

CITY OF KETCHIKAN, ALASKA
2020 - 2024 KETCHIKAN PUBLIC UTILITIES
CAPITAL IMPROVEMENT PROGRAM

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Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
2020 Capital Budget

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2020 Total
Administration					
Financial & Accounting Information System	20,000				20,000
Administration Division Total	20,000				20,000
Sales, Marketing & Customer Service					
None					
Sales, Marketing & Customer Service Division Total					
Electric Division					
Beaver Falls Project Relicensing	300,000				300,000
Bailey Generator No. 4 (BAG4) Turbo Upgrade	100,000				100,000
Bailey Unit No. 3 Rehabilitation	400,000				400,000
Bailey Unit No. 1 Rehabilitation	850,000				850,000
Diesel Generation Modernization	60,000				60,000
Beaver Falls Switch Gear Replacement	320,000				320,000
Whitman Tailrace Modification	25,000				25,000
Bailey Diesel Exhaust Blanket Replacement	20,000				20,000
OSI SCADA Upgrade	394,000				394,000
Ketchikan International Airport & Pennock Is. Upgrade	250,000				250,000
Downtown Underground Upgrade	25,000				25,000
Silvis Substation Upgrade	125,000				125,000
AMI, Meters and Meter Replacement Parts	125,000				125,000
Transformer Purchase	85,000				85,000
Battery System & Chargers	34,000				34,000
Ketchikan Lakes Underground	25,000				25,000
System Sectionalizing and Fault Studies	19,500				19,500
Reimbursable Projects	75,000				75,000
Warehouse Roof Repair and Replacement	170,000				170,000
Bailey Lighting Upgrade	75,000				75,000
Bailey Mooring Dolphin Replacement	110,000				110,000
Operating Equipment	250,000				250,000
Additional Projects	100,000				100,000
Electric Division Total	3,937,500				3,937,500

Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
2020 Capital Budget

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2020 Total
Telecommunications Division					
Normal Growth and Repair - Buildings	25,000				25,000
Normal Growth and Repair - CO Switching	25,000				25,000
Normal Growth and Repair - Copper Cable	20,000				20,000
Normal Growth and Repair - Fiber Cable	150,000				150,000
Normal Growth and Repair - CO Transmission	250,000				250,000
Normal Growth and Repair - Expansion	25,000				25,000
Normal Growth and Repair - Provisioning	80,000				80,000
Fiber to the Home	75,000				75,000
Remote Cabinets for Advanced Services	25,000				25,000
Core Network Upgrade	100,000				100,000
Server Environment	100,000				100,000
Multi-Dwelling Unit Project	125,000				125,000
Operating Equipment	50,000				50,000
PC Hardware & Software	45,000				45,000
Power Expansion/Reclamation	25,000				25,000
Visual Mapping Software	25,000				25,000
Network Monitoring	100,000				100,000
Vehicle Acquisition	150,000				150,000
Headend Expansion	50,000				50,000
Internet Expansion				11,500,000	11,500,000
IPv4 Addressing	80,000				80,000
Video Set Top Boxes	75,000				75,000
4G LTE	100,000				100,000
Microwave	25,000				25,000
Hosted	200,000				200,000
Wi-Fi	50,000				50,000
Telecommunications Division Total	1,975,000			11,500,000	13,475,000

**Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
2020 Capital Budget**

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2020 Total
Water Division					
Filtration Facility-Preliminary Preparation Tasks	425,000				425,000
Schoenbar Water Mains - (Charter School - Middle School)				7,519,499	7,519,499
Water Meters - Business & Commercial Customers				1,034,678	1,034,678
SCADA PLC Controllers	260,000				260,000
Water Distribution Grid Improvements	30,000				30,000
Additional Projects	40,000				40,000
Water Service Upgrade Program	15,000				15,000
Backflow Prevention Program	3,000				3,000
Valley Court Utility Improvements	28,893				28,893
Water Division Total	801,893			8,554,177	9,356,070
GRAND TOTAL	6,734,393			20,054,177	26,788,570

Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Division - All Years

Division/Project	Prior Years	2020	2021	2022	2023	2024	Five Year Total	Project Total
Administration								
Financial & Accounting Information System Implementation	437,392	20,000					20,000	457,392
Administration Total	437,392	20,000					20,000	457,392
Electric Division								
Generation (Hydro and Diesel) Projects								
Beaver Falls Project Relicensing	223,000	300,000	50,000		27,000		377,000	600,000
Bailey Generator No. 4 (BAG4) Turbo Upgrade		100,000					100,000	100,000
Bailey Unit No. 3 Rehabilitation	500,000	400,000					400,000	900,000
Bailey Unit No. 1 Rehabilitation		850,000					850,000	850,000
Diesel Generation Modernization	90,000	60,000					60,000	150,000
Beaver Falls Switch Gear Replacement	70,000	320,000	1,330,000				1,650,000	1,720,000
Warehouse Roof Repair & Replacement		170,000					170,000	170,000
Whitman Tailrace Modification		25,000					25,000	25,000
Bailey Diesel Exhaust Blanket Replacement		20,000					20,000	20,000
Bailey Exhaust Stacks Re-Coating			25,000	225,000			250,000	250,000
Bailey Generator Radiator Replacement			300,000				300,000	300,000
Generator Rewind & Repair			650,000	700,000			1,350,000	1,350,000
Ketchikan Tunnel Penstock Valves Replacement	50,000		50,000	200,000			250,000	300,000
Generation Equipment Planning, Cleaning & Testing	191,395		50,000	50,000	50,000		150,000	341,395
Beaver Falls Governor Upgrade	-			250,000			250,000	250,000
OSI SCADA Upgrade		394,000					394,000	394,000
Ketchikan International Airport & Pennock Is. Upgrade	185,316	250,000	150,000	50,000			450,000	635,316
Downtown Underground Upgrade	285,459	25,000	50,000				75,000	360,459
Silvis Substation Upgrade		125,000					125,000	125,000
AMI, Meters and Meter Replacement Parts		125,000	125,000	125,000			375,000	375,000
Transformer Purchase		85,000	90,000	95,000	100,000	105,000	475,000	475,000
Battery Systems & Chargers		34,000	37,500	76,000	46,000	50,500	244,000	244,000
Ketchikan Lakes Underground		25,000	500,000				525,000	525,000
System Sectionalizing and Fault Studies	239,000	19,500					19,500	258,500
Reimbursable Projects		75,000	100,000	125,000	125,000	125,000	550,000	550,000
34.5 kV Tie Breaker and Relay Spares				50,000		105,000	155,000	155,000
Bailey Lighting Upgrade		75,000					75,000	75,000
Bailey Mooring Dolphin Replacement		110,000					110,000	110,000
Operating Equipment		250,000	275,000	275,000	275,000	275,000	1,350,000	1,350,000
Vehicles & Moving Equipment			255,000	350,000	350,000	100,000	1,055,000	1,055,000
Additional Projects		100,000	164,000	164,000	164,000	164,000	756,000	756,000
Vehicle Lift Replacement			80,000				80,000	80,000
Beaver Falls Powerhouse Exterior	36,070		600,000				600,000	636,070
Electric Division Total	1,870,240	3,937,500	4,881,500	2,735,000	1,137,000	924,500	13,615,500	15,485,740

Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Division - All Years

Division/Project	Prior Years	2020	2021	2022	2023	2024	Five Year Total	Project Total
Telecommunications Division								
Normal Growth and Repair - Buildings		25,000	50,000	50,000	50,000	50,000	225,000	225,000
Normal Growth and Repair - CO Switching		25,000	400,000	100,000	100,000	50,000	675,000	675,000
Normal Growth and Repair - Copper Cable		20,000	20,000	20,000	20,000	20,000	100,000	100,000
Normal Growth and Repair - Fiber Cable		150,000	150,000	150,000	100,000	100,000	650,000	650,000
Normal Growth and Repair - CO Transmission		250,000	250,000	250,000	200,000	900,000	1,850,000	1,850,000
Normal Growth and Repair - Expansion		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Normal Growth and Repair - Provisioning		80,000	50,000	50,000	50,000	50,000	280,000	280,000
Fiber to the Home		75,000	50,000	50,000	50,000	50,000	275,000	275,000
Remote Cabinets for Advanced Services		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Core Network Upgrade		100,000	600,000	600,000	400,000	200,000	1,900,000	1,900,000
Server Environment		100,000	100,000	100,000	250,000	100,000	650,000	650,000
Multi-Dwelling Unit Project		125,000	125,000	150,000	150,000	150,000	700,000	700,000
Operating Equipment		50,000	50,000	50,000	50,000	50,000	250,000	250,000
PC Hardware & Software		45,000	45,000	50,000	50,000	50,000	240,000	240,000
Power Expansion/Reclamation		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Visual Mapping Software		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Network Monitoring		100,000	150,000	150,000	400,000	150,000	950,000	950,000
Vehicle Acquisition		150,000	200,000	200,000	200,000	200,000	950,000	950,000
Security			100,000	100,000	125,000	125,000	450,000	450,000
Headend Expansion		50,000	50,000	100,000	100,000	50,000	350,000	350,000
Internet Expansion	100,000	11,500,000	25,000	25,000	25,000	25,000	11,600,000	11,700,000
IPv4 Addressing		80,000	80,000				160,000	160,000
Video Set Top Boxes		75,000	75,000	50,000	50,000	50,000	300,000	300,000
4G-LTE		100,000	100,000	100,000	100,000	100,000	500,000	500,000
Microwave		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Hosted		200,000	150,000	150,000	150,000	150,000	800,000	800,000
WiFi		50,000	50,000	50,000	50,000	50,000	250,000	250,000
Telecommunications Division Total	100,000	13,475,000	2,995,000	2,670,000	2,795,000	2,795,000	24,730,000	24,830,000

Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Division - All Years

Division/Project	Prior Years	2020	2021	2022	2023	2024	Five Year Total	Project Total
Water Division								
Filtration Facility-Preliminary Preparation Tasks		425,000	637,500	1,112,500			2,175,000	2,175,000
Schoenbar Water Mains - (Charter School - Middle School)	62,280	7,519,499					7,519,499	7,581,779
Water Meters - Business & Commercial Customers	290,322	1,034,678					1,034,678	1,325,000
SCADA PLC Controllers	50,000	260,000		265,000		285,000	810,000	860,000
Water Distribution Grid Improvements		30,000	30,000	30,000	30,000	30,000	150,000	150,000
Additional Projects		40,000	40,000	40,000	40,000	40,000	200,000	200,000
Water Service Upgrade Program		15,000	15,000	15,000	15,000	15,000	75,000	75,000
Backflow Prevention Program		3,000	3,000	3,000	3,000	3,000	15,000	15,000
Valley Court Utility Improvements	17,107	28,893					28,893	46,000
Highlands Reservoir Property Acquisition			270,000				270,000	270,000
Second Avenue Utility Improvements			15,000			1,300,800	1,315,800	1,315,800
West Fairy Chasm Utility Improvements			15,000			550,600	565,600	565,600
Skyline Water Main Replacement			10,000			360,800	370,800	370,800
Denali Ave. Utility Improvements			15,000			512,000	527,000	527,000
Evergreen Ave. Utility Improvements			15,000			440,000	455,000	455,000
Utility Vehicles			37,500	118,000	94,000		249,500	249,500
Water Division Total	419,709	9,356,070	1,103,000	1,583,500	182,000	3,537,200	15,761,770	16,181,479
TOTAL	2,827,341	26,788,570	8,979,500	6,988,500	4,114,000	7,256,700	54,127,270	56,954,611

**Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Funding Source - All Years**

Division/Project	Prior Years	Revenue Generating Fund	Grants	Other	Revenue Bonds	State Drinking Water Loan Fund	Total
Administration							
Financial & Accounting Information System Implementation	437,392	20,000					457,392
Administration Total	437,392	20,000					457,392
Electric Division							
Beaver Falls Project Relicensing	223,000	377,000					600,000
Bailey Generator No. 4 (BAG4) Turbo Upgrade		100,000					100,000
Bailey Unit No. 3 Rehabilitation	500,000	400,000					900,000
Bailey Unit No. 1 Rehabilitation		850,000					850,000
Diesel Generation Modernization	90,000	60,000					150,000
Beaver Falls Switch Gear Replacement	70,000	1,650,000					1,720,000
Warehouse Roof Repair & Replacement		170,000					170,000
Whitman Tailrace Modification		25,000					25,000
Bailey Diesel Exhaust Blanket Replacement		20,000					20,000
Bailey Exhaust Stacks Re-Coating		250,000					250,000
Bailey Generator Radiator Replacement		300,000					300,000
Generator Rewind & Repair		1,350,000					1,350,000
Ketchikan Tunnel Penstock Valves Replacement	50,000	250,000					300,000
Generation Equipment Planning, Cleaning & Testing	191,395	150,000					341,395
Beaver Falls Governor Upgrade		250,000					250,000
OSI SCADA Upgrade		394,000					394,000
Ketchikan International Airport & Pennock Is. Upgrade	185,316	450,000					635,316
Downtown Underground Upgrade	285,459	75,000					360,459
Silvis Substation Upgrade		125,000					125,000
AMI, Meters and Meter Replacement Parts		375,000					375,000
Transformer Purchase		475,000					475,000
Battery Systems & Chargers		244,000					244,000
Ketchikan Lakes Underground		525,000					525,000
System Sectionalizing and Fault Studies	239,000	19,500					258,500
Reimbursable Projects		550,000					550,000
34.5 kV Tie Breaker and Relay Spares		155,000					155,000
Bailey Lighting Upgrade		75,000					75,000
Bailey Mooring Dolphin Replacement		110,000					110,000
Operating Equipment		1,350,000					1,350,000
Vehicles & Moving Equipment		1,055,000					1,055,000
Additional Projects		756,000					756,000
Vehicle Lift Replacement		80,000					80,000
Beaver Falls Powerhouse Exterior	36,070	600,000					636,070
Electric Division Total	1,870,240	13,615,500					15,485,740

Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Funding Source - All Years

Division/Project	Prior Years	Revenue Generating Fund	Grants	Other	Revenue Bonds	State Drinking Water Loan Fund	Total
Telecommunications Division							
Normal Growth and Repair - Buildings		225,000					225,000
Normal Growth and Repair - CO Switching		675,000					675,000
Normal Growth and Repair - Copper Cable		100,000					100,000
Normal Growth and Repair - Fiber Cable		650,000					650,000
Normal Growth and Repair - CO Transmission		1,850,000					1,850,000
Normal Growth and Repair - Expansion		125,000					125,000
Normal Growth and Repair - Provisioning		280,000					280,000
Fiber to the Home		275,000					275,000
Remote Cabinets for Advanced Services		125,000					125,000
Core Network Upgrade		1,900,000					1,900,000
Server Environment		650,000					650,000
Multi-Dwelling Unit Project		700,000					700,000
Operating Equipment		250,000					250,000
PC Hardware & Software		240,000					240,000
Power Expansion/Reclamation		125,000					125,000
Visual Mapping Software		125,000					125,000
Network Monitoring		950,000					950,000
Vehicle Acquisition		950,000					950,000
Security		450,000					450,000
Headend Expansion		350,000					350,000
Internet Expansion	100,000	100,000			11,500,000		11,700,000
IPv4 Addressing		160,000					160,000
Video Set Top Boxes		300,000					300,000
4G-LTE		500,000					500,000
Microwave		125,000					125,000
Hosted		800,000					800,000
WiFi		250,000					250,000
Telecommunications Division Total	100,000	13,230,000			11,500,000		24,830,000

**Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program
Summary of Projects by Funding Source - All Years**

Division/Project	Prior Years	Revenue Generating Fund	Grants	Other	Revenue Bonds	State Drinking Water Loan Fund	Total
Water Division							
Filtration Facility-Preliminary Preparation Tasks		425,000				1,750,000	2,175,000
Schoenbar Water Mains - (Charter School - Middle School)	62,280					7,519,499	7,581,779
Water Meters - Business & Commercial Customers	290,322					1,034,678	1,325,000
SCADA PLC Controllers	50,000	810,000					860,000
Water Distribution Grid Improvements		150,000					150,000
Additional Projects		200,000					200,000
Water Service Upgrade Program		75,000					75,000
Backflow Prevention Program		15,000					15,000
Valley Court Utility Improvements	17,107	28,893					46,000
Highlands Reservoir Property Acquisition		270,000					270,000
Second Avenue Utility Improvements		1,315,800					1,315,800
West Fairy Chasm Utility Improvements		565,600					565,600
Skyline Water Main Replacement		10,000	180,400			180,400	370,800
Denali Ave. Utility Improvements		15,000	256,000			256,000	527,000
Evergreen Ave. Utility Improvements		15,000	220,000			220,000	455,000
Utility Vehicles		249,500					249,500
Water Division Total	419,709	4,144,793	656,400			10,960,577	16,181,479
TOTAL	2,827,341	31,010,293	656,400		11,500,000	10,960,577	56,954,611

**Ketchikan Public Utilities
2020 - 2024 Capital Improvement Program**

Department: General Manager

Project Title	Priority	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Financial & Accounting Information System Implementation	1	437,392	20,000		20,000					457,392
Total		437,392	20,000		20,000					457,392

Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		437,392	20,000		20,000					457,392
Total		437,392	20,000		20,000					457,392

Department: KPU General Manager			Project Priority: 1			Project Number:				
Project Title: Financial & Accounting Information System Implementation			Start Date: 01/07 End Date: 12/20			Estimated Project Cost:				
Description:			<p>The City awarded a contract to New World Systems for the acquisition of new financial and accounting information system and began implementation in September 2011. Anticipated project completion is December 2020. The total project cost is estimated at \$915,000. Finance is requesting that remaining funds that have been appropriated for this project be carried over to 2020. Funds will be used for hardware and software contingencies and New World resources to supplement the Finance Department's efforts during critical phases of the continuing implementation process. Scheduled for completion in 2020 is financial reporting, electronic personnel action forms and e-suites. The cost of this project is being funded equally by General Government and KPU.</p>			Design Land/Right-of-Way Consultation 51,975 Construction Equip, Software & Implementation Services 389,917 Other - Training 15,500 Project Total 457,392				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		437,392	20,000		20,000					457,392
Total		437,392	20,000		20,000					457,392

Ketchikan Public Utilities 2020 - 2024 Capital Improvement Program Division: Electric										
Project Title	Priority	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Generation (Hydro and Diesel) Projects										
Beaver Falls Project Relicensing	1	223,000	227,000	73,000	300,000	50,000		27,000		600,000
Bailey Generator No. 4 (BAG4) Turbo Upgrade	2			100,000	100,000					100,000
Bailey Unit No. 3 Rehabilitation	3	500,000		400,000	400,000					900,000
Bailey Unit No. 1 Rehabilitation	4		600,000	250,000	850,000					850,000
Diesel Generation Modernization	5	90,000	60,000		60,000					150,000
Beaver Falls Switch Gear Replacement	6	70,000	320,000		320,000	1,330,000				1,720,000
Whitman Tailrace Modification	9			25,000	25,000					25,000
Bailey Diesel Exhaust Blanket Replacement	10			20,000	20,000					20,000
Bailey Exhaust Stacks Re-Coating	25					25,000	225,000			250,000
Bailey Generator Radiator Replacement	28					300,000				300,000
Generator Rewind & Repair	29					650,000	700,000			1,350,000
Ketchikan Tunnel Penstock Valves Replacement	30	50,000				50,000	200,000			300,000
Generation Equipment Planning, Cleaning & Testing	32	191,395				50,000	50,000	50,000		341,395
Beaver Falls Governor Upgrade	33						250,000			250,000
Transmission and Distribution Projects										
OSI SCADA Upgrade	7			394,000	394,000					394,000
Ketchikan International Airport & Pennock Is. Upgrade	11	185,316	55,000	195,000	250,000	150,000	50,000			635,316
Downtown Underground Upgrade	12	285,459		25,000	25,000	50,000				360,459
Silvis Substation Upgrade	13			125,000	125,000					125,000
AMI, Meters and Meter Replacement Parts	14			125,000	125,000	125,000	125,000			375,000
Transformer Purchase	15			85,000	85,000	90,000	95,000	100,000	105,000	475,000
Battery Systems & Chargers	17			34,000	34,000	37,500	76,000	46,000	50,500	244,000
Ketchikan Lakes Underground	19			25,000	25,000	500,000				525,000
System Sectionalizing and Fault Studies	23	239,000	19,500		19,500					258,500
Reimbursable Projects	26			75,000	75,000	100,000	125,000	125,000	125,000	550,000
34.5 kV Tie Breaker and Relay Spares	27						50,000		105,000	155,000
General Plant Projects										
Warehouse Roof Repair and Replacement	8			170,000	170,000					170,000
Bailey Lighting Upgrade	16			75,000	75,000					75,000
Bailey Mooring Dolphin Replacement	18		110,000		110,000					110,000
Operating Equipment	20			250,000	250,000	275,000	275,000	275,000	275,000	1,350,000
Vehicles & Moving Equipment	21					255,000	350,000	350,000	100,000	1,055,000
Additional Projects	22			100,000	100,000	164,000	164,000	164,000	164,000	756,000
Vehicle Lift Replacement	24					80,000				80,000
Beaver Falls Powerhouse Exterior	31	36,070				600,000				636,070
Total		1,870,240	1,391,500	2,546,000	3,937,500	4,881,500	2,735,000	1,137,000	924,500	15,485,740
Source of Funds		Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		1,870,240	1,391,500	2,546,000	3,937,500	4,881,500	2,735,000	1,137,000	924,500	15,485,740
Total		1,870,240	1,391,500	2,546,000	3,937,500	4,881,500	2,735,000	1,137,000	924,500	15,485,740

Department: KPU Electric					Project Priority: 1	Project Number:				
Project Title: Beaver Falls Project Relicensing					Start Date: 01/18 End Date: 12/23	Estimated Project Cost:				
Description: <p>The Beaver Falls Hydroelectric Project is licensed through the Federal Energy Regulatory Commission (FERC) for a term of 30 years. KPU's current license expires in 2024. To renew its FERC license, KPU began the process in 2018 with development of a Preliminary Application Document (PAD), with Notice of Intent (NOI) that was filed in 2019. Following NEPA and tribal consultations, and completion of studies, a final license application is due in 2022. This process will require professional services for FERC regulatory work and numerous studies & surveys. Relicensing costs are highly variable and are dependent upon issues that arise during the consultation process.</p>						Design 600,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 600,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		223,000	227,000	73,000	300,000	50,000		27,000		600,000
Total		223,000	227,000	73,000	300,000	50,000		27,000		600,000

Division: Electric			Project Priority: 2			Project Number:				
Project Title: Bailey Generator No. 4 (BAG4) Turbo Upgrade			Start Date: 01/20 End Date: 12/20			Estimated Project Cost:				
Description: Bailey Generator No. 4 (BAG4) is a Wärtsilä 10.8MW diesel generator equipped with two (2) ABB turbochargers type VTR. ABB Turbo Systems Ltd issued a safety notice (VTR..4P/D/E Compressor casings) on August 27, 2019, which has identified these turbochargers as having a casing design flaw that presents a dangerous condition for KPU personnel and equipment. The remedy for this condition is to replace the air inlet casings with nodular air inlet casings. As a safety precaution, BAG4's operating limit has been limited to eighty-five percent (85%) of rating; which reduces the generating capacity of BAG4 by 1.6MW.						Design 100,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 100,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				100,000	100,000					100,000
Total				100,000	100,000					100,000

Division: Electric			Project Priority: 3			Project Number:				
Project Title: Bailey Unit No. 3 Rehabilitation			Start Date: 01/19 End Date: 12/20			Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction 400,000 Equipment 500,000 Other Project Total 900,000				
Description: Bailey Generator No. 3 (BAG3) is a Colt-Pielstick (Fairbanks Morse), which was built in 1975. During operation in November 2018, the unit suffered a piston failure. The unit has had multiple piston failures as it ages due to the piston design. The unit was temporarily repaired with a spare piston/liner. Factory representatives from Fairbanks Morse conducted a site visit to evaluate reliability and recommended upgrading to a new more robust piston design that will prevent these types of failures. In 2019, new pistons, connecting rods and liners were purchased for \$500,000. New funding is required for the installation of the new parts. The upgrade will result in a more reliable unit, which should reduce excessive lubricating oil consumption and eliminate the unit's de-rating. This project will fund the piston upgrade and will allow for additional upgrade of fuel delivery and monitoring components. KPU will competitively seek a qualified contractor in 2020 to install the new components and assist KPU with recommissioning BAG3.										
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		500,000		400,000	400,000					900,000
Total		500,000		400,000	400,000					900,000

Division: Electric			Project Priority: 4			Project Number:				
Project Title: Bailey Unit No. 1 Rehabilitation			Start Date: 01/19 End Date: 12/20			Estimated Project Cost:				
Description: Bailey Generator No. 1 (BAG1) was built in the 1970s. During operation in October 2018, BAG1 suffered a main bearing failure, which caused extensive damage to the powertrain. This project will fund the rehabilitation of the turbocharger, fuel delivery system and engine components including injectors, main journals, crankshaft, connecting rods, pistons, bearings and related components. The estimate assumes onsite work. The project may require additional funding if overhaul or repair of major components is not feasible or possible.						Design Land/Right-of-Way Construction Management Construction 325,000 Equipment 525,000 Other Project Total 850,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			600,000	250,000	850,000					850,000
Total			600,000	250,000	850,000					850,000

Division: Electric			Project Priority: 5			Project Number:				
Project Title: Diesel Generation Modernization			Start Date: 01/19 End Date: 12/20			Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment Other Project Total 150,000				
Description: Maintaining reliable diesel generation capacity for times of high-loads, low reservoir levels and hydroelectric and transmission-line outages is extremely important for the integrity of Ketchikan's electrical grid. An architecture and engineering consultant specializing in diesel generation and facilities will be hired to evaluate KPU's existing diesel generation capabilities at Bailey Power Plant and North Pt. Higgins Substation Generation. The evaluation will identify and recommend solutions for existing and future reliability. Items to address include limitations and vulnerabilities of the existing infrastructure; determination of what is needed for existing redundancy; evaluation of future system growth without the immediate ability to add new hydropower or other power sources; and recommendations for solutions and options encompassing additional diesel generation capacity, locations, fuel supplies, air quality permits, conceptual designs and budgetary estimates for detailed design and construction options of those solutions.										
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		90,000	60,000		60,000					150,000
Total		90,000	60,000		60,000					150,000

Division: Electric		Project Priority: 6		Project Number:					
Project Title: Beaver Falls Switch Gear Replacement		Start Date: 01/17		Estimated Project Cost:					
Description: The Beaver Falls powerhouse switchgear needs replacement and is an operating risk to the power plant. The existing equipment is 1940's vintage and beyond its reliable life. It has been identified as containing asbestos materials, which will need to be abated during the replacement of the equipment. This work requires the replacement/upgrade of the three (3) generator excitation systems, controls, breakers, protection relays, electrical panels, DC electrical equipment and modification of the control room. This is a major project requiring an established scope of work and detailed work schedule. This project will be completed in phases over multiple years and requires engineering services, planning, plans and specifications, the procurement of equipment, the demolition/installation of equipment and commissioning.		End Date: 12/21		Design/License 90,000					
		Land/Right-of-Way 10,000							
		Construction Management 470,000							
		Construction 1,000,000							
		Equipment 150,000							
		Other							
		Project Total 1,720,000							
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	70,000	320,000		320,000	1,330,000				1,720,000
Total	70,000	320,000		320,000	1,330,000				1,720,000

Department: Electric			Project Priority: 7			Project Number:				
Project Title: OSI SCADA Upgrade			Start Date: 01/20 End Date: 12/20			Estimated Project Cost:				
Description: KPU's Open Systems International (OSI) is 15 years old (2004) and was partially updated in 2011 to allow continued system support. By 2012, the clients were upgraded to Windows 7 and the server to Enterprise Linux® 5. In August 2019, the servers were temporarily repaired after a major server failure due to aged equipment. Currently, all changes are performed on a live system, which increases risks of database and system failures. The OSI software upgrade is an infrastructure and hardware migration for SCADA. The upgrade will be conducted in a single phase, minimizing project risk and delivery times, provide a cost-effective solution and allow for offline updating. The upgrade will bring the system up-to-date and allow effective communication with new hardware and components. The upgrade will retain all functionality and take advantage of enhancements and standard features.						Design				
						Land/Right-of-Way				
						Construction Management				
						Construction				
						Equipment 394,000				
						Other				
						Project Total 394,000				

Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				394,000	394,000					394,000

Division: Electric			Project Priority: 9			Project Number:				
Project Title: Whitman Tailrace Modification			Start Date: 01/20 End Date: 12/20			Estimated Project Cost:				
Description: <p>The Whitman Hydroelectric Project has a FERC license, which requires monitoring of the tailrace that has demonstrated that fish are attracted to and stranded in the tailrace during normal operations. Operational adjustments have not been adequate to eliminate fish stranding. KPU must make modifications to the tailrace structure. This will require consultation with fisheries management agencies and approval by FERC. The cost of the modifications will be dependent on the outcome of agency consultation and FERC design review.</p>						Design Land/Right-of-Way Construction Management Construction 25,000 Equipment Other Project Total 25,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				25,000	25,000					25,000
Total				25,000	25,000					25,000

Department: Electric					Project Priority: 10		Project Number:			
Project Title: Bailey Diesel Exhaust Blanket Replacement					Start Date: 01/20 End Date: 12/20		Estimated Project Cost:			
Description: Bailey Generator No. 3 (BAG3) and Bailey Generator No. 4 (BAG4) were built in 1975 and 1995 respectively. The units have nineteen (19) heat protection exhaust blankets that are deteriorating and are not performing as designed. The exhaust blankets are required to protect critical generator components.							Design Land/Right-of-Way Construction Management Construction Equipment 20,000 Other Project Total 20,000			
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				20,000	20,000					20,000
Total				20,000	20,000					20,000

Division: Electric					Project Priority: 11		Project Number:		
Project Title: Ketchikan International Airport and Pennock Island Upgrade					Start Date: 01/12 End Date: 12/22		Estimated Project Cost:		
Description: The existing armored submarine electrical cable that serves the airport is nearing the end of its useful life (installed mid-1970's). The armoring has also begun to corrode, leading to the installation of slip-on armoring on its Gravina beach landing. The cable originates behind the Bailey tank farm and runs through the area of Vigor, Taquan, Carlanna Creek and the Bailey fuel barge delivery point. Dredging in the early 1970's damaged the original KIA cable. Design and specifications have been developed, in conjunction with the State and the Borough, to install a new armored cable beginning at a location near the airport ferry terminal. The submarine cable and sectionalizing cabinets were ordered in 2019. 2020 will see procurement and installation of vaults, conduit, conductor and other related components. Installation of the submarine cable is programmed for 2021 as the State's airport ferry terminal project progresses.							Design/License 50,000 Land/Right-of-Way Construction Management Construction 350,000 Equipment 235,316 Other Project Total 635,316		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	185,316	55,000	195,000	250,000	150,000	50,000			635,316
Total	185,316	55,000	195,000	250,000	150,000	50,000			635,316

Division: Electric		Project Priority: 12		Project Number:					
Project Title: Downtown Underground Upgrade		Start Date: 1/20		Estimated Project Cost:					
Description: 2020 funding for this project provides for replacement of primary copper conductor and related components for installation between Vault 2, Vault 3 and Vault 4. Additional funding provides small scale tasks & upgrades as they become identified, as well as for the purchase of spare equipment & parts, including, but not limited to: - Conductor - Submersible transformers - Switch gear - Pumps - Vault lids - Adjoining overhead infrastructure (e.g. risers)		End Date: 12/21		Design 75,000					
				Land/Right-of-Way					
				Construction Management					
				Construction 50,000					
				Equipment 235,000					
				Other 459					
				Project Total 360,459					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	285,459		25,000	25,000	50,000				360,459
Total	285,459		25,000	25,000	50,000				360,459

Department: Electric			Project Priority: 13			Project Number:				
Project Title: Silvis Substation Upgrade			Start Date: 01/20 End Date: 12/20			Estimated Project Cost:				
Description: In 2018 and 2019, KPU purchased new substation equipment for the Silvis substation including a transformer, distribution switch, breaker and relays. KPU will competitively seek a qualified contractor in 2020 to provide auxiliary substation equipment and structures, site reconfigurations, oil containment repairs/upgrade, fencing, installation of the new KPU provided equipment and to assist KPU with recommissioning the substation.						Design Land/Right-of-Way Construction Management 125,000 Construction Equipment Other Project Total 125,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				125,000	125,000					125,000
Total				125,000	125,000					125,000

Division: Electric					Project Priority: 14		Project Number:			
Project Title: AMI, Meters and Meter Replacement Parts					Start Date: 01/19 End Date: 12/22		Estimated Project Cost:			
Description: The division continues phasing in the AMI meters to make available advanced metering functions, including automated billing. This project also funds replacement of the division's metering equipment and AMI software & hardware. This project also funds validating metering system accuracy and replacement of residential and commercial meters that are on a 20 year replacement schedule (or 5% per year).							Design Land/Right-of-Way Construction Management Construction Equipment 375,000 Other Project Total 375,000			
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				125,000	125,000	125,000	125,000			375,000
Total				125,000	125,000	125,000	125,000			375,000

Division: Electric					Project Priority: 15		Project Number:		
Project Title: Transformer Purchase					Start Date: 01/19 End Date: 12/24		Estimated Project Cost:		
Description: This capital account funds the routine and preventative replacement and upgrades of both pole mounted and pad mounted transformers throughout the system. Projected increases are anticipated due to the expected rise in the price of metals.							Design Land/Right-of-Way Construction Management Construction Equipment 475,000 Other Project Total 475,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			85,000	85,000	90,000	95,000	100,000	105,000	475,000
Total			85,000	85,000	90,000	95,000	100,000	105,000	475,000

Department: Electric			Project Priority: 16			Project Number:				
Project Title: Bailey Lighting Upgrade			Start Date: 01/20 End Date: 12/20			Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment 75,000 Other Project Total 75,000				
Description: The Bailey Power Plant generator bay lighting does not provide adequate lighting for routine maintenance activities and other required work in the powerhouse. The lighting was originally installed in 1972 and later partially updated in 1997. It is not uniform, does not meet current standards and does not provide enough lighting for a safe working environment. This upgrade will provide more efficient lighting, reduce cost and provide for proper lighting controls that meet current National Electric Code (NEC) requirements. In addition to upgrading, a reliable method is required for accessing the lighting to perform maintenance and may require modification to the existing bridge crane to add a maintenance platform, a luminaire lowering mechanism and/or an engineered solution.										
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				75,000	75,000					75,000
Total				75,000	75,000					75,000

Division: Electric			Project Priority: 17			Project Number:				
Project Title: Battery Systems and Chargers			Start Date: 01/20			Estimated Project Cost:				
Description:			End Date: 12/24							
There are ten battery systems and chargers throughout the KPU system within powerhouses and substations. Eight will be approaching end of life over the next ten (10) years. A battery system and charger failure will compromise system reliability. This project will start systematically replacing these systems. 2020 funding will replace two of these systems.						Design				
						Land/Right-of-Way				
						Construction Management				
						Construction				
						Equipment 244,000				
						Other				
						Project Total 244,000				

Department: KPU Electric			Project Priority: 18			Project Number:				
Project Title: Bailey Mooring Dolphin Replacement			Start Date: 01/18 End Date: 12/20			Estimated Project Cost:				
Description: Fuel is delivered to the Bailey Power Plant by barge. One of the mooring dolphins used to secure the barges is of wood pile construction and at the end of its useful life. This project will replace it with a steel pile cluster. Project costs include installation of the new dolphin, removal of the old wood piles, design, permitting and other associated costs.						Design 30,000 Land/Right-of-Way Construction Management Construction 80,000 Equipment Other Project Total 110,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			110,000		110,000					110,000
Total			110,000		110,000					110,000

Division: Electric			Project Priority: 19			Project Number:				
Project Title: Ketchikan Lakes Underground			Start Date: 01/20 End Date: 12/21			Estimated Project Cost:				
Description: <p>This project provides funding to install underground power & communications to Fawn Lake, Ketchikan Lakes and to the Granite Basin area, which will include approximately 7,500 linear feet of 2-inch & 4-inch PVC conduit, conduit elbows, pull boxes, sectionalizing cabinets, primary conductor, transformers, etc. Currently power at these sites is provided by solar panels with small back-up generators; with communications limited to line of site antennas. Funding in 2020 will allow for design, permitting and refined engineering estimates, with construction occurring in 2021.</p>						Design Land/Right-of-Way Construction Management Construction 525,000 Equipment Other Project Total 525,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				25,000	25,000	500,000				525,000
Total				25,000	25,000	500,000				525,000

Division: Electric		Project Priority: 20		Project Number:					
Project Title: Operating Equipment		Start Date: 01/20 End Date: 12/24		Estimated Project Cost:					
Description: This capital account provides for the purchase of new or replacement equipment used for the operation and maintenance of electrical service. 1) SCADA Critical Parts \$ 20,000 2) Substation and Powerhouse Electronic Meters, Relays and Control Eq. 20,000 3) New Test/Indication/Recorder Equipment, Repair & Recalibration 30,000 4) Meters, Probes, Hand Tools, Radios 25,000 5) Customer Current & Potential Transformers 40,000 6) Generation and Powerhouse Spare Parts 58,500 7) Bailey Recording System IP Phone Based 7,000 8) Replacement Conex Container for SPCC Equipment 4,500 9) NovaTech RTU Upgrade Orion 5R to Orion LX (Qty. 2) 15,000 10) Spare Powerhouse Generator Breakers 10,000 11) Control Equipment Upgrades 20,000				Design Land/Right-of-Way Construction Management Construction Equipment 1,350,000 Other Project Total 1,350,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			250,000	250,000	275,000	275,000	275,000	275,000	1,350,000
Total			250,000	250,000	275,000	275,000	275,000	275,000	1,350,000

Division: Electric					Project Priority: 21		Project Number:		
Project Title: Vehicles & Moving Equipment					Start Date: 01/21 End Date: 12/24		Estimated Project Cost:		
Description: There are no vehicles programed to be purchased in 2020. Projections, for larger vehicles (bucket trucks & digger/derricks), are based on anticipated work load and resulting wear & tear. <u>Projections:</u> 2021: Replace small work truck(s)/van(s); replace mini-excavator; replace diesel forklift with propane unit; consider adding used dozer/excavator (Whitman winter access) 2022: Replace large bucket truck; replace small work truck(s)/van(s) 2023: Replace digger/derrick truck 2024: Replace small work truck(s)/van(s)							Design Land/Right-of-Way Construction Management Construction Equipment 1,055,000 Other Project Total 1,055,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund					255,000	350,000	350,000	100,000	1,055,000
Total					255,000	350,000	350,000	100,000	1,055,000

Division: Electric					Project Priority: 22		Project Number:		
Project Title: Additional Projects					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This project represents funds for materials and labor for unidentified jobs that the division will be called upon to perform in 2020. Examples of additional projects include the installation of new transformers and banks of transformers, upgrading existing transformers and banks and upgrading secondary lift poles. These non-reimbursable projects are O&M in nature but are capital since they represent new installations.							Design Land/Right-of-Way Construction Management Construction Equipment Other Project Total		
							756,000		
								756,000	
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			100,000	100,000	164,000	164,000	164,000	164,000	756,000
Total			100,000	100,000	164,000	164,000	164,000	164,000	756,000

Division: Electric					Project Priority: 23		Project Number:		
Project Title: System Sectionalizing and Fault Studies					Start Date: 01/15 End Date: 12/20		Estimated Project Cost:		
Description: System sectionalizing provides better reliability during power interruptions by isolating electrical fault conditions. Fault studies help define what equipment and equipment settings are necessary to minimize faults and protect equipment and personnel during fault events. This project will implement engineering recommendations by installing system sectionalizing equipment and updating system protective relay settings. Additionally, fault studies are required within KPU facilities to evaluate arc-flash hazards. Upon completion of additional fault studies, this CIP will fund required evaluation software, hardware and/or equipment required to implement engineering recommendations.							Design/License 108,500 Land/Right-of-Way Construction Management Construction Equipment 150,000 Other Project Total 258,500		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	239,000	19,500		19,500					258,500
Total	239,000	19,500		19,500					258,500

Division: Electric					Project Priority: 24		Project Number:		
Project Title: Vehicle Lift Replacement					Start Date: 01/21 End Date: 12/21		Estimated Project Cost:		
Description: The existing stationary 4-post vehicle lift has a capacity of 12,000 pounds, while many of the 1-ton bucket trucks weigh 18,000 pounds. The intent is to purchase a set of four (4) mobile wheel lifts with a capacity of at least 20,000 pounds.							Design Land/Right-of-Way Construction Management Construction Equipment 80,000 Other Project Total 80,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund					80,000				80,000
Total					80,000				80,000

Division: Electric		Project Priority: 25		Project Number:					
Project Title: Bailey Exhaust Stack Re-Coating		Start Date: 1/21		Estimated Project Cost:					
Description: This project is to sandblast and paint all four Bailey diesel generator exhaust stacks with a proper high-heat anti-corrosion coating. These efforts will mitigate further corrosion that may otherwise lead to eventual high cost repairs and/or replacement. Work in 2020 will include development of detailed scope, specifications, and a more refined estimate to undertake the work in 2021.		End Date: 1/22		Design/License 25,000					
				Land/Right-of-Way					
				Construction Management					
				Construction 225,000					
				Equipment					
				Other					
				Project Total 250,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund					25,000	225,000			250,000
Total					25,000	225,000			250,000

Division: Electric					Project Priority: 26		Project Number:		
Project Title: Reimbursable Projects					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account represents funds for materials for work that the division will be called upon to perform at the request of outside agencies and customers. Examples of reimbursable projects are new line extensions and damage repairs to the electrical system resulting from accidents, negligence and vandalism. The division's expectation is that such work will be reimbursed 100%. This CIP provides a means for warehouse inventory and transformer accounts to be replenished due to customer projects.							Design Land/Right-of-Way Construction Management Construction Equipment 550,000 Other Project Total 550,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			75,000	75,000	100,000	125,000	125,000	125,000	550,000
Total			75,000	75,000	100,000	125,000	125,000	125,000	550,000

Division: Electric			Project Priority: 27			Project Number:				
Project Title: 34.5 kV Breaker and Relay Spares			Start Date: 01/22 End Date: 12/24			Estimated Project Cost:				
Description: 34.5kV (38kV) Recloser with control cables and controller are used in the transmission system and substation. These are critical components for system sectionalizing and isolation.						Design Land/Right-of-Way Construction Management Construction Equipment 155,000 Other Project Total 155,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund							50,000		105,000	155,000
Total							50,000		105,000	155,000

Department: KPU Electric					Project Priority: 29		Project Number:			
Project Title: Generator Rewind & Repair					Start Date: 01/21 End Date: 12/22		Estimated Project Cost:			
Description: Typical life expectancy for generator windings is 30-35 years. Generators in service beyond 50 years become a major concern. They are at an elevated risk of failure causing loss of generation and/or potential powerhouse fires. This budget is to provide funding for two rewinds and other repairs as identified through testing and inspection.							Design Land/Right-of-Way Construction Management Construction 850,000 Equipment 500,000 Other Project Total 1,350,000			
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						650,000	700,000			1,350,000
Total						650,000	700,000			1,350,000

Division: Electric					Project Priority: 30		Project Number:		
Project Title: Ketchikan Tunnel Penstock Valves Replacement					Start Date: 01/13		Estimated Project Cost:		
Description: <p>The three gate valves on the penstocks at the downstream end of the Ketchikan power tunnel are old and are nearing the end of their reliable service life. They must be capable of closing under flow and are critical to penstock safety. The valves are embedded in concrete and will be difficult to remove or to replace due to their location. As the tunnel provides the City's only potable water supply, it cannot be drained during the work. One of the first steps is to run an ROV through the penstocks to assess the condition of the upstream face of the tunnel plug and the lower reaches of the tunnel. Assuming no issues are found with the inspection, valve rehabilitation could follow.</p>					End Date: 12/22		Design 70,000 Land/Right-of-Way Construction Management Construction 180,000 Equipment 50,000 Other Project Total 300,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	50,000				50,000	200,000			300,000
Total	50,000				50,000	200,000			300,000

Division: Electric		Project Priority: 31		Project Number:						
Project Title: Beaver Falls Powerhouse Exterior		Start Date: 01/13		Estimated Project Cost:						
Description: The exterior of the Beaver Falls Powerhouse, which was built in 1954, contains asbestos coating that is failing. Signs of water intrusion into the concrete walls and structure are apparent. This project will entail an engineering evaluation of the building structure, an environmental evaluation, creation of plans and specifications for asbestos removal and disposal, concrete/structural repairs, a new coating system and required contractual work.		End Date: 12/21		Design 10,000						
				Land/Right-of-Way						
				Construction Management						
				Construction 626,070						
				Equipment						
				Other						
				Project Total 636,070						
Source of Funds		Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		36,070				600,000				636,070
Total		36,070				600,000				636,070

Division: Electric					Project Priority: 32		Project Number:		
Project Title: Generation Equipment Planning, Cleaning & Testing					Start Date: 01/14 End Date: 12/23		Estimated Project Cost: Design/License Land/Right-of-Way Construction Management Construction Equipment Other		
Description: This project provides for comprehensive tests and evaluation of generator stator, rotor windings and generator related equipment. Detailed cleaning and generator repairs are necessary. Due to the scope of this work and required equipment, contracted work may be necessary. This work is essential in developing an updated plan for future rewinds and other major generator work. This budget is to provide funding for generator planning activities, cleaning, testing and required equipment in the KPU generation system.							341,395		
							Project Total 341,395		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	191,395				50,000	50,000	50,000		341,395
Total	191,395				50,000	50,000	50,000		341,395

Division: Electric					Project Priority: 33		Project Number:		
Project Title: Beaver Falls Governor Upgrade					Start Date: 01/22 End Date: 12/22		Estimated Project Cost:		
Description: KPU's hydro systems lack provision for isochronous operation (precise frequency control) if islanded, as sometimes occurs during outages and restoration. This proposed upgrade would provide SCADA selection for isoc/droop governor operation for Beaver Falls Nos. 3 & 4.							Design Land/Right-of-Way Construction Management Construction Equipment 250,000 Other Project Total 250,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						250,000			250,000
Total						250,000			250,000

Ketchikan Public Utilities 2020 - 2024 Capital Improvement Program Division: Telecommunications										
Project Title	Priority	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
REGULATED										
Normal Growth and Repair - Buildings	1			25,000	25,000	50,000	50,000	50,000	50,000	225,000
Normal Growth and Repair - CO Switching	2			25,000	25,000	400,000	100,000	100,000	50,000	675,000
Normal Growth and Repair - Copper Cable	3			20,000	20,000	20,000	20,000	20,000	20,000	100,000
Normal Growth and Repair - Fiber Cable	4			150,000	150,000	150,000	150,000	100,000	100,000	650,000
Normal Growth and Repair - CO Transmission	5			250,000	250,000	250,000	250,000	200,000	900,000	1,850,000
Normal Growth and Repair - Expansion	6			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Normal Growth and Repair - Provisioning	7			80,000	80,000	50,000	50,000	50,000	50,000	280,000
Fiber to the Home	8			75,000	75,000	50,000	50,000	50,000	50,000	275,000
Remote Cabinets for Advanced Services	9			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Core Network Upgrade	10			100,000	100,000	600,000	600,000	400,000	200,000	1,900,000
Server Environment	11			100,000	100,000	100,000	100,000	250,000	100,000	650,000
Multi-Dwelling Unit Project	12			125,000	125,000	125,000	150,000	150,000	150,000	700,000
Operating Equipment	13			50,000	50,000	50,000	50,000	50,000	50,000	250,000
PC Hardware & Software	14			45,000	45,000	45,000	50,000	50,000	50,000	240,000
Power Expansion/Reclamation	15			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Visual Mapping Software	16			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Network Monitoring	17			100,000	100,000	150,000	150,000	400,000	150,000	950,000
Vehicle Acquisition	18			150,000	150,000	200,000	200,000	200,000	200,000	950,000
Security	19						100,000	100,000	125,000	450,000
NON-REGULATED										
Headend Expansion	20	100,000	5,010,000	50,000	50,000	50,000	100,000	100,000	50,000	350,000
Internet Expansion	21			6,490,000	11,500,000	25,000	25,000	25,000	25,000	11,700,000
IPv4 Addressing	22			80,000	80,000	80,000				160,000
Video Set Top Boxes	23			75,000	75,000	75,000	50,000	50,000	50,000	300,000
4G/LTE	24			100,000	100,000	100,000	100,000	100,000	100,000	500,000
Microwave	25			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Hosted	26			200,000	200,000	150,000	150,000	150,000	150,000	800,000
WiFi	27			50,000	50,000	50,000	50,000	50,000	50,000	250,000
Total		100,000	5,010,000	8,465,000	13,475,000	2,995,000	2,670,000	2,795,000	2,795,000	24,830,000
Source of Funds		Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		100,000		1,975,000	1,975,000	2,995,000	2,670,000	2,795,000	2,795,000	13,330,000
Proposed Revenue Bond			5,010,000	6,490,000	11,500,000					11,500,000
Total		100,000	5,010,000	8,465,000	13,475,000	2,995,000	2,670,000	2,795,000	2,795,000	24,830,000

Division: Telecommunications		Project Priority: 2		Project Number:					
Project Title: Normal Growth and Repair - Central Office Switching		Start Date: 01/20 End Date: 12/24		Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment 675,000 Other Project Total 675,000					
Description: This capital account provides funding for reliability upgrades and additional capacity equipment required for the division's telecommunications switching and voice over Internet protocol network. Included are funds to enhance least cost routing and fraud detection, as well as to ensure that features work with all residential lines. Additionally, this budget item purchases one new softswitch to replace the end-of-life T7000 class 5 switch in 2021 to work in tandem with the Broadworks feature softswitch. This also includes funding to replace the ACME session border controllers with newer hardware and software to facilitate the protection of all of the division's ip voice platforms.									
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			25,000	25,000	400,000	100,000	100,000	50,000	675,000

Division: Telecommunications					Project Priority: 4		Project Number:		
Project Title: Normal Growth and Repair - Fiber Cable					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for additional fiber optic network for business data circuits including smaller fiber projects necessary for the efficient operation of the Utility. This capital account also includes materials and labor for continued installation of fiber service drops for customers who order high bandwidth television services in areas served by the division's fiber cable network.							Design 13,000 Land/Right-of-Way Construction Management Construction 357,500 Equipment 279,500 Other Project Total 650,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			150,000	150,000	150,000	150,000	100,000	100,000	650,000
Total			150,000	150,000	150,000	150,000	100,000	100,000	650,000

Division: Telecommunications		Project Priority: 5		Project Number:					
Project Title: Normal Growth and Repair - CO Transmission		Start Date: 01/20 End Date: 12/24		Estimated Project Cost:					
Description: This capital account provides funding for the purchase and installation of additional intelligent Network Interface Devices (NIDS) and Optical Network Terminals (ONTs) required to deliver service to customers served via fiber optic cable. This capital account also includes funding for required/associated internal network fiber ports. Also included is funding for network transmission electronics necessary to serve business customers with new private line services including digital data service, optical wide area network, T1s, etc. This capital account also includes the funding to finish the migration off the division's legacy platforms, which are no longer supported, to the standard Adtran platforms for both Optical and VDSL services. In 2024 the Total Access Adtran platform will likely be end-of-life, so KPU will need to implement a new FTTH platform.				Design Land/Right-of-Way Construction Management Construction 150,000 Equipment 1,700,000 Other Project Total 1,850,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			250,000	250,000	250,000	250,000	200,000	900,000	1,850,000
Total			250,000	250,000	250,000	250,000	200,000	900,000	1,850,000

Division: Telecommunications		Project Priority: 6		Project Number:					
Project Title: Normal Growth and Repair - Expansion		Start Date: 01/20		Estimated Project Cost:					
Description: This capital account provides funding to upgrade, maintain and expand the division's "off island" connections, ensuring reliable services are provided to underserved, outlying areas. This project utilizes both wireless and fiber technologies to provide services to remote areas.		End Date: 12/24		Design					
				Land/Right-of-Way					
				Construction Management					
				Construction 25,000					
				Equipment 100,000					
				Other					
				Project Total 125,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			25,000	25,000	25,000	25,000	25,000	25,000	125,000

Division: Telecommunications					Project Priority: 8		Project Number:		
Project Title: Fiber to the Home					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for contract labor to deploy fiber cable and terminals necessary to bring fiber to homes, businesses and multi-dwelling units throughout Ketchikan. Additionally, this project will allow the division to look into providing fiber into outlying, underserved areas.							Design 6,875 Land/Right-of-Way Construction Management Construction 103,125 Equipment 165,000 Other Project Total 275,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			75,000	75,000	50,000	50,000	50,000	50,000	275,000
Total			75,000	75,000	50,000	50,000	50,000	50,000	275,000

Division: Telecommunications					Project Priority: 9		Project Number:		
Project Title: Remote Cabinets for Advanced Services					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for the maintenance and/or replacement of remote switching cabinets (RSC). This project also equips RSC's with remote monitoring sensors, ensuring technicians can remotely detect proper operation prior to failure. This account also funds the out-of-band network back to the Central Office.							Design 3,125 Land/Right-of-Way Construction Management Construction 9,375 Equipment 112,500 Other Project Total 125,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			25,000	25,000	25,000	25,000	25,000	25,000	125,000
Total			25,000	25,000	25,000	25,000	25,000	25,000	125,000

Division: Telecommunications					Project Priority: 11		Project Number:		
Project Title: Server Environment					Start Date: 01/20		Estimated Project Cost:		
Description: <p>This capital account provides funding for the growth, expansion and upgrade of the division's data storage and virtualized server environment. This allows the division to standardize its server infrastructure, while collapsing the physical footprint and reducing overall power consumption. Additionally, this project allows for the deployment of VM technology to supplement the division's hosted datacenter service offerings and offer cloud based services. In 2020, funding will be provided to develop a separate hardware/software virtualized environment that is credentialed. In 2023, a likely refresh of the hardware will become necessary.</p>					End Date: 12/24		Design 16,250 Land/Right-of-Way Construction Management Construction 16,250 Equipment 617,500 Other Project Total 650,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			100,000	100,000	100,000	100,000	250,000	100,000	650,000
Total			100,000	100,000	100,000	100,000	250,000	100,000	650,000

Division: Telecommunications					Project Priority: 12		Project Number:		
Project Title: Multi-Dwelling Unit Project					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for the purchase of multi-dwelling unit (MDU) electronics, enabling provision of triple-play services to the 40% of KPU customers residing in apartment buildings, via a single fiber (eliminating the need to run multiple fibers into multi-dwelling units). This project will eliminate the corresponding need to install and maintain the per each fiber electronics required for multiple fiber installations.							Design 17,500 Land/Right-of-Way Construction Management Construction 17,500 Equipment 665,000 Other Project Total 700,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			125,000	125,000	125,000	150,000	150,000	150,000	700,000
Total			125,000	125,000	125,000	150,000	150,000	150,000	700,000

Division: Telecommunications					Project Priority: 13		Project Number:		
Project Title: Operating Equipment					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for the test equipment utilized by KPU technicians to test, repair and install high speed data and voice circuits, particularly as it relates to KPU's expanded fiber optic network and 4G networks.							Design Land/Right-of-Way Construction Management Construction Equipment 250,000 Other Project Total 250,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			50,000	50,000	50,000	50,000	50,000	50,000	250,000
Total			50,000	50,000	50,000	50,000	50,000	50,000	250,000

Division: Telecommunications					Project Priority: 14		Project Number:		
Project Title: PC Hardware and Software					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account funds replacement of outdated computers (identified by the Information Technology Department for replacement) and purchases of new hardware and software for the network operations control center. Laptops, iPads, and desktop computers for troubleshooting/training out in the field or in the Central Office.							Design		
							Land/Right-of-Way		
							Construction Management		
							Construction		
							Equipment 240,000		
							Other		
							Project Total 240,000		

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Division: Telecommunications Project Title: Network Monitoring Description: <p>This capital account provides funding for the purchase of hardware and software critical to enhance the monitoring and complete visibility of the KPU network for the purposes of resolving customer issues quickly and putting the network in a place where a variety of monitoring products can be deployed to identify threats. In 2020, an effort will be made to passively tap into critical parts of the network to apply cyber analytics and monitor traffic signatures to react faster to outages and see problems before they develop. In 2021 and 2022 there will be an effort to add 100G monitoring to key parts of the network when core routing upgrades will occur. In 2023, the division will look at upgrading its network management software.</p>					Project Priority: 17 Start Date: 01/20 End Date: 12/24		Project Number: Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment 332,500 Other 617,500 Project Total 950,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			100,000	100,000	150,000	150,000	400,000	150,000	950,000
Total			100,000	100,000	150,000	150,000	400,000	150,000	950,000

Division: Telecommunications		Project Priority: 18		Project Number:	
Project Title: Vehicle Acquisition		Start Date: 01/20 End Date: 12/24		Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment 950,000 Other Project Total 950,000	
Description: This capital account funds replacement of aging vehicles to prevent excessive maintenance costs and breakdowns affecting KPU Telecom's ability to meet customer demands. For 2020 this will include replacement of two (2) Chevrolet Astro cargo vans that are 15 years old and one (1) Clark forklift that is 27 years old.					

Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			150,000	150,000	200,000	200,000	200,000	200,000	950,000
Total			150,000	150,000	200,000	200,000	200,000	200,000	950,000

Department: Telecommunications			Project Priority: 19			Project Number:				
Project Title: Security			Start Date: 01/20 End Date: 12/24			Estimated Project Cost:				
Description: This capital account provides funding for the development of efforts to secure the network from internal and external threats in detecting and preventing the division and it's customers from unauthorized intrusions or denial of service. Detecting and responding to cyberattacks in real-time requires a specialized set of analytical software to protect the network.						Design 50,000 Land/Right-of-Way Construction Management Construction Equipment 400,000 Other Project Total 450,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						100,000	100,000	125,000	125,000	450,000
Total						100,000	100,000	125,000	125,000	450,000

Division: Telecommunications		Project Priority: 20		Project Number:	
Project Title: Headend Expansion		Start Date: 01/20 End Date: 12/24		Estimated Project Cost:	
Description: This capital account provides funding for the growth and change of the Video Distribution platform in the Headend due to normal business growth and change. Additionally, this project will fund increased redundancy and diversity in the division's video delivery platform along with some encryption to protect content and ensure compliance with all regulatory bodies. Lastly, this capital account will fund a conversion to MPEG-4, allowing KPU to more efficiently distribute video.				Design 1,750 Land/Right-of-Way Construction Management Construction 17,500 Equipment 330,750 Other Project Total 350,000	

Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			50,000	50,000	50,000	100,000	100,000	50,000	350,000
Total			50,000	50,000	50,000	100,000	100,000	50,000	350,000

Division: Telecommunications					Project Priority: 21		Project Number:		
Project Title: Internet Expansion					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account provides funding for the growth and change of the Internet distribution systems and off-island transport networks providing broadband, wireless and IPTV connection feeds to the division's non-regulated customers. The 2020 Internet expansion budget represents the second year of a multi-year project to build out the additional transport capacity to support the increasing data demands of retail and wholesale broadband customers.							Design 175,500		
							Land/Right-of-Way		
							Construction Management		
							Construction 7,020,000		
							Equipment 4,504,500		
							Other		
							Project Total 11,700,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund - Growth Proposed Revenue Bond	100,000	5,010,000	6,490,000	11,500,000	25,000	25,000	25,000	25,000	200,000 11,500,000
Total	100,000	5,010,000	6,490,000	11,500,000	25,000	25,000	25,000	25,000	11,700,000

Department: Telecommunications			Project Priority: 22			Project Number:				
Project Title: IPv4 Addressing			Start Date: 01/20 End Date: 12/21			Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment Other Project Total				
Description: This capital account provides funding for the continued growth and need for additional IPv4 addressing in the division's network. This account funds the purchase an additional 8,192 addresses in order to accommodate current need and some future growth for 2020 and 2021. Post 2021 an effort will be made to use IPv6 addressing to handle future internet addressing growth.						160,000 160,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				80,000	80,000	80,000				160,000
Total				80,000	80,000	80,000				160,000

Division: Telecommunications					Project Priority: 23		Project Number:		
Project Title: Video Set Top Boxes					Start Date: 01/20 End Date: 12/24		Estimated Project Cost:		
Description: This capital account funds the purchase of customer set top boxes (STB's) utilized in the provision of CommVision television service. This account also funds the purchase of Personal Video Recorders (PVRs) required to provide time shifted television.							Design Land/Right-of-Way Construction Management Construction Equipment 300,000 Other Project Total 300,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			75,000	75,000	75,000	50,000	50,000	50,000	300,000
Total			75,000	75,000	75,000	50,000	50,000	50,000	300,000

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Division: Telecommunications		Project Priority: 26		Project Number:					
Project Title: Hosted		Start Date: 01/20		Estimated Project Cost:					
Description:		End Date: 12/24							
This capital account provides funding to upgrade, maintain and expand business offerings on the division's Hosted Platforms. Also included in the 2020 project are funds for a test bench so system changes and adaptations can be tested without impacting live Hosted telephone systems and funding for hotel management software and training.				Lab System 120,000					
				Jazz 120,000					
				Training 184,000					
				Licenses 256,000					
				Integration 120,000					
				Project Total 800,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			200,000	200,000	150,000	150,000	150,000	150,000	800,000

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Ketchikan Public Utilities 2020 - 2024 Capital Improvement Program										
Division: Water										
Project Title	Priority	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Filtration Facility-Preliminary Preparation Tasks	1			425,000	425,000	637,500	1,112,500			2,175,000
Schoenbar Water Mains - (Charter School - Middle School)	2	62,280	1,545,720	5,973,779	7,519,499					7,581,779
Water Meters - Business & Commercial Customers	3	290,322	1,034,678		1,034,678					1,325,000
SCADA PLC Controllers	4	50,000		260,000	260,000		265,000		285,000	860,000
Water Distribution Grid Improvements	5			30,000	30,000	30,000	30,000	30,000	30,000	150,000
Additional Projects	6			40,000	40,000	40,000	40,000	40,000	40,000	200,000
Water Service Upgrade Program	7			15,000	15,000	15,000	15,000	15,000	15,000	75,000
Backflow Prevention Program	8			3,000	3,000	3,000	3,000	3,000	3,000	15,000
Valley Court Utility Improvements	9	17,107	28,893		28,893					46,000
Highlands Reservoir Property Acquisition	10					270,000				270,000
Second Avenue Utility Improvements	11					15,000			1,300,800	1,315,800
West Fairy Chasm Utility Improvements	12					15,000			550,600	565,600
Skyline Water Main Replacement	13					10,000			360,800	370,800
Denali Ave. Utility Improvements	14					15,000			512,000	527,000
Evergreen Ave. Utility Improvements	15					15,000			440,000	455,000
Utility Vehicles	16					37,500	118,000	94,000		249,500
Total		419,709	2,609,291	6,746,779	9,356,070	1,103,000	1,583,500	182,000	3,537,200	16,181,479
Source of Funds		Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		158,107	28,893	770,000	798,893	833,000	1,583,500	182,000	373,000	3,928,500
Revenue Bonds - ADWF Loan		261,602	2,580,398	5,976,779	8,557,177				1,582,100	10,400,879
Proposed State 50% Municipal Assistance Funding						270,000			1,582,100	1,852,100
		419,709	2,609,291	6,746,779	9,356,070	1,103,000	1,583,500	182,000	3,537,200	16,181,479

Department: Water			Project Priority: 1			Project Number:				
Project Title: Filtration Facility - Preliminary Preparation Tasks			Start Date: 01/20			Estimated Project Cost:				
Description:			End Date: 12/24			Design 2,175,000				
<p>During October 2019, Ketchikan's water system violated Federal Regulation CFR 141.71 as it applies to unfiltered water systems. The 6-month rolling average of samples collected between May and October from Ketchikan Lake's raw, undisinfected water has exceeded the CFR's minimum allowable level requirement in that at least 90% of the 100 milliliter water samples must contain 20 or less fecal coliform colonies. Anticipating that ADEC will soon make the decision to begin negotiations for a new new Compliance Order by Consent to begin Ketchikan's construction of a modern filtration system, KPU asked Jacobs CH2M to prepare a document that is appropriate for budgetary planning purposes in 2020. These numbers are not a formal scope of services and fee proposal but are just a rough order of magnitude suitable for budgetary purposes. Further information will be provided as soon as it becomes available.</p>						Land/Right-of-Way				
						Construction Management				
						Construction				
						Equipment				
						Other				
						Project Total 2,175,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund Proposed Revenue Bonds - ADWF Loan				425,000	425,000	637,500	1,112,500			425,000 1,750,000
Total				425,000	425,000	637,500	1,112,500			2,175,000

Division: Water		Project Priority: 2		Project Number:					
Project Title: Schoenbar Water Mains (Charter School - Middle School)		Start Date: 01/18		Estimated Project Cost:					
Description:		End Date: 12/20		Design 62,280					
Repairs are needed to the 36-inch ductile iron water main in Schoenbar Road which is the sole municipal water supply. Although this entire main is cathodically protected, due to a lack of electrical bonding to a segment by the contractor, there was an electrolytic failure in 2011. In addition, during the last 12 months there have been three further major failures which appears to be caused by severe electrochemical galvanic corrosion to the ductile-iron pipe. Further failures are imminent which requires its immediate replacement with non-corrosive HDPE pipe. In addition, this project will also allow 650 feet of undersized and fragile cast-iron mains in the same portion of the roadway to be replaced beginning at Valley Forge and continuing south towards the northerly entrance to Schoenbar Middle School. This work will be done in conjunction with the Wastewater Division to replace the sewers in the same roadway using funds authorized in the SFY 2018 Clean Water Fund Priority List. The State of Alaska Municipal Grants & Loans program for SFY 2018 authorized Ketchikan's submittal of a loan request in the amount of \$1,591,967 and will be funded through use of a portion of the \$5-million bond funding amount authorized by the voters at the October 2014 election. In addition to a loan subsidy offer of \$662,400, ADEC has also offered to amend and combine both Schoenbar Phases into a single loan amount upon the submission of a revised scope and amount by August 31, 2019. Based upon current engineer's estimates, the amended amount requested will be \$5,973,779.				Land/Right-of-Way					
				Construction Management					
				Construction 6,857,099					
				Equipment					
				Other (Loan Subsidy) 662,400					
				Project Total 7,581,779					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund	16,000								16,000
Revenue Bonds - ADWF Loan	46,280	1,545,720	5,973,779	7,519,499					7,565,779
Total	62,280	1,545,720	5,973,779	7,519,499					7,581,779

Department: Water					Project Priority: 3		Project Number:		
Project Title: Water Meters - Business & Commercial Customers					Start Date: 01/18 End Date: 12/21		Estimated Project Cost:		
Description: Metering commercial water and wastewater customers will begin in January 2021. In 2019 following a loan offer from the Alaska Department of Environmental Conservation, a bond has been issued to finance the purchase and installation of water meters on the premises of Ketchikan's approximately 450 commercial & business customers. The initial contract to purchase and install 70 of these meters was issued in July 2019 and will be completed by the end of the year. A capital investment of \$2,150,000 is needed and will be shared equally by the Water and Wastewater Divisions and will be accounted for in their respective enterprise funds. In addition, annual appropriations to the Water Division's operating budget will be requested beginning in 2021 to fund the contracted repairs, maintenance and testing of these meters. Annual debt service for the Water Division's share of purchasing and installing the meters is projected to be \$72,807. This will necessitate an additional 8.6% increase in water rates if assessed solely against commercial customers. This increase can be reduced to 3.9% if assessed against all customers of the Water Division.							Design 75,000 Land/Right-of-Way Construction Management Construction 1,250,000 Equipment Other Project Total 1,325,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund Revenue Bonds - ADWF Loan	75,000 215,322	1,034,678		1,034,678					75,000 1,250,000
Total	290,322	1,034,678		1,034,678					1,325,000

Department: Water			Project Priority: 4			Project Number:				
Project Title: SCADA PLC Controllers			Start Date: 01/19 End Date: 12/24			Estimated Project Cost:				
Description: Collectively, KPU has three Allen-Bradley Programmable Logic Controllers (PLCs) installed at the UV Facility, the Chlorination Plant, and the Ammonia Addition Facility. They are each providing continuous supervisory control over specific critical components within KPU's complex, computer-controlled, disinfection process. This version of Allen Bradley PLCs, which were introduced in 2005, are expected to cease receiving any further factory support within the next couple of years. This includes no longer maintaining any inventory of spare parts or the necessary input/ output (I/O) modules. One PLC is located at the Water Treatment UV Facility (CP-100), another at the Old Chlorination Building (CP-300), and the third in the Ammonia Building (CP-400). The approach is to migrate to the Allen-Bradley ControlLogix PLC platform and split the replacements into three phases spread over several years beginning with CP-100.						Design 150,000 Land/Right-of-Way Construction Management Construction 525,000 Equipment 185,000 Other Project Total 860,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund		50,000		260,000	260,000		265,000		285,000	860,000
Total		50,000		260,000	260,000		265,000		285,000	860,000

[illegible]

Division: Water					Project Priority: 6		Project Number: Design Land/Right-of-Way Construction Management Construction 200,000 Equipment Other Project Total 200,000				
Project Title: Additional Projects					Start Date: 01/20						
					End Date: 12/24						
Description: This account provides for the cost of fire hydrants and other related materials, which are provided by the Utility in water line extensions and are then incorporated into the municipal water system. This account also provides a source of funds for raising or replacing valve boxes in City streets when Public Works' annual repaving projects occur. Although specific streets have not yet been selected for asphalt paving in 2019, there will be paving scheduled for next year. This project has been an ongoing initiative of the division to make incremental improvements in cooperation with Public Works Department projects and other community projects.											
Source of Funds			Prior Years	Adopted 2020			Projected Requirements				
				Reappro- priated	New Funding	Total	2021	2022	2023	2024	Total Project
Revenue Generating Fund					40,000	40,000	40,000	40,000	40,000	40,000	200,000
Total					40,000	40,000	40,000	40,000	40,000	40,000	200,000

Division: Water		Project Priority: 7			Project Number: Design Land/Right-of-Way Construction Management Construction 75,000 Equipment Other Project Total 75,000					
Project Title: Water Service Upgrade Program		Start Date: 01/20								
Description: The water service upgrade program was initiated in 1997, and has been an ongoing division initiative to allow a number of residents to upgrade their individual water services. The division proposes to continue offering this program in 2019. Numerous water services, from the main to the residence, are in need of replacement to KPU standards. After completion of the work and inspection by the division, this program allows the customer to provide cost documentation and receive a grant-in-aid. \$500 is available for work undertaken on private property and up to \$4,000 is available for work undertaken within the right-of-way. As a result of homeowners participating in the program, KPU will assume full responsibility for future repairs within the right-of-way as long as they are not caused by negligence on the part of the property owner.		End Date: 12/24								
Source of Funds		Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund				15,000	15,000	15,000	15,000	15,000	15,000	75,000
Total				15,000	15,000	15,000	15,000	15,000	15,000	75,000

Division:	Water	Project Priority:	8	Project Number:					
Project Title:	Backflow Prevention Program	Start Date:	01/20						
Description:	This grant-in-aid program was established in 1995, and has been an ongoing division initiative to encourage businesses to install backflow preventers to help protect the municipal water system. The division proposes to continue offering this program in 2019. This program is part of ADEC's mandated cross-connection control regulations, which require the Utility to be responsible for system-wide protection. Until 2001, Ketchikan's lack of adoption and enforcement of the Uniform Plumbing Code allowed many substandard installations to be constructed within the City. Older sprinkler systems with just a single check are a particular problem. They cannot be tested and they leak contaminated water into the municipal system any time the water main is isolated and drained for repairs. By the adopted motion of the City Council at its meeting of March 3, 2016, any reimbursement to the property owner of the installed cost of the backflow preventer is now limited to 50% or \$1,500, whichever is the lesser.	End Date:	12/24	Design Land/Right-of-Way Construction Management Construction 15,000 Equipment Other Project Total 15,000					
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund			3,000	3,000	3,000	3,000	3,000	3,000	15,000
Total			3,000	3,000	3,000	3,000	3,000	3,000	15,000

Division: Water		Project Priority: 9		Project Number:	
Project Title: Valley Court Utility Improvements		Start Date: 01/19 End Date: 12/20		Estimated Project Cost:	
Description: Since the 1990s, the existing Valley Court roadway has provided narrow, unpaved access to the original Bear Valley Mini-Storage buildings and also mobile crane access when needed for maintenance up at the Bear Valley Reservoir. Recently, another lot located at the end of Valley Court has been developed which, once apartments or some other future building structures are erected, will require construction of modern water and sewer utilities along the 375 feet length of Valley Court. When the adjacent UV Facility property was being developed in 2008, the contractor unfortunately blasted and removed a significant portion of Valley Court's dedicated right-of-way. The remaining portion of this road prism width is now fairly narrow in spots and does not fully meet City Street Construction Standards. Rather than KPU building an expensive concrete retaining wall at the UV Facility to restore Valley Court roadway to its correct width, an agreement was reached with the adjacent property owner and approved by the City Council. The developer prepared the utility design and KPU is providing the necessary materials for the developer's contractor to construct a Valley Court water main extension from Schoenbar Road to the property. The remaining construction work should be completed in 2020.				Design Land/Right-of-Way Construction Management Construction Equipment 46,000 Other Project Total 46,000	

Division: Water					Project Priority: 10		Project Number:		
Project Title: Highlands Reservoir Property Acquisition					Start Date: 01/21 End Date: 12/21		Estimated Project Cost:		
Description: Ketchikan is located in Earthquake Seismic Zone 3 (major damage). The Highlands Reservoir provides modest fire protection for the surrounding residential area including the State Jail, the Library, and other commercial buildings on Copper Ridge Lane. Ketchikan's last remaining wood-stave reservoir built in 1982 will not survive a significant earthquake, nor can it be economically retrofitted with additional shear protection. If damaged, there are no remaining sources of wood-stave repair parts to be found anywhere. The individual wooden staves are only held together by friction, and when they collapse during a severe earthquake, they will suddenly release 300,000 gallons of water causing significant damage downstream. Although discussions began in 2015 to acquire the necessary property needed to construct a modern, larger reservoir, the sale was never completed at the proposed price of \$270,000. Once purchased, site investigations should begin in 2023 before beginning the construction of a large, modern 650,000 gallon reservoir. The design and construction funding will take at least another 8-10 years before the project is complete, and construction would begin around 2028 with an expected cost of about \$5 - 8 million.							Design Land/Right-of-Way 270,000 Construction Management Construction Equipment Other Project Total 270,000		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund Proposed State Municipal Assistance Funding					270,000				270,000
Total					270,000				270,000

Department: Water	Project Priority: 11	Project Number:
Project Title: Second Avenue Utility Improvements	Start Date: 01/21 End Date: 12/24	Estimated Project Cost:
Description: Second Avenue's cast-iron water mains were originally installed in a number of segments between 1956 and 1958. Just the failing water and sewer portion between Madison and Adams Streets was replaced in 2001. Since then, there has been no further progress replacing the remainder of this fragile, old 6-inch cast-iron water main and there have been four further failures in the 1275-foot portion between Adams and White Cliff. Long overdue for water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2021 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2024.		Design 15,000
		Land/Right-of-Way
		Construction Management
		Construction 1,300,800
		Equipment
		Other
		Project Total 1,315,800

Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						15,000				15,000
Proposed 50% State Municipal Assistance Funding									650,400	650,400
Proposed Revenue Bonds - ADWF Loan									650,400	650,400
Total						15,000			1,300,800	1,315,800

Division: Water					Project Priority: 12		Project Number:		
Project Title: West Fairy Chasm Utility Improvements					Start Date: 01/21 End Date: 12/24		Estimated Project Cost:		
Description: This 8-inch ductile iron main was installed in 1981. The portion replaced in 2007 failed in a different manner than usually occurs. Unlike electrolytic corrosion that usually creates fairly small pits along the bottom of the pipe where the soils are moist and most conductive; in this case, the entire surface of the pipe was badly pitted. The soil layer around the pipe was black from dissolved iron and smelled slightly of sulfur. There is a possibility that the ductile iron pipe was bedded using rock that contains quite a bit of iron pyrite (fools gold) which is actually iron disulfide. Pyrites reacting with oxygen and water will form <i>Thiobacillus</i> bacteria which generate their energy through oxidizing the iron with a side effect of producing sulfuric acid, which chemically corrodes the iron pipe. Subsequent repairs made in 2017 at the Black Bear intersection have shown similar pitting and the ductile iron sewer mains are very likely in the same condition. The entire 720 foot section should be replaced with non-corrodible HDPE plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2021 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2024.							Design 15,000 Land/Right-of-Way Construction Management Construction 550,600 Equipment Other Project Total 565,600		
Source of Funds	Prior Years	Adopted 2020			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund					15,000				15,000
Proposed 50% State Municipal Assistance Funding								275,300	275,300
Proposed Revenue Bonds - ADWF Loan								275,300	275,300
Total					15,000			550,600	565,600

Department: Water			Project Priority: 13			Project Number:				
Project Title: Skyline Water Main Replacement			Start Date: 01/21			Estimated Project Cost:				
Description: The 560-foot ductile-iron 8-inch water line serving Skyline Condominiums is an unusual proposition. It is not installed in a dedicated right-of-way but rather through a series of easements that begin by passing through the sideyard of 1111 Jackson, then across Skyline Condominium's property, and finally connecting to Carlanna Lake Road. Installed in 1983, it too is continuing to fail due to electrolytic corrosion and is overdue for replacement with non-corrodible HDPE plastic pipe. There is no present funding available for its replacement but if there were, it would be designed in 2021 along with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2024.			End Date: 12/24			Design 10,000				
			Land/Right-of-Way							
			Construction Management							
			Construction 360,800							
			Equipment							
						Other				
						Project Total 370,800				

Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund Proposed 50% State Municipal Assistance Funding Proposed Revenue Bonds - ADWF Loan						10,000				10,000
									180,400	180,400
									180,400	180,400
Total						10,000			360,800	370,800

Department: Water			Project Priority: 14			Project Number:				
Project Title: Denali Avenue Utility Improvements			Start Date: 01/21			Estimated Project Cost:				
Description: Denali Avenue's cast-iron 6-inch water mains between Hill & Tower Roads were installed in two segments beginning in 1968 and completed in 1969. Like other cast-iron mains, it is fragile. In just this one block segment, there have already been three failures. The 635-foot segment is overdue for both water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2021 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2024.			End Date: 12/24			Design 15,000				
			Land/Right-of-Way							
			Construction Management							
			Construction 512,000							
			Equipment							
						Other				
						Project Total 527,000				

Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						15,000				15,000
Proposed 50% State Municipal Assistance Funding									256,000	256,000
Proposed Revenue Bonds - ADWF Loan									256,000	256,000

Department: Water			Project Priority: 15			Project Number:				
Project Title: Evergreen Ave. Utility Improvements			Start Date: 01/20			Estimated Project Cost:				
Description: Evergreen Avenue's 548-feet of water main between Hill and Tower Roads was installed in two segments; the first 281-feet of 6-inch cast-iron was installed in 1970 followed by the final 267-feet in ductile-iron in 1976. The cast-iron portion has been particularly troublesome with several failures. The entire 548-foot segment is overdue for both water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2021 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2024.			End Date: 12/24			Design 15,000				
			Land/Right-of-Way							
			Construction Management							
			Construction 440,000							
			Equipment							
						Other				
						Project Total 455,000				
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund Proposed 50% State Municipal Assistance Funding Proposed Revenue Bonds - ADWF Loan						15,000				15,000
									220,000	220,000
									220,000	220,000
Total						15,000			440,000	455,000

Department: Water			Project Priority: 16			Project Number:				
Project Title: Utility Vehicles			Start Date: 01/20 End Date: 12/23			Estimated Project Cost: Design Land/Right-of-Way Construction Management Construction Equipment 249,500 Other Project Total 249,500				
Description: Replacement in 2021 of Vehicle 46, a Chevrolet Blazer purchased in 2000. This vehicle has all the mechanical, rust, maintenance issues that can be expected for a vehicle of its age in Ketchikan. The replacement vehicle is planned to be a Ford Explorer with all wheel drive capability and can be purchased in 2021 utilizing the State of Alaska's contract purchasing. Vehicle 66, the single axle dump truck jointly shared by the Electric and Water Divisions was purchased in 2003. Already 17 years old, it is reaching the end of its useful service life with mechanical issues. It is proposed for replacement in 2022 for \$118,000. Similarly, the oldest of the two small Kubota rubber tracked backhoes that are also jointly shared by the divisions was purchased in 2007. Supremely useful in tight situations where a large, rubber-tired backhoe won't fit, it too is reaching the end of its useful service life. A replacement small backhoe from a local vendor is estimated to cost \$85,000 today. With an allowance of 2.5% inflation until 2023, this would be equivalent to \$94,000.										
Source of Funds	Fund No.	Prior Years	Adopted 2020			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2021	2022	2023	2024	
Revenue Generating Fund						37,500	118,000	94,000		249,500