (endorsed by Council in 2011), the District should be investing approximately 2% annually in capital asset rehabilitation. Failure to replace these stations will result in a higher frequency emergency repairs, and a less efficient system overall.		

DISTRICT OF SQUAMISH
2017-2021 DRAFT FINANCIAL PLAN
UTILITIES: 2017-2018 CAPITAL PROJECT DESCRIPTIONS AND JUSTIFICATIONS

No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
6	2017	Water	Fleet Replacement - F550 (V9420)	Operations - Water	Replacement of existing fleet vehicle and adding snow and ice control equipment to make vehicle more versitile.	ncluded in Fleet Replacement Fund Bylaw		
7	2017	Water	Well Protection Implementation	Engineering	The Well Protection Plan will provide several recommendations for protecting our water source including installation of gates, fencing around the wellfield, signage, secondary containment of diesel tank and installing a monitoring well to initiate long term monitoring of aquifer levels.	Implementing the recommendations in the well protection plan will provide the regulated level of protection for our water source.		
8	2017	Water	New Fire Hydrant Installation	Engineering	There are currently deficiencies in some neighbourhoods on fire hydrant spacing. this project will install new fire hydrants over the next 5 years to correct existing deficiencies.	Improved hydrant coverage will reduce risk for existing residents that are outside recommended hydrant spacing.		
9	2017	Water	Water Distribution System Flow Meters	Engineering	This project comes from recommendations in the Water Loss Management Plan. The objective is to install a suite of flow meters throughout the water distribution system in order to gain a better understanding of where water goes within the distribution system to identify areas with high water loss.	Allows for identification of areas with high water loss in order to identify areas for repairing leaking pipes. This will reduce the overall strain on the water system, delaying the need to invest in costly capacity upgrades.		
10	2017	Water	Water Distribution System Turbidity and Chlorine Analyzer Replacement and New Installations	Operations - Water	Replacement of existing online turbididty and chlorine analyzers as well as an additional low range turbidity analyzer for Power House Springs as one currently is not installed.	Existing analyzers are at end of life.		
11	2017	Water	Water Quality Sampling Stations	Operations - Water	Installation of new water quality sample stations in the distribution system and at the well field.	As per request from Vancouver Coastal Health annual drinking water inspection report.		
12	2017	Water	Water Meter Reading Hardware Replacement	Operations - Water	Replacement of existing handheld radio frequency water meter reading hardware.	Water meter reading hardware is at end of life and is no longer supported by supplier.		

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UTILITIES: 2017-2018 CAPITAL PROJECT DESCRIPTIONS AND JUSTIFICATIONS

No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
13	2017	Water	Temporary storage containers - Utilities	Engineering	More and improved storage is required in the Utilities area. Existing storage is dilapidated and at the end of it's useful life. This would be a three year phased program and we would be eliminating the power connections to the old building and using solar powered lights.	Having materials dry and secured. Existing structures are failing and leaking		Power savings of $2,500
14	2018	Water	Surface Water System Isolation	Engineering	Vancouver Coastal Health has requested that the District improve the isolation between the Mashiter and Stawamus surface water sources by providing a 'double block and bleed' valving arrangement to prevent potential contamination of the District's water system. This project will retrofit two valve chambers at Mashiter and Stawamus intakes by adding new valves and programming to isolate the surface water intake piping from the District's water distribution network.	Vancouver Coastal Health provides the District with regulatory approvals to operate a public drinking water system and has requested that these upgrades take place as part of a continual improvement of the District's water system.		
15	2017	Sewer	Annual Sewer Replacement and Rehabilitation	Engineering	70% of the sanitary sewer system is comprised of asbestos-cement pipe which, according to the Asset Management Plan, has a remaining service life of 9-12 years. Much of the system will reach the end of its service life over a 10 year window between 2017-27. The asset management plan and long term financial plan recommend annual funding be provided for a) sewer replacement/rehabilitation or b) to contribute to sewer reserves so that funding is available when the majority of the system reaches the end of its service life over a short time period.	The District's sewer system has significant stormwater inflow and infiltration (I&I) which require that the mains, pump stations and treatment plants be over-sized to accommodate the peak wet weather flows. It also requires that the pump stations and the wastewater treatment plant use more energy since they are required to pump and treat stormwater flows in addition to sewage. I&I can be significantly reduced by replacing/rehabilitating the sewer system where leaks and cross connections are present. In addition, the cost of replacing sewer mains proactively, as opposed to reactively has been proven to be a much more cost effective approach to sewer infrastructure management.		
16	2017	Sewer	Sewer Lift Station Reconstruction	Engineering	Replacement of sewer lift stations in 2017.	Based on the Public Works Infrastructure Asset Management Plan (endorsed by Council in 2011), the District should be investing approximately 2% annually in capital asset rehabilitation. The lift station replacement program began in 2011 with 2 stations per year and is nearly complete for the immediate future (subject to any outcomes of the ongoing Sewer Master Plan).		

No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
17	2017	Sewer	Wastewater Treatment Plant Upgrade Bar Screens	Engineering	The current bar screens are beginning to fail and require replacement prior to upgrading the plant in 2018. This project has been identified as a requirement in the Liquid Waste Management Plan.	Finer bar screens will reduce maintenance costs due to reduced failure. Finer screens will also cut the amount of debris getting through the headworks and will cut down on wear experienced in other areas of the wastewater treatment plan.		
18	2017	Sewer	M1 Lift Station Upgrade	Engineering	The M1 Lift Station pumps all sewage from Brackendale to a gravity sewer which conveys the flows to the wastewater treatment plant. The pumps in M1 Lift Station are approximately 28 years old and require replacement . In conjunction with the pump replacement, an upgrade to the electrical service is to be completed.	The pumps in the M1 Lift Station are nearing the end of their service life leading to a higher probability of failure or malfunction. Pump failures can lead to sanitary sewer overflows which may cause environmental and/or property damage.		
19	2017	Sewer	DCC Project - S8 & S-10 - Chiefview and Tantalus Rd sewer upgrade	Engineering	Sewer upgrade to correct an existing bottleneck in the sewer along Tantalus Rd and allow further growth at the north end of Tantalus Rd and eventually DL 510/11.	Required to allow for planned growth at the north end of Tantalus Rd.		
20	2017	Sewer	Wastewater Treatment Plan Electrical/SCADA Upgrades	Engineering	The existing electrical system at the Wastewater Treatment Plant has exceeded its service life and the technology has become obsolete. It is also not capable of supporting planned expansions at the treatment plant in coming years. In the event of a failure, replacement parts are not available which poses a serious risk to plant operations. In addition, the SCADA system is not compatible with the remainder of the SCADA system for other District infrastructure. This project will integrate the WWTP SCADA system with the District SCADA system.	A new electrical/SCADA system will reduce risk of potential environmental damage resulting from loss of plant control in the event of electrical system failure. The new system will also enable future expansion of the plant.		
21	2017	Sewer	DCC - S2 - Wastewater Treatment Plant Older Bioreactor Upgrade	Engineering	Per the Liquid Waste Management Plan, this upgrade is required to provide the required level of redundancy at the Wastewater Treatment Plant. The upgrade will significantly increase the capacity of the bioreactor allowing for further growth and achieving Provincially mandated levels of redundancy.	This project will allow continued compliance with the Liquid Waste Management Plan which is a binding agreement with the Ministry of Environment.		

DISTRICT OF SQUAMISH
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No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
22	2017	Sewer	Waste Water Treatment Plant (WWTP) Odour Monitoring System	Operations - Sewer	The LIquid Waste Managment Plan (LWMP) has recommended an odour monitoring system to determine the extent of the odour problem and the soure/type of odours. Odours can come from many differnt sources and to reduce or eliminate odours testing must be done to determine what they are when they are and what they come from. This program will have 3 permanent sampling monitors on the North, South and East sides of the plant to monitor the air for odours 24 hours pe r day. Once this data is collected a new odour handling system can be considered.	Identify odours so an odour control system can be considered for the WWTP.		
23	2017	Sewer	Back-up RAS / SM11 Pump	Operations - Sewer	Back-up RAS / SM11 pump required. Normal delivery time 4+ months.	Pump required to provide operational redundancy.		
24	2017	Sewer	WWTP exterior lighting upgrade	Facilities	Exterior wall packs around the buildings are original and inefficient technology. In addition the 3 double car park area lights are also original and use inefficient technology. This project proposes to replace the lights with more efficient lighting such as LED with solar where possible.	To ensure the safety of the staff and visitors by providing appropriate light. To reduce energy consumption by introducing energy efficient lighting.		
25	2017	Sewer	WWTP Female locker room	Facilities	There are no private facilities at the WWTP for the ladies to use for a shower or changing. Currently there is one room with a lockers and shower that is shared by all staff. This project proposes to create a shower and locker area in the storage room.	This will provide a private shower/lockers area for the ladies to use.		
26	2017	Sewer	Sewer Camera	Operations - Sewer	Replacement of existing sewer camera.	Allows crews to identify location of blockages and determine best method for repairs. Reduce risk associated with sewer back-ups and flooding.		
27	2017	Sewer	Sewer Main Right of Way		Per Council direction.			
28	2018	Sewer	DCC - S3 and S7 - Government and Judd Sewer Upgrades	Engineering	These sewers are undercapacity to convey current flows and upgrade is required to accommodate further growth as identified in the DCC bylaw.	Completing these projects reduces risk of overflow and private property damage while also accommodating the potential for future growth.		

No.	Year	Fund	Presentation Name	Department	Project Description	Project Justification Benefits	Additional Project Staffing	Service Level Change From Project
29	2018	Sewer	DCC S4 and S9 - Cheakamus and Tantalus Sewer Upgrade	Engineering	These sewers are presently at capacity and require upgrade to accommodate further growth as identified in the DCC bylaw.	Upgrading these sewers will reduce the likelihood of overflows and private flooding and also allow further growth within their catchments.		
30	2017	Water	SODC DCC - W19 Peninsula Road B Watermain	Engineering	This DCC project is a new watermain on 'Road B' of the oceanfront lands connecting the downtown water system with the proposed on-site water system to service the peninsula. This project is required to enable development of the peninsula.	In DCC Bylaw and required to develop SODC lands		
31	2017	Water	SODC - DCC - W18 - Peninsula Watermain - Interim Second Connection	Engineering	This project entails construction of a second watermain connection to the oceanfront peninsula to provide water capacity and redundancy to support proposed growth. The need for the project has been identified by water servicing analysis and is included in the DCC bylaw.	Required to enable development on the oceanfront peninsula.		
32	2017	Water	SODC - DCC - W16 - Peninsula Watermain Connection - Galbraith Avenue	Engineering	Required to service development at SODC.	Required to service development at SODC.		
33	2018	Water	SODC - DCC W2 - Logger's Lane Feedermain Watermain	Engineering	Improve fire flow and north-south water transmission capacity to enable future growth at the SODC.	Allows future growth at SODC.		
34	2017	Sewer	SODC DCC S22 Vancouver Street Collector	Engineering	This DCC project is a new gravity sewer running from the Galbraith Avenue on the oceanfront peninsula to Main St & 3rd Avenue to service new development on the oceanfront lands and also allow for decommissioning of the sewage lift station on Vancouver St between 2nd Ave. and 3rd Ave. This project is required to enable development of the peninsula.	In DCC Bylaw and required for SODC lands development to proceed		