

DISTRICT OF SQUAMISH 2019-2023 Financial Plan Capital Summary - Utilities

	2018	2019	2020	2021	2022	2023
Capital Plan Funding Sources						
Fees & Charges	(2,013,236)	(3,863,060)	(3,491,192)	(2,194,528)	(1,666,000)	(1,386,000)
Other Revenue	-					
Grant Revenue	(364,767)					
Development Cost Charges	(6,151,240)	(1,597,870)	(5,564,008)	(1,221,472)	(100,000)	(100,000)
Contributed Assets		-	-	-	-	-
Proceeds from Borrowing	(4,207,358)	(3,425,000)	(2,850,000)	(1,000,000)	(1,000,000)	(1,000,000)
Trsf from Surplus	(2,796,711)	(364,880)	(274,800)			
Trsf from Reserve	(32,190)	(32,190)				
Total Capital Plan Funding Sources	(15,565,502)	(9,283,000)	(12,180,000)	(4,416,000)	(2,766,000)	(2,486,000)
Capital Plan Expenditure						
Solid Waste Management	3,117,358	2,100,000	1,250,000	-	-	-
Water Services	4,744,999	3,550,000	5,199,000	1,130,000	1,240,000	1,100,000
Waste Water Services	7,703,145	3,633,000	5,731,000	3,286,000	1,526,000	1,386,000
Total Capital Plan Expenditure	15,565,502	9,283,000	12,180,000	4,416,000	2,766,000	2,486,000

DISTRICT OF SQUAMISH 2019-2023 FINANCIAL PLAN CAPITAL PROJECTS - UTILITIES

				COST							
					COST				2019 FUNDI	NG SOURCES	
Fund	REF	Project Name	2019	2020	2021	2022	2023	Taxation / Fees	Surplus	Borrowings	Other
WATER											
		1 Annual Watermain Replacement	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	-	-	1,000,000	100,000
		2 DCC W15 - New Reservoir	150,000	3,069,000	-	-	-	-	-	-	150,000
		3 DCC W11a - Decommission Logger's Lane and High School PRV	86,000	-	-	-	-	860	-	-	85,140
		4 Powerhouse Springs Well 3 Replacement	145,000	-	-	-	-	1,450	-	-	143,550
		5 Panasonic Toughbooks for Utilities	9,000	-	-	-	-	9,000	-	-	-
		6 Powerhouse Springs Wellfield Fencing	15,000	-	-	-	-	15,000	-	-	-
		7 Automated Non-Potable Bulk Fill Station at Hendrickson Fields	30,000	-	-	-	-	30,000	-	-	-
		8 Distribution System Flow Meters	30,000	-	-	-	-	30,000	-	-	-
		9 Fire Hydrant Installation Program Year 4 of 7	30,000	30,000	30,000	30,000	-	30,000	-	-	-
		10 Replace Fence at Lower University Pump Stations	30,000	-	-	-	-	30,000	-	-	-
		11 Undergrounding Power Lines to Power House Springs	80,000	-	-	-	-	80,000	-	-	-
		12 Annual PRV Replacement	220,000	-	-	110,000	-	220,000	-	-	-
		13 Water Meter Installations	1,000,000	1,000,000	-	-	-	1,000,000	-	-	-
			2,925,000	5,199,000	1,130,000	1,240,000	1,100,000	1,446,310	-	1,000,000	478,690
WASTE V	ATER										
		14 Multi-functional Heavy Truck	325,000	-	-	-	-	-	-	325,000	-
		15 DCC S2 - WWTP - Upsize for Future Growth	450,000	3,780,000	1,770,000	-	-	-	164,880	-	285,120
		16 Wastewater Treatment Plant Blower Replacement and Energy Efficiency Upgrade	75,000	75,000	-	-	-	75,000	-	-	-
		17 Automated Waste Activated Sludge Valve	10,000	-	-	-	-	10,000	-	-	-
		18 Replacement of DO Probes for "Old Side" Treatment Process at WWTP	10,000	-	-	-	-	10,000	-	-	-
		19 Polymer Optimization Project	20,000	-	-	-	-	20,000	-	-	-
		20 Sewer System Electrical Safety Upgrades	21,000	-	-	-	-	21,000	-	-	-
		21 VFD Maintenance & Replacement Program	26,000	26,000	26,000	26,000	26,000	26,000	-	-	-
		22 New Ford F250 for Wastewater Collections - Growth	46,000	-	-	-	-	46,000	-	-	-
		23 Replacement of failed or failing sewage lift station pumps	50,000	15,000	15,000	-	-	50,000	-	-	-
		24 Scada Radio Replacement - Year 2 of 2	40,000	-	-	-	-	40,000	-	-	-
		25 SCADA Hardware Replacement	30,000	30,000	30,000	30,000	30,000	30,000	-	-	-
		26 Fall Arrest Upgrades - Year 2 of 3	10,000	10,000	-	-	-	10,000	-	-	-
		27 Lift Station Reconstruction	350,000	-	-	-	-	150,000	200,000	-	-
		28 WWTP Repair and Replacement	300,000	20,000	85,000	-	-	300,000	-	-	-
		29 Gravity Sewer Repair and Replacement	550,000	550,000	550,000	550,000	550,000	550,000	-	-	-
		30 Forcemain Replacements	1,070,000	625,000	810,000	920,000	780,000	1,070,000	-	-	-
		31 New Tandem Axle Vacuum Truck for Utilities	-	600,000	-	-	-	-	-	-	-
			3,383,000	5,731,000	3,286,000	1,526,000	1,386,000	2,408,000	364,880	325,000	285,120
SOLID W	ASTE										
		32 Landfill Vertical Expansion	2,000,000	-	-	-	-	-	-	2,000,000	-
		33 Landfill Gas Capture and Flare	100,000	1,250,000	-	-	-	-	-	100,000	-
			2,100,000	1,250,000	-	-	-	-	-	2,100,000	-
OCEANF	RONT (S	SODC)									
Sewer	SODC	-1 SODC - DCC- S22 - 450mm diameter Vancouver Street Collector Sewer	250,000	-	-	-	-	2,500	-	-	247,500
Water	SODC	-2 SODC - DCC - W16 - Peninsula Watermain Connection - Galbraith Avenue	100,000	-	-	-	-	1,000	-	-	99,000
Water	SODC	-3 SODC - DCC W-17 Peninsula Watermain Connection - Cattermole Creek	355,000	-	-	-	-	3,550	-	-	351,450
Water	SODC	-4 SODC DCC - W19 Peninsula Road B Watermain	170,000	-	-	-	-	1,700	-	-	168,300
			875,000	-		-	-	8,750		-	866,250

REE	Project Name	Description	Justification/Benefits
1	Annual Watermain Replacement	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 identified in the Water Master Plan and includes design by an engineering consultant and construction by a qualified contractor.	Based on the Public Works Infras be investing approximately 2% a comprised of AC (asbestos conci of breaks and emergency repairs leaking pipes.
2	DCC W15 - New Reservoir	In accordance with the Water Master Plan, a new reservoir is needed in order to address an existing deficiency and allow for continued growth, a new reservoir is needed to service infill redevelopment and new growth areas. The new reservoir will also help to address pump cycling issues at the Powerhouse Springs wellfield.	Address existing fire storage def
3	DCC W11a - Decommission Logger's Lane and High School PRV	This project is part 2 of the New Blind Channel PRV project and is required to increase fire flows to the downtown and allow large scale development for the SODC. Current PRV's are in poor condition and will be replaced by one new PRV.	l Development at SODC requires
4	Powerhouse Springs Well 3 Replacement	Well 3 at Powerhouse Springs has been experiencing operational issues since its initial construction. The capacity of the well has been continually declining despite several well re-development efforts. While re-development offers short-term improvements in the well's capacity, the capacity declines quickly back to an unacceptable level. This project will re-drill Well 3 to a shallower depth that will experience less operational and maintenance issues and improves the District's water supply capacity and reliability. It is intended to re-use existing mechanical and electrical equipment to the greatest degree possible to reduce capital costs.	Re-developing Well 3 will improvoperations and maintenance effections and maintenance effections are that the pump operates a
5	Panasonic Toughbooks for Utilities	Panasonic Toughbooks mounted in Utilities vehicles.	Enables crews to complete time
6	Powerhouse Springs Wellfield Fencing	Place fencing at the road entry to the Powerhouse Springs wellfield.	This project is intended to impro area for safety reasons from fluic
7	Automated Non-Potable Bulk Fill Station at Hendrickson Fields	Installation of automated non-potable bulk fill station at Hendrickson fields irrigation well.	Water Conservation Plan / Water accessible source of non-potable for use of the water.
8	Distribution System Flow Meters	This project is recommended in the Water Loss Management Plan. The objective is to install a system 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 reduce the overall strain on the v
9	Fire Hydrant Installation Program Year 4 of 7	Installation of three (3) OR four (4) new fire hydrants depending on complexity. Provides for adequate fire protection in areas that are currently not serviced adequately.	Fourth year of seven year progra
10	Replace Fence at Lower University Pump Stations	Replacement of fence around Lower University Reservoir and Pump Station.	Fence is too short, is in poor con
11	Undergrounding Power Lines to Power House Springs	Existing power lines are above ground and are regularly knocked down by falling trees during storms. Powerhouse Springs are the District's principle water source and need 24-7-365 power service. Substantial risk.	Repairing the overhead lines cost trimming and brushing of tr problem. Estimated 5-year payb
12	Annual PRV Replacement	Replacement of aging Pressure Reducing Valve (PRV) stations as identified in the Water Master Plan. 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 Infras be investing approximately 2% a higher frequency emergency rep
13	Water Meter Installations	Council adopted a motion to begin metering Industrial, Commercial and Institutional properties, multi-family residential and District facilities. 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 prov conservation and providing info r project.
14	Multi-functional Heavy Truck	New multi-functional heavy duty hook truck for hauling biosolids bin to the Whistler compost facility and year around use for aggregate hauling as well as snow and ice control. All additional tools and attachments are included in the budget amount.	Heavy duty truck to haul biosolid biosolids to RMOW. 4.6 year pay Added value can be obtained fro growth and additional steep slo removal policy directs that red ro compliment of equipment when
15	DCC S2 - WWTP - Upsize for Future Growth	Upgrade the Wastewater Treatment Plant in accordance with the Liquid Waste Management Plan to achieve compliance with regulations and accommodate growth.	Improve sewage effluent quality
16	Wastewater Treatment Plant Blower Replacement and Energy Efficiency Upgrade	Replacementof existing centrifugal technology low pressure air blowers with more efficientpositive displacement or turbine technology equipment.	ExistingWWTP blowers are 45 ye and so are well past their expect 2018, paid for through a BC Hyd upgrading. To be eligible for gra
17	Automated Waste Activated Sludge Valve	Automated (Rotorx) Valve for WWTP waste activated sludge control.	If we can save one pump from e configuration pumps are burnin pump.
18	Replacement of DO Probes for "Old Side" Treatment Process at WWTP	Replacement of DO Probes for "Old Side" Treatment Process at WWTP. DO - "Dissolved Oxygen" which is a critical process control parameterfor biological treatment at the WWTP.	DO Probes at WWTP are at end c

tructure Asset Management Plan (endorsed by Council in 2011), the District should nnually in capital asset rehabilitation. Currently, over 70% of the water system is ete) pipe at or nearing the end of its life. Replace these mains will reduce frequency resulting in lower overall costs. Replacement will also reduce water loss due to

ciency. Address pump cycling issues. Allow for continued community growth.

hese projects to proceed.

ve the capacity and reliability of the District's water supply and reduce ongoing orts related to well redevelopment. Improving the capacity of the well will also at optimal levels increasing its design life and power efficiency.

cards, access GIS, e-mail, SharePoint and complete daily documentation in the field.

ve protection of the District's water source from vehicles being able to access the leaks.

Master Plan. Reducing demand for bulk potable water by providing an easily water. Having an automated fill station will enable the District to charge by volume

with high water loss in order to identify areas for repairing leaking pipes. This will vater system, delaying the need to invest in costly capacity upgrades.

m as identified by SQFR using NFPA and FUS standards.

dition and is in need of replacement.

ts between \$20, 000 to \$30,000 annually in addition to regular ees in easement. Undergrounding the power lines would eliminate this ack based on previous years experiance.

tructure Asset Management Plan (endorsed by Council in 2011), the District should annually in capital asset rehabilitation. Failure to replace these stations will result in a bairs, and a less efficient system overall.

ides many benefits including equitable billing for customers, promoting water mation to the District on where water is being consumed. Budgeted as a multi year

ds bin on daily run to RMOW composting. Currently costs \$64.5k / year to haul y back period if only used for hauling biosolids including vehicle maintenance costs. om increasing services levels for snow and ice control use and other duties. Added be subdivisions require a 4th heavy duty truck for snow and ice control. Snow butes be addressed in a timely fashion. This will not be acheiveable with the current of the Waterfront development comes online in 2019.

in Squamish River. Accommodate community growth.

ars old. Best practice suggests thatthe expected life span for a blower is 25 years, ed life span and requirereplacement. Additionally an audit was conducted ro grant program. The District may be eligible forgrant funding to cover the cost of ant funding theDistrict must have funding for replacement of the blowersallocated.

arly break down the automatic valve will have paid for itself. In the current g out before their expected life span and the cost is \$30k to replace an existing

f life, are failing, and in need of replacement

REF	Project Name	Description	Justification/Benefits
19	Polymer Optimization Project	Installation of an on-demand hot water heater to raise the temperature of Disolved Air Floatation and Centrifuge(s) process polymer feed water to improve the effectiveness of the polymer and reduce its consumption.	Polymer is one of the most expension of the most expension of the second
20	Sewer System Electrical Safety Upgrades	Move electrical services and add SCADA cabinets at Madill, Buckley, Depot. Electrical safety upgrades (disconnects).	Existing electrical cabinets do no
21	VFD Maintenance & Replacement Program	52 Variable Frequency Drives (VFD) exist in Public Works in various areas (Water, Sewer, Storm). 10-year program for planned replacement.	Aging electrical hardware needs property and require staff call-ou
22	New Ford F250 for Wastewater Collections - Growth	New Ford F250 required for Sewer Utility maintenance due to system growth specifically reltated to the Oceanfront, Waterfront and University Heights developments. Four (4) new lift stations coming online in 2019 and 2020. Existing 3 person crew has only one (1) vehicle and has had to borrow Utility Supervisors truck indefinately.	Community growth. Four (4) new manhole inspections, Capital, etc.
23	Replacement of failed or failing sewage lift station pumps	Replacement and rebuilding of sewage lift station pumps that have either failed or test results indicate that will fail soon.	Replacement of failed pumps. A property sewage back ups and li the pumps do fail.
24	Scada Radio Replacement - Year 2 of 2	SCADA radios are at end of life, can no longer be purchased or upgraded and are beginning to fail. Replacement of SCADA radios at all monitored sites, with new radio and or cellular technology is required. Final technology choice not determined. These replacement elements communicate with the central SCADA hardware unit which is also being replaced.	Risk. Replacement of out of date
25	SCADA Hardware Replacement	This is the replacement of the SCADA central data processing hardware (the system "brain"). Existing SCADA equipment is largely at end of life and in some cases is no longer supported. Replacement funding is required on an ongoing basis to maintain infrastructure viability. Maintenance and repair can no longer guarantee continued operations and functionality. Replacement cannot be realistically deferred.	The District relies on 52 remote r management planning recomme
26	Fall Arrest Upgrades - Year 2 of 3	2016 engineering review recommended additional safety and fall arrest upgrades at numerous wastewater collection facilities and at the wastewater treatment plant. Year 1 of a 3 year program to remediate safety deficiencies and gain compliance with WorksafeBC.	Out of compliance with WorkSaf
27	Lift Station Reconstruction	Replacement of Buckley Lift Station near Howe Sound Secondary. Construction began in 2018 and will be completed in 2019.	Based on the Public Works Infras be investing approximately 2% a 2011 with 2 stations per year and ongoing Sewer Master Plan).
28	WWTP Repair and Replacement	This project will repair and replace aging components of the wastewater treatment plant in accordance with the WWTP Asset Management Plan.	The wastewater treatment plant Squamish River. Proper asset ma
29	Gravity Sewer Repair and Replacement	This project will complete CCTV inspection to identify any deficiencies within 10% of our sewer system each year. Based on deficiencies found, the project will complete any necessary repair/rehabilitation.	The District's sewer system has si stations and treatment plants be pump stations and the wastewat stormwater flows in addition to s where leaks and cross connectio to reactively has been proven to
30	Forcemain Replacements	This project will replace aging forcemains near the end of their service life as recommended in the Sewer Master Plan.	Failure to replace forcemains near damage and public health issues
32	Landfill Vertical Expansion	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 expan per tonne. District Engineering t this project in house would requ explored.
33	Landfill Gas Capture and Flare	Complete design and installation of landfill gas capture system and flare stack to burn off methane and convert to carbon dioxide, thereby reducing the District's greenhouse gas production.	Installaion of a landfill gas captur vertical expansion of the landfill. purchase for carbon offsets.
SODC-1	SODC - DCC- S22 - 450mm diameter Vancouver Street Collector Sewer	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 SC
SODC-2	SODC - DCC - W16 - Peninsula Watermain Connection - Galbraith Avenue	Required to service development at SODC.	Required to service developmen
SODC-3	SODC - DCC W-17 Peninsula Watermain Connection - Cattermole Creek	Required to enable development on the oceanfront peninsula. Construction is planned in 2018. Connects to the 3rd Avenue watermain that serves the Terminal property.	Required to enable developmen
SODC-4	SODC DCC - W19 Peninsula Road B Watermain	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 de
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nsive operating variables at the Wastewater Treatment Plant. The average polymer 000 / year. The Resort Municipality of Whistler has proven that by heating the feed ings can be acheived which would equate to approximately \$44,000 per year.

t meet current electrical codes and poses a safety risk to staff. Electrocution Risk!!!

to be replaced on regular schedule to avoid costly break downs which may damage uts and overtime.

w lift stations in 2019 and 2020 and increased level of service (flushing, CCTV, c.)

dvanced timing for the replacement of failing pumps reduces the risk of private ft station overflows and also reduces costs related to call-outs and overtime when

e equipment.

nonitored and controlled SCADA sites for day to day operations. Prudent asset ends that this central hardware be updated and replaced.

eBC regulations. Engineering review has identified numerous deficiencies.

tructure Asset Management Plan (endorsed by Council in 2011), the District should annually in capital asset rehabilitation. The lift station replacement program began in d is nearly complete for the immediate future (subject to any outcomes of the

is a critical piece of infrastructure that maintains acceptable water quality in the nagement is essential to ensure continued performance.

ignificant stormwater inflow and infiltration (I&I) which require that the mains, pump e over-sized to accommodate the peak wet weather flows. It also requires that the ter treatment plant use more energy since they are required to pump and treat sewage. I&I can be significantly reduced by replacing/rehabilitating the sewer system ns are present. In addition, the cost of replacing sewer mains proactively, as opposed be a much more cost effective approach to sewer infrastructure management.

ar the end of their service life may result in breaks which can lead to environmental

nded or waste will need to be trucked to other facilities - at an estimated cost of \$200 ream capacity is already challenged to manage development and growth. Managing ire a Project Engineer resources for four years so this contracted partnership is being

re system can mitigate approximately 75% of the GHG emissions associated with the Reducing the District's GHG production will reduce the amount the District needs to

ODC lands development to proceed. Work underway in 2017.

t at SODC. t on the oceanfront peninsula.

velop SODC lands.