

KETCHIKAN PUBLIC UTILITIES

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Your Community, Your Utility

2019-2023 CAPITAL IMPROVEMENT PROGRAM

CITY OF KETCHIKAN, ALASKA
2019 - 2023 KETCHIKAN PUBLIC UTILITIES
CAPITAL IMPROVEMENT PROGRAM

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**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
2019 Capital Budget**

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2019 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
Diesel Generation Modernization	200,000				200,000
Bailey Unit No. 1 Rehabilitation	600,000				600,000
Bailey Unit No. 3 Rehabilitation	500,000				500,000
Beaver Falls Switch Gear Replacement	320,000				320,000
Pennock-KIA Upgrade	200,000				200,000
FERC Part 12 and Owner's Dam Safety Program	115,000				115,000
Bailey Unit No. 4 Cylinder Head Refurbishment	85,000				85,000
Mobile Substation Refurbishment	200,000				200,000
Electric System Modernization Program	100,000				100,000
AMI, Meters and Meter Replacement Parts	50,000				50,000
Bailey Mooring Dolphin Replacement	110,000				110,000
Ward Cove Substation Improvements	224,000				224,000
Operating Equipment	294,500				294,500
Transformer Purchase	85,000				85,000
System Sectionalizing and Fault Studies	19,500				19,500
North Tongass Highway Overhead Design	13,875				13,875
Reimbursable Projects	50,000				50,000
Additional Projects	100,000				100,000
Aerial Photos & Topographic Mapping Update	30,667				30,667
ESRI Conversion	23,000				23,000
Electric Division Total	3,620,542				3,620,542

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
2019 Capital Budget**

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2019 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	45,000				45,000
Fiber to the Home	75,000				75,000
Remote Cabinets for Advanced Services	25,000				25,000
Core Network Upgrade	100,000				100,000
Blade Server	50,000				50,000
Multi-Dwelling Unit Project	75,000				75,000
Operating Equipment	25,000				25,000
PC Hardware & Software	20,000				20,000
Power Expansion/Reclamation	25,000				25,000
LiveWire Replacement/Design	60,000				60,000
Network Monitoring	40,000				40,000
Vehicle Acquisition	150,000				150,000
Headend Expansion	100,000				100,000
Internet Expansion	300,000			5,010,000	5,310,000
Video Set Top Boxes	100,000				100,000
4G LTE	500,000				500,000
Microwave	50,000				50,000
Hosted	75,000				75,000
Wi-Fi	15,000				15,000
Aerial Photos & Topographic Mapping Update	24,000				24,000
ESRI Conversion	18,000				18,000
Telecommunications Division Total	2,367,000			5,010,000	7,377,000

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
2019 Capital Budget**

Department/Division/Project	Revenues/ Reserves	Grants	Other	Revenue Bonds	2019 Total
Water Division					
Water Meters - Business & Commercial Customers	48,738			1,250,000	1,298,738
Schoenbar Road - Phase I (Valley Forge & South)				1,592,000	1,592,000
Update Aerial Photos & Topographic Mapping	25,333				25,333
GIS ESRI Conversion	19,000				19,000
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
Warehouse Fork Truck	30,000				30,000
Valley Court Utility Improvements	46,000				46,000
Water Division Total	257,071			2,842,000	3,099,071
GRAND TOTAL	6,264,613			7,852,000	14,116,613

Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
Summary of Projects by Division - All Years

Division/Project	Prior Years	2019	2020	2021	2022	2023	Five Year Total	Project Total
Administration								
Financial & Accounting Information System	437,392	20,000					20,000	457,392
Administration Total	437,392	20,000					20,000	457,392
Electric Division								
Beaver Falls Project Relicensing	300,000	300,000					300,000	600,000
Diesel Generation Modernization		200,000					200,000	200,000
Beaver Falls Switch Gear Replacement	70,000	320,000	1,330,000				1,650,000	1,720,000
FERC Part 12 and Owner's Dam Safety Program (ODSP)		115,000					115,000	115,000
Bailey Unit 4 Cylinder Head Refurbishment		85,000	85,000	85,000			255,000	255,000
Bailey Unit No. 1 Rehabilitation		600,000					600,000	600,000
Bailey Unit No. 3 Rehabilitation		500,000					500,000	500,000
Generation Equipment Planning, Cleaning & Testing	191,395		50,000	50,000	50,000		150,000	341,395
Ketchikan Tunnel Penstock Valves Replacement	50,000		50,000	200,000			250,000	300,000
Bailey Exhaust Stacks Re-Coating			25,000	225,000			250,000	250,000
Whitman Tailrace Modification			50,000				50,000	50,000
Generator Rewind & Repair			650,000	700,000			1,350,000	1,350,000
Beaver Falls Governor Upgrade				250,000			250,000	250,000
Bailey Generator No. 4 Radiator Replacement				300,000			300,000	300,000
Pennock-KIA Upgrade	185,316	200,000	250,000				450,000	635,316
Mobile Substation Refurbishment		200,000					200,000	200,000
AMI Meters & Meter Replacement Parts		50,000	150,000	150,000			350,000	350,000
Electric System Modernization Program		100,000					100,000	100,000
Ward Cove Substation Improvements	35,000	224,000					224,000	259,000
Transformer Purchase		85,000	110,000	115,000	115,000	120,000	545,000	545,000
System Sectionalizing and Fault Studies	239,000	19,500					19,500	258,500
North Tongass Highway Overhead Design	51,125	13,875	25,000				38,875	90,000
Ketchikan Lakes Underground			50,000	50,000	100,000		200,000	200,000
Downtown Underground Upgrade	285,459		50,000				50,000	335,459
Transformer Testing Program	88,200		35,000				35,000	123,200
Reimbursable Projects		50,000	125,000	125,000	125,000	125,000	550,000	550,000
Substation Battery Bank			38,000				38,000	38,000
34.5 kV Tie Breaker Spare			45,000				45,000	45,000
Beaver Falls Powerhouse Exterior	36,070		600,000				600,000	636,070
Bailey Mooring Dolphin Replacement		110,000					110,000	110,000
Operating Equipment		294,500	275,000	275,000	275,000	275,000	1,394,500	1,394,500
Vehicle Lift Replacement			65,000				65,000	65,000
Additional Projects		100,000	164,000	164,000	164,000	164,000	756,000	756,000
Vehicles & Moving Equipment			200,000	350,000	350,000	100,000	1,000,000	1,000,000
Aerial Photo & Topographic Mapping Update		30,667					30,667	30,667
GIS ESRI Conversion		23,000					23,000	23,000
Electric Division Total	1,531,565	3,620,542	4,422,000	3,039,000	1,179,000	784,000	13,044,542	14,576,107

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
Summary of Projects by Division - All Years**

Division/Project	Prior Years	2019	2020	2021	2022	2023	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	25,000	100,000	25,000	25,000	200,000	200,000
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	200,000	200,000	200,000	200,000	1,050,000	1,050,000
Normal Growth and Repair - Expansion		25,000	25,000	25,000	25,000	25,000	125,000	125,000
Normal Growth and Repair - Provisioning		45,000	25,000	25,000	25,000	25,000	145,000	145,000
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	125,000	500,000	500,000	75,000	1,300,000	1,300,000
Blade Server		50,000	25,000	25,000	25,000	25,000	150,000	150,000
Multi-Dwelling Unit Project		75,000	75,000	75,000	75,000	75,000	375,000	375,000
Operating Equipment		25,000	25,000	25,000	25,000	25,000	125,000	125,000
PC Hardware & Software		20,000	20,000	20,000	20,000	20,000	100,000	100,000
Power Expansion/Reclamation		25,000	25,000	25,000	25,000	25,000	125,000	125,000
LiveWire Replacement/Design		60,000	25,000	25,000	25,000	25,000	160,000	160,000
Network Monitoring		40,000	10,000	10,000	10,000	10,000	80,000	80,000
Vehicle Acquisition		150,000	275,000	225,000	150,000	150,000	950,000	950,000
Headend Expansion		100,000	75,000	75,000	75,000	75,000	400,000	400,000
Internet Expansion		5,310,000		10,000	10,000	10,000	5,340,000	5,340,000
Video Set Top Boxes		100,000	75,000	75,000	75,000	75,000	400,000	400,000
4G LTE		500,000	75,000	75,000	75,000	75,000	800,000	800,000
Microwave		50,000	25,000	25,000	25,000	25,000	150,000	150,000
Hosted		75,000	25,000	25,000	25,000	25,000	175,000	175,000
WiFi		15,000	15,000	15,000	15,000	15,000	75,000	75,000
Aerial Photo & Topographic Mapping Update		24,000					24,000	24,000
GIS ESRI Conversion		18,000					18,000	18,000
Telecommunications Division Total		7,377,000	1,465,000	1,875,000	1,675,000	1,250,000	13,642,000	13,642,000

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program
Summary of Projects by Division - All Years**

Division/Project	Prior Years	2019	2020	2021	2022	2023	Five Year Total	Project Total
Water Division								
Water Meters - Business & Commercial Customers	26,262	1,298,738					1,298,738	1,325,000
Schoenbar Road - Phase I (Valley Forge & South)	16,000	1,592,000					1,592,000	1,608,000
Update Aerial Photos & Topographic Mapping		25,333					25,333	25,333
GIS ESRI Conversion		19,000					19,000	19,000
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
Warehouse Fork Truck		30,000					30,000	30,000
Valley Court Utility Improvements		46,000					46,000	46,000
Schoenbar Road - Phase II (Middle School to Park Ave)			1,592,000				1,592,000	1,592,000
Highlands Reservoir Property Acquisition				270,000		25,000	295,000	295,000
West Fairy Chasm Improvements			35,000			581,000	616,000	616,000
Water Division Total	42,262	3,099,071	1,715,000	358,000	88,000	694,000	5,954,071	5,996,333
TOTAL	2,011,219	14,116,613	7,602,000	5,272,000	2,942,000	2,728,000	32,660,613	34,671,832

**Ketchikan Public Utilities
2019 - 2023 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	437,392	20,000					457,392
Administration Total	437,392	20,000					457,392
Electric Division							
Beaver Falls Project Relicensing	300,000	300,000					600,000
Diesel Generation Modernization		200,000					200,000
Beaver Falls Switch Gear Replacement	70,000	1,650,000					1,720,000
FERC Part 12 and Owner's Dam Safety Program (ODSP)		115,000					115,000
Bailey Unit 4 Cylinder Head Refurbishment		255,000					255,000
Bailey Unit No. 1 Rehabilitation		600,000					600,000
Bailey Unit No. 3 Rehabilitation		500,000					500,000
Generation Equipment Planning, Cleaning & Testing	191,395	150,000					341,395
Ketchikan Tunnel Penstock Valves Replacement	50,000	250,000					300,000
Bailey Exhaust Stacks Re-Coating		250,000					250,000
Whitman Tailrace Modification		50,000					50,000
Generator Rewind & Repair		1,350,000					1,350,000
Beaver Falls Governor Upgrade		250,000					250,000
Bailey Generator No. 4 Radiator Replacement		300,000					300,000
Pennock-KIA Upgrade	185,316	450,000					635,316
Mobile Substation Refurbishment		200,000					200,000
AMI Meters & Meter Replacement Parts		350,000					350,000
Electric System Modernization Program		100,000					100,000
Ward Cove Substation Improvements	35,000	224,000					259,000
Transformer Purchase		545,000					545,000
System Sectionalizing and Fault Studies	239,000	19,500					258,500
North Tongass Highway Overhead Design	51,125	38,875					90,000
Ketchikan Lakes Underground		200,000					200,000
Downtown Underground Upgrade	285,459	50,000					335,459
Substation Battery Bank		38,000					38,000
Transformer Testing Program	88,200	35,000					123,200
Reimbursable Projects		550,000					550,000
34.5 kV Tie Breaker Spare		45,000					45,000
Beaver Falls Powerhouse Exterior	36,070	600,000					636,070
Bailey Mooring Dolphin Replacement		110,000					110,000
Operating Equipment		1,394,500					1,394,500
Vehicle Lift Replacement		65,000					65,000
Additional Projects		756,000					756,000
Vehicles & Moving Equipment		1,000,000					1,000,000
Aerial Photo & Topographic Mapping Update		30,667					30,667
GIS ESRI Conversion		23,000					23,000
Electric Division Total	1,531,565	13,044,542					14,576,107

**Ketchikan Public Utilities
2019 - 2023 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		200,000					200,000
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		1,050,000					1,050,000
Normal Growth and Repair - Expansion		125,000					125,000
Normal Growth and Repair - Provisioning		145,000					145,000
Fiber to the Home		275,000					275,000
Remote Cabinets for Advanced Services		125,000					125,000
Core Network Upgrade		1,300,000					1,300,000
Blade Server		150,000					150,000
Multi-Dwelling Unit Project		375,000					375,000
Operating Equipment		125,000					125,000
PC Hardware & Software		100,000					100,000
Power Expansion/Reclamation		125,000					125,000
LiveWire Replacement/Design		160,000					160,000
Network Monitoring		80,000					80,000
Vehicle Acquisition		950,000					950,000
Headend Expansion		400,000					400,000
Internet Expansion		330,000			5,010,000		5,340,000
Video Set Top Boxes		400,000					400,000
4G LTE		800,000					800,000
Microwave		150,000					150,000
Hosted		175,000					175,000
Wi-Fi		75,000					75,000
Aerial Photo & Topographic Mapping Update		24,000					24,000
GIS ESRI Conversion		18,000					18,000
Telecommunications Division Total		8,632,000			5,010,000		13,642,000

**Ketchikan Public Utilities
2019 - 2023 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							
Water Meters - Business & Commercial Customers	26,262	48,738				1,250,000	1,325,000
Schoenbar Road - Phase I (Valley Forge & South)	16,000					1,592,000	1,608,000
Update Aerial Photos & Topographic Mapping		25,333					25,333
GIS ESRI Conversion		19,000					19,000
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
Warehouse Fork Truck		30,000					30,000
Valley Court Utility Improvements		46,000					46,000
Schoenbar Road - Phase II (Middle School to Park Ave)						1,592,000	1,592,000
Highlands Reservoir Property Acquisition		25,000				270,000	295,000
West Fairy Chasm Improvements		35,000				581,000	616,000
Water Division Total	42,262	669,071				5,285,000	5,996,333
TOTAL	2,011,219	22,365,613			5,010,000	5,285,000	34,671,832

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program**

Department: General Manager

Project Title	Priority	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
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 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 12/19	Estimated Project Cost:
Description: 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 2019. 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 2019. 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 2019 is financial reporting, electronic personnel action forms and e-suites. The cost of this project is being funded equally by General Government and KPU.		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 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund		437,392	20,000		20,000					457,392
Total		437,392	20,000		20,000					457,392

Ketchikan Public Utilities 2019 - 2023 Capital Improvement Program Division: Electric										
Project Title	Priority	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Generation (Hydro and Diesel) Projects										
Beaver Falls Project Relicensing	1	300,000	300,000		300,000					600,000
Diesel Generation Modernization	2			200,000	200,000					200,000
Bailey Unit No. 1 Rehabilitation	3			600,000	600,000					600,000
Bailey Unit No. 3 Rehabilitation	4			500,000	500,000					500,000
Beaver Falls Switch Gear Replacement	5	70,000	320,000		320,000	1,330,000				1,720,000
FERC Part 12 and Owner's Dam Safety Program	7			115,000	115,000					115,000
Bailey Unit 4 Cylinder Head Refurbishment	9			85,000	85,000	85,000	85,000			255,000
Bailey Exhaust Stacks Re-Coating	19					25,000	225,000			250,000
Whitman Tailrace Modification	24					50,000				50,000
Ketchikan Tunnel Penstock Valves Replacement	28	50,000				50,000	200,000			300,000
Generation Equipment Planning, Cleaning & Testing	29	191,395				50,000	50,000	50,000		341,395
Generator Rewind & Repair	30					650,000	700,000			1,350,000
Beaver Falls Governor Upgrade	35						250,000			250,000
Bailey Generator No. 4 Radiator Replacement	36						300,000			300,000
Transmission and Distribution Projects										
Ketchikan International Airport & Pennock Is. Upgrade	6	185,316	184,000	16,000	200,000	250,000				635,316
Mobile Substation Refurbishment	10			200,000	200,000					200,000
AMI, Meters and Meter Replacement Parts	12			50,000	50,000	150,000	150,000			350,000
Ward Cove Substation Improvements	14	35,000	45,000	179,000	224,000					259,000
Transformer Purchase	16			85,000	85,000	110,000	115,000	115,000	120,000	545,000
System Sectionalizing and Fault Studies	17	239,000	19,500		19,500					258,500
North Tongass Highway Overhead Design	18	51,125	13,875		13,875	25,000				90,000
Ketchikan Lakes Underground	20					50,000	50,000	100,000		200,000
Downtown Underground Upgrade	21	285,459				50,000				335,459
Transformer Testing Program	22	88,200				35,000				123,200
Reimbursable Projects	27			50,000	50,000	125,000	125,000	125,000	125,000	550,000
Substation Battery Bank	31					38,000				38,000
34.5 kV Tie Breaker Spares	32					45,000				45,000
General Plant Projects										
Beaver Falls Powerhouse Exterior	8	36,070				600,000				636,070
Electric System Modernization Program	11			100,000	100,000					100,000
Bailey Mooring Dolphin Replacement	13		80,000	30,000	110,000					110,000
Operating Equipment	15			294,500	294,500	275,000	275,000	275,000	275,000	1,394,500
Additional Projects	23			100,000	100,000	164,000	164,000	164,000	164,000	756,000
Aerial Photo & Topographic Mapping Update	25			30,667	30,667					30,667
GIS ESRI Conversion	26			23,000	23,000					23,000
Vehicles & Moving Equipment	33					200,000	350,000	350,000	100,000	1,000,000
Vehicle Lift Replacement	34					65,000				65,000
Total		1,531,565	962,375	2,658,167	3,620,542	4,422,000	3,039,000	1,179,000	784,000	14,576,107
Source of Funds										
Revenue Generating Fund		1,531,565	962,375	2,658,167	3,620,542	4,422,000	3,039,000	1,179,000	784,000	14,576,107
Total		1,531,565	962,375	2,658,167	3,620,542	4,422,000	3,039,000	1,179,000	784,000	14,576,107

Department: KPU Electric	Project Priority: 1	Project Number:
Project Title: Beaver Falls Project Relicensing	Start Date: 01/18	Estimated Project Cost:
Description:	End Date: 12/24	Design 600,000
<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 must begin the process in 2018 with development of a Preliminary Application Document (PAD), with Notice of Intent (NOI) 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, numerous studies and surveys, and funding to address issues that arise during the licensing process. Relicensing costs are highly variable, dependent upon issues that arise during the consultation process.</p>		Land/Right-of-Way
		Construction Management
		Construction
		Equipment
		Other
		Project Total 600,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund		300,000	300,000		300,000					600,000
Total		300,000	300,000		300,000					600,000

Division: Electric	Project Priority: 2	Project Number:
Project Title: Diesel Generation Modernization	Start Date: 01/19 End Date: 12/20	Estimated Project Cost:
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 AE (Architecture and Engineering) consultant specializing in diesel generation and facilities will be hired to evaluate KPU's existing diesel generation capabilities at Bailey Powerplant and N. Pt. Higgins Substation Generation; the evaluation will identify and recommend solutions for existing and future reliability. Items to address: limitations and vulnerabilities of the existing infrastructure; determine what is needed for existing redundancy; evaluate future system growth without the immediate ability to add new hydropower or other source; recommending 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; estimated \$200,000.		Design 200,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 200,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				200,000	200,000					200,000
Total				200,000	200,000					200,000

Division: Electric	Project Priority: 3	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 1970s; during operation in October 2018, BAG1 suffered a main bearing failure. This project will fund the rehabilitation of fuel delivery and engine components including injectors, main journal, crankshaft, bearings, crankcase, and related components; estimated parts and labor, \$350,000. In addition, BAG1 is nearing the next recommended turbocharger overhaul (every 8,000 hours). Initially, a new retrofit turbo was to be required on the order of magnitude of \$900,000. However, through researching the engine and contacting vendors, it now appears likely that components to refurbish the existing turbo may be available; the current budgetary estimate to accomplish this work is \$250,000.		Design Land/Right-of-Way Construction Management Construction 200,000 Equipment 400,000 Other Project Total 600,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				600,000	600,000					600,000
Total				600,000	600,000					600,000

Division: Electric	Project Priority: 4	Project Number:
Project Title: Bailey Unit No. 3 Rehabilitation	Start Date: 01/19 End Date: 12/20	Estimated Project Cost:
Description: Bailey Generator No. 3 (BAG3) was built in 1970s; during operation in November 2018, BAG3 suffered a piston failure. The unit is being temporary repaired with a spare piston/liner; however, factory representatives from Fairbanks Morse conducted a site visit to evaluate reliability and recommended upgrading to a new more robust piston design. The upgrade will result in a more reliable unit, reduce the excessive lube oil consumption, and eliminate unit de-rating, allowing for the original megawatt capacity rating. This engine is still in use in the marine industry and is fully supported by Fairbanks Morse. This project will fund the piston upgrade and allow for additional upgrade of fuel delivery and monitoring components; estimated parts and labor, \$500,000.		Design Land/Right-of-Way Construction Management Construction 250,000 Equipment 250,000 Other Project Total 500,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro-priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				500,000	500,000					500,000
Total				500,000	500,000					500,000

Division: Electric		Project Priority: 5			Project Number:				
Project Title: Beaver Falls Switch Gear Replacement		Start Date: 01/17			Estimated Project Cost:				
		End Date: 12/20			Design/License 90,000				
Description:					Land/Right-of-Way 10,000				
<p>The Beaver Falls powerhouse switchgear needs replacement and is an operating risk to the powerplant. 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.</p>					Construction Management 470,000				
					Construction 1,000,000				
					Equipment 150,000				
					Other 150,000				
					Project Total 1,720,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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

Division: Electric		Project Priority: 6			Project Number:				
Project Title: Ketchikan International Airport & Pennock Is. Upgrade		Start Date: 01/12 End Date: 12/20			Estimated Project Cost:				
Description: The existing armored submarine electrical cable that serves the airport is nearing end of life (installed mid-1970's). The armoring has also begun to corrode, leading to the installation of slip-on armoring on it's 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 are in development to install a new armoring cable beginning at a location near the Revilla-side airport ferry terminal. 2019 will see procurement of upland equipment and the submarine cable. Installation is programmed for 2020 to coincide with ADOT's airport ferry lot upgrade project.					Design/License 5,000 Land/Right-of-Way Construction Management Construction 295,000 Equipment 200,000 Other 135,316 Project Total 635,316				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	185,316	184,000	16,000	200,000	250,000				635,316
Total	185,316	184,000	16,000	200,000	250,000				635,316

Division: Electric	Project Priority: 7	Project Number:
Project Title: FERC Part 12 and ODSP	Start Date: 1/19 End Date: 12/19	Estimated Project Cost:
Description: FERC Part 12 Independent Consultant Inspection & PFMA Review for the Ketchikan Lakes & Beaver Falls projects. Includes Ketchikan Lakes Spillway Stability analysis and Owner's Dam Safety Program (ODSP) audit.		Design Land/Right-of-Way Construction Management Construction Equipment 115,000 Other Project Total 115,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			115,000	115,000					115,000
Total			115,000	115,000					115,000

Division: Electric	Project Priority: 8	Project Number:
Project Title: Beaver Falls Powerhouse Exterior	Start Date: 01/13 End Date: 12/20	Estimated Project Cost:
Description: The exterior of the Beaver Falls Powerhouse, 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.		Design 10,000
		Land/Right-of-Way
		Construction Management
		Construction Equipment 626,070
		Other
	Project Total 636,070	

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	36,070				600,000				636,070
Total	36,070				600,000				636,070

Division: Electric	Project Priority: 9	Project Number:
Project Title: Bailey Unit 4 Head Refurbishment	Start Date: 01/19 End Date: 12/21	Estimated Project Cost:
Description: The twelve (12) cylinder heads on Bailey Diesel Unit No. 4 (BAG4) are subject to cavitation/corrosion of the exhaust valve seats, which ultimately results in coolant contaminating the engine oil. Corrective measures began to be taken in 2018, including sending three (3) spare cylinder heads to the UK to be refurbished, as well as adjusting the chemical composition of the coolant to head mitigate, or at least slow the damage. This is an inherent problem with this Wartsila Model 12V46B unit; at 13,000 hours the unit is not covered by warranty. The unit currently has two (2) new cylinder heads installed, leaving ten (10) old cylinder heads still to be refurbished. The project allows for three (3) to four (4) heads a year, for three (3) years, to be sent to the UK.		Design Land/Right-of-Way Construction Management Construction 255,000 Equipment Other Project Total 255,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				85,000	85,000	85,000	85,000			255,000
Total				85,000	85,000	85,000	85,000			255,000

Division: Electric	Project Priority: 10	Project Number:
Project Title: Mobile Substation Refurbishment	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: The Electric Division's 1989 7,000 kVA dual voltage mobile substation is in need of refurbishment. Through competitive proposals, the unit will be shipped to a overhaul faculty, which will include: transformer work; insulator and jumper replacements; replacing the 35kV fuses with a breaker and associated control gear; support structure upgrades; chassis work; sandblasting and corrosion control.		Design Land/Right-of-Way Construction Management Construction 175,000 Equipment 25,000 Other Project Total 200,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				200,000	200,000					200,000
Total				200,000	200,000					200,000

Department: KPU Electric	Project Priority: 11	Project Number:
Project Title: Electric System Modernization Program	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: The electric system is aging and a comprehensive evaluation of each asset and evaluation of system reliability during emergency conditions is required to establish a system modernization plan that will include contingency planning for all generation and transmission. This project will enhance the asset management program, long term capital improvement program, and small projects planning process. A modernization program will allow proper scoping, scheduling, and budgeting of capital investments and contingency planning. This request will fund professional services to systematically review and assist in planning system improvements. This project will also establish a long term investment program, long term budget forecast and schedule, and contingency planning.		Design 100,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 100,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				100,000	100,000					100,000
Total				100,000	100,000					100,000

Division: Electric	Project Priority: 12	Project Number:	
Project Title: AMI, Meters and Meter Replacement Parts	Start Date: 01/19	Estimated Project Cost:	
	End Date: 12/21	Design	
Description:		Land/Right-of-Way	
<p>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, AMI software and hardware, contractual services for validating metering system accuracy and replacement of residential and commercial meters that are on a 20 year replacement schedule (or 5% per year).</p>		Construction Management	
		Construction	
		Equipment	350,000
		Other	
		Project Total	350,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				50,000	50,000	150,000	150,000			350,000
Total				50,000	50,000	150,000	150,000			350,000

Department: KPU Electric	Project Priority: 13	Project Number:
Project Title: Bailey Mooring Dolphin Replacement	Start Date: 01/18 End Date: 12/19	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 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			80,000	30,000	110,000					110,000
Total			80,000	30,000	110,000					110,000

Division: Electric		Project Priority: 14			Project Number:				
Project Title: Ward Cove Substation Improvements		Start Date: 01/14			Estimated Project Cost:				
Description:		End Date: 12/20			Design/License 119,000				
This project will repair erosion and drainage issues around the Ward Cove substation. These problems have been an ongoing issue that puts the substation boundary at risk of collapse or failure.					Land/Right-of-Way				
					Construction Management 140,000				
					Equipment				
					Other				
					Project Total 259,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	35,000	45,000	179,000	224,000					259,000
Total	35,000	45,000	179,000	224,000					259,000

Division: Electric	Project Priority: 15	Project Number:
Project Title: Operating Equipment	Start Date: 1/19 End Date: 12/23	Estimated Project Cost:
Description:		Design
This capital account provides for the purchase of new or replacement equipment for the meter shop, warehouse and SCADA department. This equipment will be used for the operation and maintenance of electrical service.		Land/Right-of-Way
		Construction Management
		Construction
		Equipment 1,394,500
		Other
		Project Total 1,394,500
1) SCADA Critical Parts \$ 3,000		
2) Substation and Powerhouse Electronic Meters, Relays and Control Eq. 50,000		
3) New Test/Indication/Recorder Equipment, Repair & Recalibration 40,000		
4) Meters, Probes and Hand Tools 25,000		
5) Customer Current & Potential Transformers 45,000		
6) Generation and Powerhouse Spare Parts 70,000		
7) Pallet Racks 5,000		
8) Radio Replacement Components and Support 2,500		
9) Media Converter and Network Devices 10,000		
10) Replacement Conex Container for Silvis Road 4,500		
11) Hot Water Pressure Washer 6,500		
12) Capacitor Bank Control Upgrades/Spare 18,000		
13) Hydraulic Utility Pole Handler Attachment 15,000		

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			294,500	294,500	275,000	275,000	275,000	275,000	1,394,500
Total			294,500	294,500	275,000	275,000	275,000	275,000	1,394,500

Division: Electric	Project Priority: 16	Project Number:
Project Title: Transformer Purchase	Start Date: 01/19 End Date: 12/23	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 545,000 Other Project Total 545,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			85,000	85,000	110,000	115,000	115,000	120,000	545,000
Total			85,000	85,000	110,000	115,000	115,000	120,000	545,000

Division: Electric		Project Priority: 17			Project Number:				
Project Title: System Sectionalizing and Fault Studies		Start Date: 01/15			Estimated Project Cost:				
		End Date: 12/19			Design/License				
Description:					Land/Right-of-Way 108,500				
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.					Construction Management				
					Construction				
					Equipment 150,000				
					Other				
					Project Total 258,500				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	239,000	19,500		19,500					258,500
Total	239,000	19,500		19,500					258,500

Division: Electric	Project Priority: 18	Project Number:
Project Title: North Tongass Highway Overhead Design	Start Date: 01/16 End Date: 12/20	Estimated Project Cost:
Description: Areas of the overhead circuits along North Tongass Highway are approaching end of life and will soon need replacement. Due to the complexity of the terrain along the edge of the right-of-way, engineering assistance is being utilized to design particular solutions. The work itself to upgrade the sections of lines is anticipated to be completed by in-house crews. A previous concept the underground approximately 1-1/2 miles has been abandoned due to projected costs. The focus is now focused on specific spans between mile 13 and mile 16.		Design 90,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 90,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund		51,125	13,875		13,875	25,000				90,000
Total		51,125	13,875		13,875	25,000				90,000

Division: Electric		Project Priority: 19			Project Number:				
Project Title: Bailey Exhaust Stack Re-Coating		Start Date: 1/20			Estimated Project Cost:				
		End Date: 12/21			Design/License 25,000				
Description:					Land/Right-of-Way				
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.					Construction Management				
					Construction 225,000				
					Equipment				
					Other				
					Project Total 250,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund					25,000	225,000			250,000
Total					25,000	225,000			250,000

Division: Electric	Project Priority: 20	Project Number:	
Project Title: Ketchikan Lakes Underground	Start Date: 01/20	Estimated Project Cost:	
	End Date: 12/22	Design	
Description:		Land/Right-of-Way	
<p>This project provides funding to install underground power & communications to Fawn Lake, Ketchikan Lake, 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, and 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.</p>		Construction Management	
		Construction	200,000
		Equipment	
		Other	
		Project Total	200,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						50,000	50,000	100,000		200,000
Total						50,000	50,000	100,000		200,000

Division: Electric	Project Priority: 21	Project Number:
Project Title: Downtown Underground Upgrade	Start Date: 1/20 End Date: 12/20	Estimated Project Cost:
Description: 2020 funding for this project provides for 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		Design 75,000 Land/Right-of-Way Construction Management Construction 50,000 Equipment 210,000 Other 459 Project Total 335,459

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	285,459				50,000				335,459
Total	285,459				50,000				335,459

Department: KPU Electric	Project Priority: 22	Project Number:
Project Title: Transformer Testing Program	Start Date: 01/18 End Date: 12/20	Estimated Project Cost:
Description: The health of substation power and generation transformers requires yearly testing program. Tests assess the overall health of the transformers and identify potential issues before they cause failure and downtime. This funding level allows for transformer test plan updates, transformer studies, problem investigation, testing and maintaining or updating test equipment. There are 17 generation and substation power transformers within the KPU system.		Design Land/Right-of-Way Construction Management Construction Equipment 123,200 Other Project Total 123,200

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund		88,200				35,000				123,200
Total		88,200				35,000				123,200

Division: Electric	Project Priority: 23	Project Number:
Project Title: Additional Projects	Start Date: 01/19 End Date: 12/23	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 2019. 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 756,000 Equipment Other Project Total 756,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 24	Project Number:
Project Title: Whitman Tailrace Modification	Start Date: 01/20	Estimated Project Cost:
Description: Modifications to the Whitman Powerhouse tailrace to reduce the potential for fish stranding.	End Date: 12/20	Design Land/Right-of-Way Construction Management Construction 50,000 Equipment Other Project Total 50,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						50,000				50,000
Total						50,000				50,000

Division: Electric	Project Priority: 25	Project Number:
Project Title: Aerial Photos & Topographic Mapping Update	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: The aerial orthophotos purchased jointly between the City, KPU, and Ketchikan Gateway Borough in 2008 are out of date. The aerial orthophotos purchased by FEMA in 2014 are also out of date and did not cover some vital facilities and areas, including Ketchikan Lakes, Whitman, Fawn Mountain, and Upper & Lower Silvis Lakes. The aerial maps and topographic maps are used for a variety of in-house purposes and public presentations. The total cost of this project is \$240,000. The cost of the project will be funded equally between the City, Ketchikan Public Works, and the Ketchikan Gateway Borough. The cost listed below represents the Electric Division's share of \$30,667.		Ground Control Survey 20,000 Topographic Mapping 120,000 Aerial LiDAR 100,000 Project Total 240,000
		Note: The City's and the Borough's share is \$160,000. KPU's share is \$80,000.

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				30,667	30,667					30,667
Total				30,667	30,667					30,667

Division: Electric			Project Priority: 26			Project Number:				
Project Title: GIS ESRI Conversion			Start Date: 01/19 End Date: 12/19			Estimated Project Cost:				
Description:										
<p>The current Geographic Information System (GIS) software provider is Autodesk. Because Autodesk is leaving the GIS market, the City and KPU are looking to make a unified move to ESRI products from Autodesk products. ESRI is the industry leader for GIS. The functionality of ESRI software exceeds current software and is a better fit for current City needs, due in part to its compatibility with our accounting software, New World. All divisions making the move concurrently will leverage economies of scale in the data conversion and provide consistency across City departments and KPU divisions. This cost of this project will be shared by the following departments and divisions as follows:</p>						Design Land/Right-of-Way Construction Management Construction Equipment 98,000 Other Project Total 98,000				
<p>Engineering - \$19,000 Wastewater - \$19,000 KPU: Electric - \$23,000; Telecom - \$18,000; Water - \$19,000</p>						Note: KPU's share is \$60,000 and the City's share is \$38,000 for a total of \$98,000.				
<p>The cost listed below represents the Water Division's share of this \$98,000 project. The Engineering Division's share will be included in its 2019 Budget and KPU's share will be included in 2019 Budget of each of its operating utilities.</p>										
Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				23,000	23,000					23,000
Total				23,000	23,000					23,000

Division: Electric	Project Priority: 27	Project Number:
Project Title: Reimbursable Projects	Start Date: 01/19 End Date: 12/23	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%, with this account providing a means for warehouse inventory and transformer accounts to be replenished due to customer projects. Funding levels will need to increase to account for recent trends of reimbursable projects averaging approximately \$125,000 in recent years.		Design Land/Right-of-Way Construction Management Construction Equipment 550,000 Other Project Total 550,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			50,000	50,000	125,000	125,000	125,000	125,000	550,000
Total			50,000	50,000	125,000	125,000	125,000	125,000	550,000

Division: Electric	Project Priority: 28	Project Number:
Project Title: Ketchikan Tunnel Penstock Valves Replacement	Start Date: 01/13	Estimated Project Cost:
Description: 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.	End Date: 12/20	Design 70,000 Land/Right-of-Way Construction Management 180,000 Construction Equipment 50,000 Other Project Total 300,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	50,000				50,000	200,000			300,000
Total	50,000				50,000	200,000			300,000

Division: Electric	Project Priority: 29	Project Number:
Project Title: Generation Equipment Planning, Cleaning & Testing	Start Date: 01/14 End Date: 12/22	Estimated Project Cost:
Description: To provide comprehensive tests and evaluation of the 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.		Design/License Land/Right-of-Way Construction Management Construction Equipment Other 341,395 Project Total 341,395

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	191,395				50,000	50,000	50,000		341,395
Total	191,395				50,000	50,000	50,000		341,395

Department: KPU Electric	Project Priority: 30	Project Number:
Project Title: Generator Rewind & Repair	Start Date: 01/20 End Date: 12/21	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 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						650,000	700,000			1,350,000
Total						650,000	700,000			1,350,000

Division: Electric	Project Priority: 31	Project Number:
Project Title: Substation Battery Bank and Charger	Start Date: 01/20 End Date: 12/20	Estimated Project Cost:
Description: This battery bank and charger is at end of life at the North Point Higgins Substation. A failure could compromise substation control and the DC back up system.		Design Land/Right-of-Way Construction Management Construction Equipment 38,000 Other Project Total 38,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						38,000				38,000
Total						38,000				38,000

Division: Electric			Project Priority: 32			Project Number:				
Project Title: 34.5 kV Tie Breaker Spares			Start Date: 01/20 End Date: 12/20			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 45,000 Other Project Total 45,000				
Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						45,000				45,000
Total						45,000				45,000

Division: Electric	Project Priority: 33	Project Number:
Project Title: Vehicles & Moving Equipment	Start Date: 01/20 End Date: 12/23	Estimated Project Cost:
Description: The division does not anticipate the need to purchase any vehicles or equipment in 2019. Each year vehicles & equipment are assessed to determine which vehicles cannot reliably remain in the fleet. Projections, particularly for larger vehicles (bucket trucks & digger/derricks), are based on anticipated work load and resulting wear & tear.		Design Land/Right-of-Way Construction Management Construction Equipment 1,000,000 Other Project Total 1,000,000
<u>Purchase:</u> 1) N/A		
<u>Replaces:</u> 1) N/A		
<u>Estimated Projections:</u> 2020: Replace small work truck(s)/van(s); replace mini-excavator; add used Cat D-5 dozer (Whitman winter access) 2021: Replace large bucket truck; replace small work truck(s)/van(s) 2022: Replace large digger/derrick truck 2023: Replace small work truck(s)/van(s)		

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund					200,000	350,000	350,000	100,000	1,000,000
Total					200,000	350,000	350,000	100,000	1,000,000

Division: Electric	Project Priority: 34	Project Number:
Project Title: Vehicle Lift Replacement	Start Date: 01/20 End Date: 12/20	Estimated Project Cost:
Description: The existing stationary 4-post vehicle lift has a capacity of 12,000 pounds, while many of the 1-ton buckets 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 65,000 Other Project Total 65,000

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						65,000				65,000
Total						65,000				65,000

Division: Electric	Project Priority: 35	Project Number:
Project Title: Beaver Falls Governor Upgrade	Start Date: 12/21 End Date: 12/21	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 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						250,000			250,000
Total						250,000			250,000

Division: Electric		Project Priority: 36			Project Number:				
Project Title: Bailey Generator No. 4 Radiator Replacement		Start Date: 01/21 End Date: 12/21			Estimated Project Cost:				
Description: The exterior radiators for Bailey Generator No. 4 (BAG4) continually develop leaks in the core, requiring cutting and removing parts of the radiator system. Increased generator usage and subsequent increased maintenance of the cooling system will result in the eventual need for complete radiator replacement.					Design/License Land/Right-of-Way Construction Management Construction 75,000 Equipment 225,000 Other Project Total 300,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund						300,000			300,000
Total						300,000			300,000

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program**

Division: Telecommunications

Project Title	Priority	Prior Years	Adopted 2019			Projected Requirements				Total Project	
			Reappropriated	New Funding	Total	2020	2021	2022	2023		
<u>REGULATED</u>											
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	25,000	100,000	25,000	25,000	200,000	
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	200,000	200,000	200,000	200,000	1,050,000	
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			45,000	45,000	25,000	25,000	25,000	25,000	145,000	
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	125,000	500,000	500,000	75,000	1,300,000	
Blade Server	11			50,000	50,000	25,000	25,000	25,000	25,000	150,000	
Multi-Dwelling Unit Project	12			75,000	75,000	75,000	75,000	75,000	75,000	375,000	
Operating Equipment	13			25,000	25,000	25,000	25,000	25,000	25,000	125,000	
PC Hardware & Software	14			20,000	20,000	20,000	20,000	20,000	20,000	100,000	
Power Expansion/Reclamation	15			25,000	25,000	25,000	25,000	25,000	25,000	125,000	
LiveWire Replacement/Design	16			60,000	60,000	25,000	25,000	25,000	25,000	160,000	
Network Monitoring	17			40,000	40,000	10,000	10,000	10,000	10,000	80,000	
Vehicle Acquisition	18			150,000	150,000	275,000	225,000	150,000	150,000	950,000	
<u>NON-REGULATED</u>											
Headend Expansion	19			100,000	100,000	75,000	75,000	75,000	75,000	400,000	
Internet Expansion	20		300,000	5,010,000	5,310,000		10,000	10,000	10,000	5,340,000	
Video Set Top Boxes	21			100,000	100,000	75,000	75,000	75,000	75,000	400,000	
4G-LTE	22			500,000	500,000	75,000	75,000	75,000	75,000	800,000	
Microwave	23			50,000	50,000	25,000	25,000	25,000	25,000	150,000	
Hosted	24			75,000	75,000	25,000	25,000	25,000	25,000	175,000	
WiFi	25			15,000	15,000	15,000	15,000	15,000	15,000	75,000	
Aerial & Topographic Mapping Update	26			24,000	24,000					24,000	
GIS ERSI Conversion	27			18,000	18,000					18,000	
Total				300,000	7,077,000	7,377,000	1,465,000	1,875,000	1,675,000	1,250,000	13,642,000
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project		
		Reappropriated	New Funding	Total	2020	2021	2022	2023			
Revenue Generating Fund			300,000	2,067,000	2,367,000	1,465,000	1,875,000	1,675,000	1,250,000	8,632,000	
Proposed Revenue Bond				5,010,000	5,010,000					5,010,000	
Total			300,000	7,077,000	7,377,000	1,465,000	1,875,000	1,675,000	1,250,000	13,642,000	

Division: Telecommunications	Project Priority: 1	Project Number:
Project Title: Normal Growth and Repair - Buildings	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for improvements to existing buildings including HVAC improvements, replacement of lighting fixtures, and installation of building alarms or related security items.		Design Land/Right-of-Way Construction Management Construction Equipment 225,000 Other Project Total 225,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			25,000	25,000	50,000	50,000	50,000	50,000	225,000
Total			25,000	25,000	50,000	50,000	50,000	50,000	225,000

Division: Telecommunications	Project Priority: 2	Project Number:
Project Title: Normal Growth and Repair - Central Office Switching	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
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.		Design Land/Right-of-Way Construction Management Construction Equipment 200,000 Other Project Total 200,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			25,000	25,000	25,000	100,000	25,000	25,000	200,000
Total			25,000	25,000	25,000	100,000	25,000	25,000	200,000

Division: Telecommunications		Project Priority: 3			Project Number:				
Project Title: Normal Growth and Repair - Copper Cable		Start Date: 01/19			Estimated Project Cost:				
Description:		End Date: 12/23			Design 4,000				
This capital account provides funding for the replacement of deteriorated cables and construction of minor cable projects, including line extensions. This capital account also funds cable, cross arms, and miscellaneous hardware required to reconnect to poles replaced by the Electric Division.					Land/Right-of-Way				
					Construction Management				
					Construction 40,000				
					Equipment 56,000				
					Other				
					Project Total 100,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			20,000	20,000	20,000	20,000	20,000	20,000	100,000
Total			20,000	20,000	20,000	20,000	20,000	20,000	100,000

Division: Telecommunications		Project Priority: 4			Project Number:				
Project Title: Normal Growth and Repair - Fiber Cable		Start Date: 01/19			Estimated Project Cost:				
Description:		End Date: 12/23			Design 13,000				
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.					Land/Right-of-Way				
					Construction Management				
					Construction 357,500				
					Equipment 279,500				
					Other				
					Project Total 650,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 01/19			Estimated Project Cost:					
Description:		End Date: 12/23			Design					
<p>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, and T1, 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.</p>					Land/Right-of-Way					
					Construction Management					
					Construction					50,000
					Equipment					1,000,000
					Other					
			Project Total					1,050,000		
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project	
		Reappropriated	New Funding	Total	2020	2021	2022	2023		
Revenue Generating Fund			250,000	250,000	200,000	200,000	200,000	200,000	1,050,000	
Total			250,000	250,000	200,000	200,000	200,000	200,000	1,050,000	

Division: Telecommunications		Project Priority: 6			Project Number:				
Project Title: Normal Growth and Repair - Expansion		Start Date: 01/19			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: 12/23			Design				
					Land/Right-of-Way				
					Construction Management				
					Construction				
					Equipment				
					Other				
					Project Total				
					25,000				
					100,000				
					125,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 7	Project Number:
Project Title: Normal Growth and Repair - Provisioning	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for the integration of access, middleware and subscriber management platforms into a consolidated and automated middleware platform.		Design 15,000 Land/Right-of-Way Construction Management Construction Equipment 40,000 Other 90,000 Project Total 145,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			45,000	45,000	25,000	25,000	25,000	25,000	145,000
Total			45,000	45,000	25,000	25,000	25,000	25,000	145,000

Division: Telecommunications	Project Priority: 8	Project Number:
Project Title: Fiber to the Home	Start Date: 01/19 End Date: 12/23	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 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 01/19 End Date: 12/23	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.		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 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 10	Project Number:
Project Title: Core Network Upgrade	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for the expansion of the existing Core to add additional resiliency and diversity to key components. Additionally, it will continue to fund the replacement of the ALU equipment deployed in the remote sites, in order to provide additional bandwidth, along with a standardized platform that will easily scale. Lastly, the project will continue to fund Out of Band management to ensure remote monitoring and management capabilities to reduce outage repair time.		Design 65,000
		Land/Right-of-Way
		Construction Management
		Construction
		Equipment 1,170,000
		Other 65,000
		Project Total 1,300,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			100,000	100,000	125,000	500,000	500,000	75,000	1,300,000
Total			100,000	100,000	125,000	500,000	500,000	75,000	1,300,000

Division: Telecommunications	Project Priority: 11	Project Number:
Project Title: Blade Server	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for the continuation of the migration to blade server technology and expansion of the division's data storage environment. The blade server environment 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.		Design 3,750
		Land/Right-of-Way
		Construction Management
		Construction 3,750
		Equipment 142,500
		Other
		Project Total 150,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			50,000	50,000	25,000	25,000	25,000	25,000	150,000
Total			50,000	50,000	25,000	25,000	25,000	25,000	150,000

Division: Telecommunications		Project Priority: 12			Project Number:				
Project Title: Multi-Dwelling Unit Project		Start Date: 01/19			Estimated Project Cost:				
Description:		End Date: 12/23			Design 9,375				
<p>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.</p>					Land/Right-of-Way				
					Construction Management				
					Construction 9,375				
					Equipment 356,250				
					Other				
					Project Total 375,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			75,000	75,000	75,000	75,000	75,000	75,000	375,000
Total			75,000	75,000	75,000	75,000	75,000	75,000	375,000

Division: Telecommunications		Project Priority: 13			Project Number:					
Project Title: Operating Equipment		Start Date: 01/19			Estimated Project Cost:					
Description:		End Date: 12/23			Design					
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 newly installed wireless and 4G networks.					Land/Right-of-Way					
					Construction Management					
					Construction					
					Equipment					125,000
					Other					125,000
					Project Total					125,000
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project	
		Reappropriated	New Funding	Total	2020	2021	2022	2023		
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: 14			Project Number:				
Project Title: PC Hardware and Software		Start Date: 01/19 End Date: 12/23			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.					Design Land/Right-of-Way Construction Management Construction Equipment 100,000 Other Project Total 100,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			20,000	20,000	20,000	20,000	20,000	20,000	100,000
Total			20,000	20,000	20,000	20,000	20,000	20,000	100,000

Division: Telecommunications	Project Priority: 15	Project Number:
Project Title: Power Expansion/Reclamation	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for the expansion of power facilities via new AC/DC filtering or reclamation of existing usage via more efficient equipment.		Design 3,125 Land/Right-of-Way Construction Management Construction 3,125 Equipment 118,750 Other Project Total 125,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 16	Project Number:
Project Title: LiveWire Replacement/Design	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding to procure a replacement to the LiveWire design tool, enhancing the division's documentation and ability to automate and distribute inside and outside plant design. Future funding procures enhancements and labor to ensure the system is properly audited and meeting the needs of division customers.		Design Land/Right-of-Way Construction Management Construction 19,200 Equipment 59,200 Other 81,600 Project Total 160,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			60,000	60,000	25,000	25,000	25,000	25,000	160,000
Total			60,000	60,000	25,000	25,000	25,000	25,000	160,000

Division: Telecommunications	Project Priority: 17	Project Number:
Project Title: Network Monitoring	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides funding for the purchase of hardware and software critical to enhance the monitoring of the KPU network.		Design Land/Right-of-Way Construction Management Construction Equipment 28,000 Other 52,000 Project Total 80,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			40,000	40,000	10,000	10,000	10,000	10,000	80,000
Total			40,000	40,000	10,000	10,000	10,000	10,000	80,000

Division: Telecommunications		Project Priority: 18			Project Number:				
Project Title: Vehicle Acquisition		Start Date: 01/19			Estimated Project Cost:				
		End Date: 12/23			Design				
Description:					Land/Right-of-Way				
This capital account funds replacement of aging vehicles to prevent excessive maintenance costs and breakdowns affecting KPU Telecom's ability to meet customer demands. In 2019, KPU Telecom is focused on replacing one large bucket truck that is 18 years old and is nearing the end of its useful and/or economic life.					Construction Management				
					Construction				
					Equipment 950,000				
					Other				
					Project Total 950,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			150,000	150,000	275,000	225,000	150,000	150,000	950,000
Total			150,000	150,000	275,000	225,000	150,000	150,000	950,000

Division: Telecommunications		Project Priority: 19			Project Number:				
Project Title: Headend Expansion		Start Date: 01/19			Estimated Project Cost:				
Description:		End Date: 12/23			Design 2,000				
<p>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.</p>					Land/Right-of-Way				
					Construction Management				
					Construction 20,000				
					Equipment 378,000				
					Other				
					Project Total 400,000				
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			100,000	100,000	75,000	75,000	75,000	75,000	400,000
Total			100,000	100,000	75,000	75,000	75,000	75,000	400,000

Division: Telecommunications	Project Priority: 20	Project Number:
Project Title: Internet Expansion	Start Date: 01/19 End Date: 12/23	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 2019 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 80,100 Land/Right-of-Way Construction Management Construction 3,204,000 Equipment 2,055,900 Other Project Total 5,340,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund - Growth		300,000		300,000		10,000	10,000	10,000	330,000
Proposed Revenue Bond			5,010,000	5,010,000					5,010,000
Total		300,000	5,010,000	5,310,000		10,000	10,000	10,000	5,340,000

Division: Telecommunications		Project Priority: 21			Project Number:					
Project Title: Video Set Top Boxes		Start Date: 01/19			Estimated Project Cost:					
Description:		End Date: 12/23			Design					
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.					Land/Right-of-Way					
					Construction Management					
					Construction					
					Equipment					400,000
					Other					
					Project Total					400,000
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project	
		Reappropriated	New Funding	Total	2020	2021	2022	2023		
Revenue Generating Fund			100,000	100,000	75,000	75,000	75,000	75,000	400,000	
Total			100,000	100,000	75,000	75,000	75,000	75,000	400,000	

Division: Telecommunications	Project Priority: 22	Project Number:
Project Title: 4G/LTE	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides continued funding to construct and maintain KPU's 4G/LTE Mobile network. Included in the 2019 project are funds to plan and build a new communications tower.		Design 8,000 Land/Right-of-Way Construction Management Construction 120,000 Equipment 672,000 Other Project Total 800,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			500,000	500,000	75,000	75,000	75,000	75,000	800,000
Total			500,000	500,000	75,000	75,000	75,000	75,000	800,000

Division: Telecommunications	Project Priority: 23	Project Number:
Project Title: Microwave	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account provides continued funding to construct, expand and maintain KPU's microwave system to Canada.		Design 1,500 Land/Right-of-Way Construction Management Construction 22,500 Equipment 126,000 Other Project Total 150,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			50,000	50,000	25,000	25,000	25,000	25,000	150,000
Total			50,000	50,000	25,000	25,000	25,000	25,000	150,000

Division: Telecommunications		Project Priority: 24			Project Number:														
Project Title: Hosted		Start Date: 01/19			Estimated Project Cost:														
Description: This capital account provides funding to upgrade, maintain and expand business offerings on the division's Hosted Platforms. Also included in the 2019 project are funds for a test bench so system changes and adaptations can be tested without impacting live Hosted telephone systems.		End Date: 12/23			<table border="0"> <tr> <td>Lab System</td> <td>61,250</td> </tr> <tr> <td>Jazz</td> <td>35,000</td> </tr> <tr> <td>Training</td> <td>17,500</td> </tr> <tr> <td>Licenses</td> <td>61,250</td> </tr> <tr> <td>Project Total</td> <td>175,000</td> </tr> </table>					Lab System	61,250	Jazz	35,000	Training	17,500	Licenses	61,250	Project Total	175,000
Lab System	61,250																		
Jazz	35,000																		
Training	17,500																		
Licenses	61,250																		
Project Total	175,000																		
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project										
		Reappropriated	New Funding	Total	2020	2021	2022	2023											
Revenue Generating Fund			75,000	75,000	25,000	25,000	25,000	25,000	175,000										
Total			75,000	75,000	25,000	25,000	25,000	25,000	175,000										

Division: Telecommunications	Project Priority: 25	Project Number:
Project Title: WiFi	Start Date: 01/19 End Date: 12/23	Estimated Project Cost:
Description: This capital account funds the ability for KPU to deploy WiFi in strategic locations in town; to support free and paid WiFi services for local and transient customers.		Design 1,875 Land/Right-of-Way Construction Management Construction 15,000 Equipment 58,125 Other Project Total 75,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: Telecommunications	Project Priority: 26	Project Number:
Project Title: Aerial Photos & Topographic Mapping Update	Start Date: 01/19	Estimated Project Cost:
	End Date: 12/19	Ground Control Survey 20,000
Description:		Topographic Mapping 120,000
The aerial orthophotos purchased jointly between the City, KPU, and Ketchikan Gateway Borough in 2008 are out of date. The aerial orthophotos purchased by FEMA in 2014 are also out of date and did not cover some vital facilities and areas, including Ketchikan Lakes, Whitman, Fawn Mountain, and Upper & Lower Silvis Lakes. The aerial maps and topographic maps are used for a variety of in-house purposes and public presentations. The total cost of this project is \$240,000. The cost of the project will be funded equally between the City, Ketchikan Public Utilities, and the Ketchikan Gateway Borough. The cost listed below represents the Telecommunications Division's share of \$24,000.		Aerial LiDAR 100,000
		Project Total 240,000
		Note: The City's and the Borough's share is \$160,000.
		KPU's share is \$80,000 and has been apportioned to the operating divisions of KPU.

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				24,000	24,000					24,000
Total				24,000	24,000					24,000

Division: Telecommunications	Project Priority: 27	Project Number:
Project Title: GIS ESRI Conversion	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: <p>The current Geographic Information System (GIS) software provider is Autodesk. Because Autodesk is leaving the GIS market, the City and KPU are looking to make a unified move to ESRI products from Autodesk products. ESRI is the industry leader for GIS. The functionality of ESRI software exceeds current software and is a better fit for current City needs, due in part to its compatibility with the City's accounting software, New World. All divisions making the move concurrently will leverage economies of scale in the data conversion and provide consistency across City departments and KPU divisions. This cost of this project will be shared by the following departments and divisions as follows:</p> <p>Engineering - \$19,000 Wastewater - \$19,000 KPU: Electric - \$23,000; Telecom - \$18,000; Water - \$19,000</p> <p>The total cost of the project is \$98,000. City departments will pay a total of \$38,000 and KPU will pay a total of \$60,000. The Engineering and Wastewater Divisions' share of the cost will be included in their 2019 Budget and KPU's share will be included in the 2019 Budget for each of its operating utilities. The cost listed below represents the Telecommunications Division's share of this project.</p>	Design Land/Right-of-Way Construction Management Construction Equipment 98,000 Other Project Total 98,000	

Source of Funds	Fund No.	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund				18,000	18,000					18,000
Total				18,000	18,000					18,000

**Ketchikan Public Utilities
2019 - 2023 Capital Improvement Program**

Division: Water

Project Title	Priority	Prior Years	Adopted 2019			Projected Requirements				Total Project
			Reappropriated	New Funding	Total	2020	2021	2022	2023	
Water Meters - Business & Commercial Customers	1	26,262	1,048,738	250,000	1,298,738					1,325,000
Schoenbar Road - Phase I (Valley Forge & South)	2	16,000		1,592,000	1,592,000					1,608,000
Aerial Photos & Topographic Mapping Update	3			25,333	25,333					25,333
GIS ESRI Conversion	4			19,000	19,000					19,000
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
Warehouse Fork Truck	9			30,000	30,000					30,000
Valley Court Utility Improvements	10			46,000	46,000					46,000
Schoenbar Road - Phase II (Middle School to Park Ave)	11					1,592,000				1,592,000
Highlands Reservoir Property Acquisition	12						270,000		25,000	295,000
West Fairy Chasm Improvements	13					35,000			581,000	616,000
Total		42,262	1,048,738	2,050,333	3,099,071	1,715,000	358,000	88,000	694,000	5,996,333

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund	42,262	48,738	208,333	257,071	123,000	88,000	88,000	113,000	711,333
Revenue Bonds - ADWF Loan		1,000,000	1,842,000	2,842,000	1,592,000				4,434,000
Proposed State Municipal Assistance Funding						270,000		581,000	851,000
	42,262	1,048,738	2,050,333	3,099,071	1,715,000	358,000	88,000	694,000	5,996,333

Department: KPU Water	Project Priority: 1	Project Number:
Project Title: Water Meters - Business & Commercial	Start Date: 01/18 End Date: 12/19	Estimated Project Cost:
Description: Metering commercial water and wastewater customers will begin in January 2020. In 2019 following a loan offer from the Alaska Department of Environmental Conservation, a bond will be issued to finance the purchase and installation of water meters on the premises of Ketchikan's approximately 450 commercial & business customers. A contract to purchase and install these meters will be issued in 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 2020 to fund the contracted repairs, maintenance and testing of these meters. The annual costs are estimated to be at least \$282,700 and will also be shared equally between the Water and Wastewater Divisions. 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 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund Revenue Bonds - ADWF Loan	26,262	48,738 1,000,000	250,000	48,738 1,250,000					75,000 1,250,000
Total	26,262	1,048,738	250,000	1,298,738					1,325,000

Division: Water		Project Priority: 2			Project Number:				
Project Title: Schoenbar Road - Phase I (Valley Forge & South)		Start Date: 01/18			Estimated Project Cost:				
Description:		End Date: 12/19			Design 16,000				
<p>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 by a series of rectifier stations, when it was constructed in 1993, electrical bonding was omitted by the contractor in the vicinity where the main crosses Schoenbar Creek. This resulted in electrolytic corrosion first observed in 2011 when a large leak developed. As much repair as possible was done with new electrical bonding installed but the inaccessible remainder under the bridge and its concrete abutments is also in poor shape and also needs to be replaced. 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. There is also a loan subsidy amount of \$662,400 offered that is dependent upon prompt submission of plans and specification with the loan application.</p>					Land/Right-of-Way				
					Construction Management				
					Construction 929,600				
					Equipment				
					Other (Loan Subsidy) 662,400				
			Project Total 1,608,000						
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund Revenue Bonds - ADWF Loan	16,000		1,592,000	1,592,000					16,000 1,592,000
Total	16,000		1,592,000	1,592,000					1,608,000

Division: Water	Project Priority: 3	Project Number:
Project Title: Aerial Photos & Topographic Mapping Update	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: The aerial orthophotos purchased jointly between the City, KPU, and Ketchikan Gateway Borough in 2008 are out of date. The aerial orthophotos purchased by FEMA in 2014 are also out of date and did not cover some vital facilities and areas, including Ketchikan Lakes, Whitman, Fawn Mountain, and Upper and Lower Silvis Lakes. The aerial maps and topographic maps are used for a variety of in-house purposes and public presentations. The total cost of this project is \$240,000 and will be funded equally between the City, Ketchikan Public Utilities, and the Ketchikan Gateway Borough. The cost listed below represents the Water Division's share of KPU's costs at \$25,333.		Ground Control Survey 20,000 Topographic Mapping 120,000 Aerial LiDAR 100,000 Project Total 240,000
		Note: The City's and the Borough's share is \$160,000. KPU's share is \$80,000 and has been apportioned to the operating divisions of KPU.

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			25,333	25,333					25,333
Total			25,333	25,333					25,333

Division: Water	Project Priority: 4	Project Number:
Project Title: GIS ESRI Conversion	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: The current Geographic Information System (GIS) software provider is Autodesk. Because Autodesk is leaving the GIS market, the City and KPU are looking to make a unified move to ESRI, the industry leader for GIS products. The functionality of ESRI software exceeds current software and is a better fit for current City and KPU needs, due in part to its compatibility with the City's accounting software, New World. All divisions making the move concurrently will leverage economies of scale in the data conversion and provide consistency across City departments and KPU divisions. The cost of this project will be shared by the following departments and divisions as follows: Engineering - \$19,000 Wastewater - \$19,000 KPU: Electric - \$23,000; Telecom - \$18,000; Water - \$19,000 The total cost of the project is \$98,000. City departments will pay a total of \$38,000 and KPU will pay a total of \$60,000. The Engineering and Wastewater Divisions' share of the cost will be included in their 2019 Budget and KPU's share will be included in the 2019 Budget for each of its operating utilities. The cost listed below represents the Water Division's share of this project.	Design Land/Right-of-Way Construction Management Construction Equipment 98,000 Other Project Total 98,000	

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			19,000	19,000					19,000
Total			19,000	19,000					19,000

Division: Water		Project Priority: 5			Project Number:				
Project Title: Water Distribution Grid Improvements		Start Date: 01/19 End Date: 12/23			Design Land/Right-of-Way Construction Management Construction 150,000 Equipment Other Project Total 150,000				
Description: Each year in conjunction with the work of other agencies, the Water Division is presented with opportunities to undertake repairs to improve the municipal water system. This account provides the funding for such improvements.									
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			30,000	30,000	30,000	30,000	30,000	30,000	150,000
Total			30,000	30,000	30,000	30,000	30,000	30,000	150,000

Division: Water		Project Priority: 6			Project Number:				
Project Title: Additional Projects		Start Date: 01/19 End Date: 12/23			Design Land/Right-of-Way Construction Management Construction 200,000 Equipment Other Project Total 200,000				
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 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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:				
Project Title: Water Service Upgrade Program		Start Date: 01/19 End Date: 12/23			Design Land/Right-of-Way Construction Management Construction 75,000 Equipment Other Project Total 75,000				
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.									
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: 01/19 End Date: 12/23			Design Land/Right-of-Way Construction Management Construction 15,000 Equipment Other Project Total 15,000				
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.									
Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
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: Warehouse Fork Truck	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: Purchased in 1983, the Warehouse Fork Truck is now 35 years old and has reached the end of its useful service life. Major repairs are needed, particularly to the leaking 3-stage mast cylinder, which even if remanufactured with machining and rechroming with new seals, it will still be an old machine with other failing parts. A replacement 3-stage mast cylinder is no longer made by Clark Forktrucks. Repairing the mast cylinder in Ketchikan has reduced the oil leak, but it still leaks. Shipping the cylinder to Seattle to be completely remanufactured and rechromed has an estimated cost in excess of \$10,000. It would be much more cost effective to simply purchase a new machine.		Design Land/Right-of-Way Construction Management Construction Equipment 30,000 Other Project Total 30,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			30,000	30,000					30,000
Total			30,000	30,000					30,000

Division: Water	Project Priority: 10	Project Number:
Project Title: Valley Court Utility Improvements	Start Date: 01/19 End Date: 12/19	Estimated Project Cost:
Description: Since the 1990's, 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, discussions with the adjacent property owner are on-going. Although the developer is having a utility design prepared, the cost included here is merely an estimate of the cost of the necessary materials needed for a Valley Court utility extension within the existing roadway prism. No agreement including any amount to be funded by KPU has yet been reached for consideration and approval by the City Council.		Design Land/Right-of-Way Construction Management Construction Equipment 46,000 Other Project Total 46,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund			46,000	46,000					46,000
Total			46,000	46,000					46,000

Division: Water	Project Priority: 11	Project Number:
Project Title: Schoenbar Road-Phase II (Middle School to Park Ave.)	Start Date: 01/20 End Date: 12/20	Estimated Project Cost:
Description: As noted in the project description for Schoenbar Road - Phase I, funding assistance for this project will be through the State of Alaska Municipal Grants & Loans program. The State's 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. 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. This project will remove the last remaining 550 feet of undersized cast-iron mains in Schoenbar Road between the northerly entrance to Schoenbar Middle School and Schoenbar/Park Avenue intersections. This is the primary route between the Bear Valley Reservoir that supplies the industries on Stedman Street. The expanding fish processing industries are consuming more water every year and supplying these commercial customers continues to tax the ability of the Utility to supply their needs.	Design Land/Right-of-Way Construction Management 1,592,000 Construction Equipment Other Project Total 1,592,000	

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Bonds - ADWF Loan					1,592,000				1,592,000
Total					1,592,000				1,592,000

Division: Water	Project Priority: 12	Project Number:
Project Title: Highlands Reservoir Property Acquisition	Start Date: 01/21 End Date: 12/29	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 25,000 Land/Right-of-Way 270,000 Construction Management Construction Equipment Other Project Total 295,000	

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund Proposed State Municipal Assistance Funding						270,000		25,000	25,000 270,000
Total						270,000		25,000	295,000

Division: Water	Project Priority: 13	Project Number:	
Project Title: West Fairy Chasm Improvements	Start Date: 01/20 End Date: 12/23	Estimated Project Cost:	
Description: This 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 plastic pipe. This project will be a joint venture between Public Works and the Water Division designed in 2020 and a Municipal Assistance Funding SFY 2022 request submitted. If approved, the remaining funds would be obtained through Drinking Water & Clean Water Loan requests to be submitted in February 2022. Voter approval to enter into loan agreements up to \$5-million will be requested in a future year to provide most of the remainder of the funding. The amounts assume a 50/50 split between the Water and Wastewater Divisions for the Municipal Assistance Funding. Construction would begin in 2023.		Design 35,000	
			Land/Right-of-Way
			Construction Management
			Construction Equipment 581,000
			Other Project Total 616,000

Source of Funds	Prior Years	Adopted 2019			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2020	2021	2022	2023	
Revenue Generating Fund					35,000				35,000
Proposed State Municipal Assistance Funding								581,000	581,000
Total					35,000			581,000	616,000