

KETCHIKAN PUBLIC UTILITIES

KPU



*Your Community, Your Utility*

2021-2025 CAPITAL IMPROVEMENT PROGRAM

**CITY OF KETCHIKAN, ALASKA**  
***2021 - 2025 KETCHIKAN PUBLIC UTILITIES***  
***CAPITAL IMPROVEMENT PROGRAM***

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**Ketchikan Public Utilities  
2021 - 2025 Capital Improvement Program  
2021 Capital Budget**

<b>Department/Division/Project</b>	<b>Revenues/ Reserves</b>	<b>Grants</b>	<b>Other</b>	<b>Revenue Bonds</b>	<b>2020 Total</b>
<b>Administration</b>					
Financial & Accounting Information System	20,000				20,000
<b>Administration Division Total</b>	<b>20,000</b>				<b>20,000</b>
<b>Sales, Marketing &amp; Customer Service</b>					
None					
<b>Sales, Marketing &amp; Customer Service Division Total</b>					
<b>Electric Division</b>					
Beaver Falls Project Relicensing	120,000				120,000
Bailey Unit No. 3 Rehabilitation	400,000				400,000
Bailey Unit No. 1 Rehabilitation	850,000				850,000
Diesel Generation Modernization	60,000				60,000
Beaver Falls Switch Gear Replacement	1,535,000				1,535,000
Whitman Tailrace Modification	25,000				25,000
Bailey Generator Radiator Replacement	25,000				25,000
Ketchikan International Airport & Pennock Is. Upgrade	50,000				50,000
Silvis Substation Upgrade	125,000				125,000
AMI, Meters and Meter Replacement Parts	65,000				65,000
Transformer Purchase	85,000				85,000
Battery System and Chargers	19,000				19,000
Reimbursable Projects	25,000				25,000
Warehouse Roof Repair and Replacement	220,000				220,000
Operating Equipment	263,000				263,000
Additional Projects	164,000				164,000
<b>Electric Division Total</b>	<b>4,031,000</b>				<b>4,031,000</b>

**Ketchikan Public Utilities  
2021 - 2025 Capital Improvement Program  
2021 Capital Budget**

<b>Department/Division/Project</b>	<b>Revenues/ Reserves</b>	<b>Grants</b>	<b>Other</b>	<b>Revenue Bonds</b>	<b>2020 Total</b>
<b>Telecommunications Division</b>					
Normal Growth and Repair - Buildings	10,000				10,000
Normal Growth and Repair - Copper Cable	10,000				10,000
Normal Growth and Repair - Fiber Cable	100,000				100,000
Normal Growth and Repair - CO Transmission	150,000				150,000
Normal Growth and Repair - Expansion	5,000				5,000
Normal Growth and Repair - Provisioning	10,000				10,000
Fiber to the Home	50,000				50,000
Remote Cabinets for Advanced Services	10,000				10,000
Core Network Upgrade	100,000				100,000
Server Environment	50,000				50,000
Multi-Dwelling Unit Project	100,000				100,000
Operating Equipment	15,000				15,000
PC Hardware & Software	40,000				40,000
Power Expansion/Reclamation	5,000				5,000
Network Monitoring	100,000				100,000
Headend Expansion	10,000				10,000
Video Set Top Boxes	25,000				25,000
4G LTE	60,000				60,000
Hosted	100,000				100,000
Wi-Fi	50,000				50,000
Internet Expansion				1,175,000	1,175,000
<b>Telecommunications Division Total</b>	<b>1,000,000</b>			<b>1,175,000</b>	<b>2,175,000</b>

**Ketchikan Public Utilities  
2021 - 2025 Capital Improvement Program  
2021 Capital Budget**

<b>Department/Division/Project</b>	<b>Revenues/ Reserves</b>	<b>Grants</b>	<b>Other</b>	<b>Revenue Bonds</b>	<b>2020 Total</b>
<b>Water Division</b>					
Filtration Facility-Preliminary Preparation Tasks	386,700				386,700
Schoenbar Water Mains - (Charter School - Middle School)				7,092,499	7,092,499
Water Meters - Business & Commercial Customers				756,178	756,178
Federal Act - Risk & Resilience Assessment	150,000				150,000
SCADA PLC Controllers	260,000				260,000
Water Distribution Grid Improvements	30,000				30,000
Additional Projects	40,000				40,000
Water Service Upgrade Program	15,000				15,000
Backflow Prevention Program	15,000				15,000
<b>Water Division Total</b>	<b>896,700</b>			<b>7,848,677</b>	<b>8,745,377</b>
<b>GRAND TOTAL</b>	<b>5,947,700</b>			<b>9,023,677</b>	<b>14,971,377</b>

**Ketchikan Public Utilities**  
**2021 - 2025 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

Division/Project	Prior Years	2021	2022	2023	2024	2025	Five Year Total	Project Total
<b>Administration</b>								
Financial & Accounting Information System Implementation	438,992	20,000					20,000	458,992
<b>Administration Total</b>	438,992	20,000					20,000	458,992
<b>Electric Division</b>								
Beaver Falls Project Relicensing	443,000	120,000	37,000				157,000	600,000
Bailey Unit No. 3 Rehabilitation	500,000	400,000					400,000	900,000
Bailey Unit No. 1 Rehabilitation	15,835	850,000					850,000	865,835
Diesel Generation Modernization	120,000	60,000					60,000	180,000
Beaver Falls Switch Gear Replacement	105,000	1,535,000					1,535,000	1,640,000
Generator Rewind & Repair			650,000	700,000			1,350,000	1,350,000
Whitman Tailrace Modification	11,291	25,000					25,000	36,291
Ketchikan Tunnel Penstock Valves Replacement	50,000		50,000	200,000			250,000	300,000
Bailey Exhaust Stack Re-Coating			25,000	225,000			250,000	250,000
Bailey Generator Radiator Replacement		25,000	300,000				325,000	325,000
Beaver Falls Governor Upgrade				250,000			250,000	250,000
Bailey Generator No. 4 Wartsilia PLC Upgrade			115,000				115,000	115,000
Generation Equipment Planning, Cleaning & Testing	191,395		50,000	50,000			100,000	291,395
Ketchikan Lakes Underground			250,000				250,000	250,000
Ketchikan International Airport & Pennock Is. Upgrade	245,000	50,000	140,000	250,000	25,000		465,000	710,000
Downtown Underground Upgrade	310,459		25,000	25,000	25,000		75,000	385,459
Silvis Substation Upgrade		125,000					125,000	125,000
AMI, Meters and Meter Replacement Parts		65,000	185,000	125,000	125,000	125,000	625,000	625,000
Transformer Purchase		85,000	90,000	95,000	100,000	105,000	475,000	475,000
Battery Systems and Chargers	17,000	19,000	56,000	76,000	46,000	50,500	247,500	264,500
Reimbursable Projects		25,000	150,000	125,000	125,000	125,000	550,000	550,000
34.5 kV Tie Breaker and Relay Spares				50,000		105,000	155,000	155,000
Warehouse Roof Repair & Replacement	50,000	220,000					220,000	270,000
Bailey Fuel Tank Painting			100,000				100,000	100,000
Bailey Mooring Dolphin Replacement			110,000				110,000	110,000
Operating Equipment		263,000	375,500	275,000	275,000	275,000	1,463,500	1,463,500
Vehicles & Moving Equipment			165,000	475,000	380,000	190,000	1,210,000	1,210,000
Additional Projects		164,000	164,000	164,000	164,000	164,000	820,000	820,000
Beaver Falls Powerhouse Exterior	36,070		600,000				600,000	636,070
Vehicle Lift Replacement			80,000				80,000	80,000
<b>Electric Division Total</b>	2,095,050	4,031,000	3,717,500	3,085,000	1,265,000	1,139,500	13,238,000	15,333,050

**Ketchikan Public Utilities**  
**2021 - 2025 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

Division/Project	Prior Years	2021	2022	2023	2024	2025	Five Year Total	Project Total
<b>Telecommunications Division</b>								
Normal Growth and Repair - Buildings		10,000	25,000	25,000	30,000	35,000	125,000	125,000
Normal Growth and Repair - CO Switching			500,000	150,000	100,000	50,000	800,000	800,000
Normal Growth and Repair - Copper Cable		10,000	20,000	20,000	20,000	25,000	95,000	95,000
Normal Growth and Repair - Fiber Cable		100,000	200,000	150,000	150,000	150,000	750,000	750,000
Normal Growth and Repair - CO Transmission		150,000	150,000	150,000	150,000	150,000	750,000	750,000
Normal Growth and Repair - Expansion		5,000	25,000	25,000	25,000	30,000	110,000	110,000
Normal Growth and Repair - Provisioning		10,000	50,000	150,000	100,000	50,000	360,000	360,000
Fiber to the Home		50,000	75,000	75,000	75,000	75,000	350,000	350,000
Remote Cabinets for Advanced Services		10,000	25,000	25,000	25,000	35,000	120,000	120,000
Core Network Upgrade		100,000	100,000	800,000	700,000	500,000	2,200,000	2,200,000
Server Environment		50,000	100,000	150,000	200,000	150,000	650,000	650,000
Multi-Dwelling Unit Project		100,000	200,000	200,000	200,000	200,000	900,000	900,000
Operating Equipment		15,000	50,000	60,000	60,000	65,000	250,000	250,000
PC Hardware & Software		40,000	45,000	50,000	50,000	55,000	240,000	240,000
Power Expansion/Reclamation		5,000	25,000	25,000	30,000	35,000	120,000	120,000
Visual Mapping Software			25,000	25,000	25,000	30,000	105,000	105,000
Network Monitoring		100,000	100,000	100,000	120,000	130,000	550,000	550,000
Vehicle Acquisition			100,000	100,000	150,000	150,000	500,000	500,000
Security				100,000	120,000	200,000	420,000	420,000
Headend Expansion		10,000	40,000	35,000	35,000	25,000	145,000	145,000
IPv4 Addressing			100,000	50,000	50,000		200,000	200,000
Video Set Top Boxes		25,000	50,000	25,000	25,000	10,000	135,000	135,000
4G/LTE		60,000	150,000	150,000	150,000	150,000	660,000	660,000
Microwave			25,000	25,000	25,000	25,000	100,000	100,000
Hosted		100,000	150,000	200,000	250,000	200,000	900,000	900,000
Wi-Fi		50,000	50,000	75,000	75,000	100,000	350,000	350,000
Internet Expansion	10,425,000	1,175,000					1,175,000	11,600,000
<b>Telecommunications Division Total</b>	10,425,000	2,175,000	2,380,000	2,940,000	2,940,000	2,625,000	13,060,000	23,485,000

**Ketchikan Public Utilities**  
**2021 - 2025 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

Division/Project	Prior Years	2021	2022	2023	2024	2025	Five Year Total	Project Total
<b>Water Division</b>								
Water Filtration Facility Project	138,300	386,700					386,700	525,000
Schoenbar Water Mains - (Charter School - Middle School)	427,000	7,092,499					7,092,499	7,519,499
Water Meters - Business & Commercial Customers	512,840	756,178					756,178	1,269,018
Federal Act - Risk & Resilience Assessment		150,000					150,000	150,000
SCADA PLC Controllers	50,000	260,000		265,000		285,000	810,000	860,000
Water Distribution Grid Improvements		30,000	30,000	30,000	30,000	30,000	150,000	150,000
Additional Projects		40,000	40,000	40,000	40,000	40,000	200,000	200,000
Water Service Upgrade Program		15,000	15,000	15,000	15,000	15,000	75,000	75,000
Backflow Prevention Program		15,000	15,000	15,000	15,000	15,000	75,000	75,000
Highlands Reservoir Property Acquisition					270,000		270,000	270,000
Second Avenue Utility Improvements			15,000			1,300,800	1,315,800	1,315,800
West Fairy Chasm Utility Improvements			15,000			550,600	565,600	565,600
Skyline Water Main Replacement			10,000			360,800	370,800	370,800
Denali Ave. Utility Improvements			15,000			512,000	527,000	527,000
Evergreen Ave. Utility Improvements			15,000			440,000	455,000	455,000
Utility Vehicles			37,500	118,000	94,000		249,500	249,500
<b>Water Division Total</b>	<b>1,128,140</b>	<b>8,745,377</b>	<b>207,500</b>	<b>483,000</b>	<b>464,000</b>	<b>3,549,200</b>	<b>13,449,077</b>	<b>14,577,217</b>
<b>TOTAL</b>	<b>14,087,182</b>	<b>14,971,377</b>	<b>6,305,000</b>	<b>6,508,000</b>	<b>4,669,000</b>	<b>7,313,700</b>	<b>39,767,077</b>	<b>53,854,259</b>



**Ketchikan Public Utilities**  
**2021 - 2025 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
<b>Administration</b>							
Financial & Accounting Information System Implementation	438,992	20,000					458,992
<b>Administration Total</b>	438,992	20,000					458,992
<b>Electric Division</b>							
Beaver Falls Project Relicensing	443,000	157,000					600,000
Bailey Unit No. 3 Rehabilitation	500,000	400,000					900,000
Bailey Unit No. 1 Rehabilitation	15,835	850,000					865,835
Diesel Generation Modernization	120,000	60,000					180,000
Beaver Falls Switch Gear Replacement	105,000	1,535,000					1,640,000
Generator Rewind & Repair		1,350,000					1,350,000
Whitman Tailrace Modification	11,291	25,000					36,291
Ketchikan Tunnel Penstock Valves Replacement	50,000	250,000					300,000
Bailey Exhaust Stack Re-Coating		250,000					250,000
Bailey Generator Radiator Replacement		325,000					325,000
Beaver Falls Governor Upgrade		250,000					250,000
Bailey Generator No. 4 Wartsila PLC Upgrade		115,000					115,000
Generation Equipment Planning, Cleaning & Testing	191,395	100,000					291,395
Ketchikan Lakes Underground		250,000					250,000
Ketchikan International Airport & Pennock Is. Upgrade	245,000	465,000					710,000
Downtown Underground Upgrade	310,459	75,000					385,459
Silvis Substation Upgrade		125,000					125,000
AMI, Meters and Meter Replacement Parts		625,000					625,000
Transformer Purchase		475,000					475,000
Battery Systems & Chargers	17,000	247,500					264,500
Reimbursable Projects		550,000					550,000
34.5 kV Tie Breaker and Relay Spares		155,000					155,000
Warehouse Roof Repair and Replacement	50,000	220,000					270,000
Bailey Fuel Tank Painting		100,000					100,000
Bailey Mooring Dolphin Replacement		110,000					110,000
Operating Equipment		1,463,500					1,463,500
Vehicles & Moving Equipment		1,210,000					1,210,000
Additional Projects		820,000					820,000
Beaver Falls Powerhouse Exterior	36,070	600,000					636,070
Vehicle Lift Replacement		80,000					80,000
<b>Electric Division Total</b>	2,095,050	13,238,000					15,333,050

**Ketchikan Public Utilities**  
**2021 - 2025 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
<b>Telecommunications Division</b>							
Normal Growth and Repair - Buildings		125,000					125,000
Normal Growth and Repair - CO Switching		800,000					800,000
Normal Growth and Repair - Copper Cable		95,000					95,000
Normal Growth and Repair - Fiber Cable		750,000					750,000
Normal Growth and Repair - CO Transmission		750,000					750,000
Normal Growth and Repair - Expansion		110,000					110,000
Normal Growth and Repair - Provisioning		360,000					360,000
Fiber to the Home		350,000					350,000
Remote Cabinets for Advanced Services		120,000					120,000
Core Network Upgrade		2,200,000					2,200,000
Server Environment		650,000					650,000
Multi-Dwelling Unit Project		900,000					900,000
Operating Equipment		250,000					250,000
PC Hardware & Software		240,000					240,000
Power Expansion/Reclamation		120,000					120,000
Visual Mapping Software		105,000					105,000
Network Monitoring		550,000					550,000
Vehicle Acquisition		500,000					500,000
Security		420,000					420,000
Headend Expansion		145,000					145,000
IPv4 Addressing		200,000					200,000
Video Set Top Boxes		135,000					135,000
4G/LTE		660,000					660,000
Microwave		100,000					100,000
Hosted		900,000					900,000
Wi-Fi		350,000					350,000
Internet Expansion	10,425,000	1,175,000					11,600,000
<b>Telecommunications Division Total</b>	<b>10,425,000</b>	<b>13,060,000</b>					<b>23,485,000</b>

**Ketchikan Public Utilities**  
**2021 - 2025 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
<b>Water Division</b>							
Water Filtration Facility Project	138,300	386,700					525,000
Schoenbar Water Mains - (Charter School - Middle School)	427,000					7,092,499	7,519,499
Water Meters - Business & Commercial Customers	512,840					756,178	1,269,018
Federal Act - Risk & Resilience Assessment		150,000					150,000
SCADA PLC Controllers	50,000	810,000					860,000
Water Distribution Grid Improvements		150,000					150,000
Additional Projects		200,000					200,000
Water Service Upgrade Program		75,000					75,000
Backflow Prevention Program		75,000					75,000
Highlands Reservoir Property Acquisition			135,000			135,000	270,000
Second Avenue Utility Improvements		15,000	650,400			650,400	1,315,800
West Fairy Chasm Utility Improvements		15,000	275,300			275,300	565,600
Skyline Water Main Replacement		10,000	180,400			180,400	370,800
Denali Ave. Utility Improvements		15,000	256,000			256,000	527,000
Evergreen Ave. Utility Improvements		15,000	220,000			220,000	455,000
Utility Vehicles		249,500					249,500
<b>Water Division Total</b>	1,128,140	2,166,200	1,717,100			9,565,777	14,577,217
<b>TOTAL</b>	<b>14,087,182</b>	<b>28,484,200</b>	<b>1,717,100</b>			<b>9,565,777</b>	<b>53,854,259</b>

**Ketchikan Public Utilities  
2021 - 2025 Capital Improvement Program**

**Department: General Manager**

Project Title	Priority	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Financial & Accounting Information System Implementation	1	438,992	18,400	1,600	20,000					458,992
<b>Total</b>		438,992	18,400	1,600	20,000					458,992
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		438,992	18,400	1,600	20,000					458,992
<b>Total</b>		438,992	18,400	1,600	20,000					458,992

<b>Department: KPU General Manager</b>			<b>Project Priority:</b> 1			<b>Project Number:</b>				
<b>Project Title:</b> Financial & Accounting Information System Implementation			<b>Start Date:</b> 01/07 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b>				
<b>Description:</b>			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 2021. The total project cost is estimated at \$918,000. Finance is requesting that remaining funds that have been appropriated for this project be carried over to 2021. 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 2021 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 391,517 Other - Training 15,500 Project Total 458,992				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		438,992	18,400	1,600	20,000					458,992
<b>Total</b>		438,992	18,400	1,600	20,000					458,992

<b>Ketchikan Public Utilities</b> <b>2021 - 2025 Capital Improvement Program</b> <b>Division: Electric</b>										
Project Title	Priority	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
<b>Generation (Hydro and Diesel) Projects</b>										
Beaver Falls Project Relicensing	1	443,000	80,000	40,000	120,000	37,000				600,000
Bailey Unit No. 3 Rehabilitation	3	500,000	400,000		400,000					900,000
Bailey Unit No. 1 Rehabilitation	4	15,835	834,165	15,835	850,000					865,835
Diesel Generation Modernization	5	120,000	60,000		60,000					180,000
Beaver Falls Switch Gear Replacement	6	105,000	35,000	1,500,000	1,535,000					1,640,000
Generator Rewind & Repair	7					650,000	700,000			1,350,000
Whitman Tailrace Modification	8	11,291		25,000	25,000					36,291
Ketchikan Tunnel Penstock Valves Replacement	10	50,000				50,000	200,000			300,000
Bailey Exhaust Stack Re-Coating	22					25,000	225,000			250,000
Bailey Generator Radiator Replacement	25			25,000	25,000	300,000				325,000
Beaver Falls Governor Upgrade	27						250,000			250,000
Bailey Generator No. 4 Wartsila PLC Upgrade	28					115,000				115,000
Generation Equipment Planning, Cleaning & Testing	30	191,395				50,000	50,000			291,395
<b>Transmission and Distribution Projects</b>										
Ketchikan Lakes Underground	9					250,000				250,000
Ketchikan International Airport & Pennock Upgrade	11	245,000		50,000	50,000	140,000	250,000	25,000		710,000
Downtown Underground Upgrade	12	310,459				25,000	25,000	25,000		385,459
Silvis Substation Upgrade	13		125,000		125,000					125,000
AMI, Meters, Meter Replacement Parts	14			65,000	65,000	185,000	125,000	125,000	125,000	625,000
Transformer Purchase	15			85,000	85,000	90,000	95,000	100,000	105,000	475,000
Battery System and Chargers	16	17,000		19,000	19,000	56,000	76,000	46,000	50,500	264,500
Reimbursable Projects	23			25,000	25,000	150,000	125,000	125,000	125,000	550,000
34.5 kV Breaker and Relay Spares	24						50,000		105,000	155,000
<b>General Plant Projects</b>										
Warehouse Roof Repair and Replacement	2	50,000	120,000	100,000	220,000					270,000
Bailey Fuel Tank Painting	17					100,000				100,000
Bailey Mooring Dolphin Replacement	18					110,000				110,000
Operating Equipment	19			263,000	263,000	375,500	275,000	275,000	275,000	1,463,500
Vehicles & Moving Equipment	20					165,000	475,000	380,000	190,000	1,210,000
Additional Projects	21			164,000	164,000	164,000	164,000	164,000	164,000	820,000
Beaver Falls Powerhouse Exterior	26	36,070				600,000				636,070
Vehicle Lift Replacement	29					80,000				80,000
<b>Total</b>		2,095,050	1,654,165	2,376,835	4,031,000	3,717,500	3,085,000	1,265,000	1,139,500	15,333,050
Source of Funds		Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		2,095,050	1,654,165	2,376,835	4,031,000	3,717,500	3,085,000	1,265,000	1,139,500	15,333,050
<b>Total</b>		2,095,050	1,654,165	2,376,835	4,031,000	3,717,500	3,085,000	1,265,000	1,139,500	15,333,050

<b>Department:</b> KPU Electric			<b>Project Priority:</b> 1			<b>Project Number:</b>				
<b>Project Title:</b> Beaver Falls Project Relicensing			<b>Start Date:</b> 01/18 <b>End Date:</b> 12/22			<b>Estimated Project Cost:</b>				
<b>Description:</b> <p>The Beaver Falls Hydroelectric Project is licensed through the Federal Energy Regulatory Commission (FERC) for a term of 30 years. KPU's current license expires in 2024. To renew its FERC license, KPU began the process in 2018 with development of a Preliminary Application Document (PAD), with Notice of Intent (NOI) that was filed in 2019. Following NEPA and tribal consultations, and completion of studies, a final license application is due in 2022. This process will require professional services for FERC regulatory work, studies and surveys. Relicensing costs are highly variable and are dependent upon issues that arise during the consultation process.</p>						Design 600,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 600,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		443,000	80,000	40,000	120,000	37,000				600,000
<b>Total</b>		443,000	80,000	40,000	120,000	37,000				600,000

<b>Division:</b> Electric			<b>Project Priority:</b> 2			<b>Project Number:</b>				
<b>Project Title:</b> Warehouse Roof Repair and Replacement			<b>Start Date:</b> 01/20 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b>				
<b>Description:</b> <p>The metal roof at the division headquarters warehouse leaks in multiple locations during heavy rain events and sweats with condensation during the winter. The water damages stored material and structures within the warehouse which includes insulation batting and walls, along with channeling to and through boxed stock, files, etc. The existing metal roof has been coated as a repair sometime in 1997. This coating has since gotten brittle and severely cracked. A more extensive roof replacement will be necessary.</p>						Design 50,000 Land/Right-of-Way Construction Management Construction 220,000 Equipment Other Project Total 270,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		50,000	120,000	100,000	220,000					270,000
<b>Total</b>		50,000	120,000	100,000	220,000					270,000



<b>Division:</b> Electric			<b>Project Priority:</b> 3			<b>Project Number:</b>				
<b>Project Title:</b> Bailey Unit No. 3 Rehabilitation			<b>Start Date:</b> 01/19			<b>Estimated Project Cost:</b>				
<b>Description:</b>			<b>End Date:</b> 12/21			Design				
Bailey Generator No. 3 (BAG3) is a Colt-Pielstick (Fairbanks Morse), which was built in 1975. During operation in November 2018, the unit suffered a piston failure. The unit has had multiple piston failures as it ages due to the piston design. The unit was temporarily repaired with a spare piston/liner. Factory representatives from Fairbanks Morse conducted a site visit to evaluate reliability and recommended upgrading to a new more robust piston design that will prevent these types of failures. In 2019, new pistons, connecting rods and liners were purchased for \$500,000. New funding is required for the installation of the new parts. The upgrade will result in a more reliable unit, which should reduce excessive lubricating oil consumption and eliminate the unit's de-rating. This project will fund the piston upgrade and will allow for the additional upgrade of fuel delivery and monitoring components. COVID-19 delayed the parts delivery in 2020. KPU will competitively seek a qualified contractor in 2021 to install the new components and assist KPU with recommissioning BAG3.						Land/Right-of-Way				
						Construction Management				
						Construction				400,000
						Equipment				500,000
						Other				
						Project Total				900,000
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		500,000	400,000		400,000					900,000
<b>Total</b>		500,000	400,000		400,000					900,000

<b>Division:</b> Electric					<b>Project Priority:</b> 4		<b>Project Number:</b>			
<b>Project Title:</b> Bailey Unit No. 1 Rehabilitation					<b>Start Date:</b> 01/19 <b>End Date:</b> 12/21		<b>Estimated Project Cost:</b>			
<b>Description:</b> Bailey Generator No. 1 (BAG1) was built in the 1970s. During operation in October 2018, BAG1 suffered a main bearing failure, which caused extensive damage to the powertrain. This project will fund the rehabilitation of the turbocharger, fuel delivery system and engine components including injectors, main journals, crankshaft, connecting rods, pistons, bearings and related components. The estimate assumes onsite work. The project may require additional funding if overhaul or repair of major components is not feasible or possible.							Design Land/Right-of-Way Construction Management Construction 325,000 Equipment 540,835 Other Project Total 865,835			
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		15,835	834,165	15,835	850,000					865,835
<b>Total</b>		15,835	834,165	15,835	850,000					865,835

<b>Division:</b> Electric			<b>Project Priority:</b> 5			<b>Project Number:</b>				
<b>Project Title:</b> Diesel Generation Modernization			<b>Start Date:</b> 01/19 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment Other Project Total				
<b>Description:</b> Maintaining reliable diesel generation capacity for times of high-loads, low reservoir levels and hydroelectric and transmission-line outages is extremely important for the integrity of Ketchikan's electrical grid. An architecture and engineering consultant specializing in diesel generation and facilities will be hired to evaluate KPU's existing diesel generation capabilities at Bailey Power Plant and North Pt. Higgins Substation Generation. The evaluation will identify and recommend solutions for existing and future reliability. Items to address include limitations and vulnerabilities of the existing infrastructure; determination of what is needed for existing redundancy; evaluation of future system growth without the immediate ability to add new hydropower or other power sources; and recommendations for solutions and options encompassing additional diesel generation capacity, locations, fuel supplies, air quality permits, conceptual designs and budgetary estimates for detailed design and construction options of those solutions.						180,000 180,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		120,000	60,000		60,000					180,000
<b>Total</b>		120,000	60,000		60,000					180,000

<b>Division:</b> Electric					<b>Project Priority:</b> 6		<b>Project Number:</b>		
<b>Project Title:</b> Beaver Falls Switch Gear Replacement					<b>Start Date:</b> 01/17 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>		
<b>Description:</b>  The Beaver Falls powerhouse switchgear needs replacement and is an operating risk to the power plant. The existing equipment is 1940's vintage and beyond its reliable life. It has been identified as containing asbestos materials, which will need to be abated during the replacement of the equipment. This work requires the replacement/upgrade of the three (3) generator excitation systems, controls, breakers, protection relays, electrical panels, DC electrical equipment and modification of the control room. This is a major project requiring an established scope of work and detailed work schedule. This project will be completed in phases over multiple years and requires engineering services, planning, plans and specifications, the procurement of equipment, the demolition/installation of equipment and commissioning.							Design/License 90,000		
							Land/Right-of-Way 10,000		
							Construction Management 400,000		
							Construction 1,000,000		
							Equipment 140,000		
							Project Total 1,640,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	105,000	35,000	1,500,000	1,535,000					1,640,000
<b>Total</b>	105,000	35,000	1,500,000	1,535,000					1,640,000

<b>Department:</b> KPU Electric			<b>Project Priority:</b> 7			<b>Project Number:</b>				
<b>Project Title:</b> Generator Rewind & Repair			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>				
<b>Description:</b>			<b>End Date:</b> 12/23			Design				
<p>Typical life expectancy for generator windings is 30-40 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.</p> <p>Silvis: Unit No. 1 (1968)</p> <p>Beaver Falls: Unit No. 1 (2014), Unit No. 3 (2018, and Unit No. 4 (2018)</p> <p>Ketchikan: Unit No. 3 (2015), Unit No. 4 (1951), and Unit No. 5 (1991)</p>						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 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						650,000	700,000			1,350,000
<b>Total</b>						650,000	700,000			1,350,000

<b>Division:</b> Electric			<b>Project Priority:</b> 8			<b>Project Number:</b>				
<b>Project Title:</b> Whitman Tailrace Modification			<b>Start Date:</b> 01/20 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b>				
<b>Description:</b> <p>The Whitman Hydroelectric Project operates under a FERC license, which requires monitoring of the tailrace that has shown fish to be stranded during normal operations. Operational adjustments have not been adequate to eliminate fish stranding. In 2019, KPU made modifications to the tailrace channel and continues to monitor it. Additional structural modifications may be necessary, the nature of which are subject to consultation and approval by fisheries management agencies and FERC</p>						Design Land/Right-of-Way Construction Management Construction 36,291 Equipment Other Project Total 36,291				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		11,291		25,000	25,000					36,291
<b>Total</b>		11,291		25,000	25,000					36,291

<b>Division:</b> Electric			<b>Project Priority:</b> 9			<b>Project Number:</b>				
<b>Project Title:</b> Ketchikan Lakes Underground			<b>Start Date:</b> 01/22 <b>End Date:</b> 12/22			<b>Estimated Project Cost:</b>				
<b>Description:</b> This project provides funding to install underground power & communications to Fawn Lake, Ketchikan Lakes and to the Granite Basin area, which will include approximately 7,500 linear feet of trenching, conduit, conduit elbows, pull boxes, sectionalizing cabinets, primary conductor, transformers, fiber, etc. Currently power at these sites is provided by solar panels with small back-up generators; with communications limited to line of site antennas.						Design Land/Right-of-Way Construction Management Construction 250,000 Equipment Other Project Total 250,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						250,000				250,000
<b>Total</b>						250,000				250,000

<b>Division:</b> Electric					<b>Project Priority:</b> 10		<b>Project Number:</b>		
<b>Project Title:</b> Ketchikan Tunnel Penstock Valves Replacement					<b>Start Date:</b> 01/13		<b>Estimated Project Cost:</b>		
<b>Description:</b> 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. The assessment, design and replacement of the valves will be coordinated with the Water Division's plan and schedule to install a bypass pipe between Ketchikan Lakes and the city.					<b>End Date:</b> 12/23		Design 70,000 Land/Right-of-Way Construction Management Construction 180,000 Equipment 50,000 Other Project Total 300,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	50,000				50,000	200,000			300,000
<b>Total</b>	50,000				50,000	200,000			300,000



<b>Division:</b> Electric					<b>Project Priority:</b> 11		<b>Project Number:</b>		
<b>Project Title:</b> Ketchikan International Airport and Penneck Island Upgrade					<b>Start Date:</b> 01/12 <b>End Date:</b> 12/24		<b>Estimated Project Cost:</b>		
<b>Description:</b> The existing armored submarine electrical cable that serves the airport is nearing the end of its useful life (installed mid-1970's). The armoring has also begun to corrode, leading to the installation of slip-on armoring on its Gravina beach landing. The cable originates behind the Bailey tank farm and runs through the area of Vigor, Taquan, Carlanna Creek and the Bailey fuel barge delivery point. Dredging in the early 1970's damaged the original KIA cable. Design and specifications have been developed, in conjunction with the State and the Borough, to install a new armored cable beginning at a location near the airport ferry terminal. Preliminary uplands work began in 2020. The submarine cable will be purchased in 2021, along with continued uplands work. The new cable is programmed for installation in 2022 as the State's airport ferry terminal project progresses.							Design/License 50,000 Land/Right-of-Way Construction Management Construction 400,000 Equipment 260,000 Other Project Total 710,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	245,000		50,000	50,000	140,000	250,000	25,000		710,000
<b>Total</b>	245,000		50,000	50,000	140,000	250,000	25,000		710,000

<b>Division:</b> Electric		<b>Project Priority:</b> 12			<b>Project Number:</b>				
<b>Project Title:</b> Downtown Underground Upgrade		<b>Start Date:</b> 01/12 <b>End Date:</b> 12/24			<b>Estimated Project Cost:</b>				
<b>Description:</b> Funding provides small scale tasks & upgrades as they become identified, as well as for the purchase of spare equipment & parts, including, but not limited to: - Conductor - Submersible transformers - Switch gear - Pumps - Vault lids - Nearby overhead & adjoining overhead infrastructure (e.g. take-off poles & risers)					Design 75,000 Land/Right-of-Way Construction Management Construction 100,000 Equipment 210,000 Other 459 Project Total 385,459				
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	310,459				25,000	25,000	25,000		385,459
<b>Total</b>	310,459				25,000	25,000	25,000		385,459

<b>Department:</b> Electric			<b>Project Priority:</b> 13			<b>Project Number:</b>				
<b>Project Title:</b> Silvis Substation Upgrade			<b>Start Date:</b> 01/20 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b>				
<b>Description:</b> In 2018 and 2019, KPU purchased new substation equipment for the Silvis substation including a transformer, distribution switch, breaker and relays. KPU will competitively seek a qualified contractor in 2021 to provide auxiliary substation equipment and structures, site reconfigurations, oil containment repairs/upgrade, fencing, installation of the new KPU provided equipment and to assist KPU with recommissioning the substation.						Design Land/Right-of-Way Construction Management 125,000 Construction Equipment Other Project Total 125,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			125,000		125,000					125,000
<b>Total</b>			125,000		125,000					125,000

<b>Division:</b> Electric			<b>Project Priority:</b> 14			<b>Project Number:</b>				
<b>Project Title:</b> AMI, Meters and Meter Replacement Parts			<b>Start Date:</b> 01/21			<b>Estimated Project Cost:</b>				
<b>Description:</b>			<b>End Date:</b> 12/25							
The division continues phasing in the AMI meters to make available advanced metering functions, including automated billing. This project also funds replacement of the division's metering equipment and AMI software & hardware. This project also funds validating metering system accuracy and replacement of residential and commercial meters that are on a 20 year replacement schedule (or 5% per year).						Design Land/Right-of-Way Construction Management Construction Equipment 625,000 Other Project Total 625,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund				65,000	65,000	185,000	125,000	125,000	125,000	625,000
Total				65,000	65,000	185,000	125,000	125,000	125,000	625,000

<b>Division:</b> Electric					<b>Project Priority:</b> 15		<b>Project Number:</b>		
<b>Project Title:</b> Transformer Purchase					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> This capital account funds the routine and preventative replacement and upgrades of both pole mounted and pad mounted transformers throughout the system. Projected increases are anticipated due to the expected rise in the price of metals.							Design Land/Right-of-Way Construction Management Construction Equipment 475,000 Other Project Total 475,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			85,000	85,000	90,000	95,000	100,000	105,000	475,000
<b>Total</b>			85,000	85,000	90,000	95,000	100,000	105,000	475,000

<b>Division:</b> Electric			<b>Project Priority:</b> 16			<b>Project Number:</b>				
<b>Project Title:</b> Battery Systems and Chargers			<b>Start Date:</b> 01/20 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b>  There are ten battery systems and chargers throughout the KPU system within powerhouses and substations. Eight will be approaching end of life over the next ten (10) years. A battery system and charger failure will compromise system reliability. This project will start systematically replacing these systems. 2021 funding will replace one of these systems.						Design Land/Right-of-Way Construction Management Construction Equipment 264,500 Other Project Total 264,500				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		17,000		19,000	19,000	56,000	76,000	46,000	50,500	264,500
<b>Total</b>		17,000		19,000	19,000	56,000	76,000	46,000	50,500	264,500

<b>Division:</b> Electric					<b>Project Priority:</b> 17		<b>Project Number:</b>		
<b>Project Title:</b> Bailey Fuel Tank Painting					<b>Start Date:</b> 01/22 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>		
<b>Description:</b> Bailey 210,000 gallon fuel tank pressure wash, prep and painting. The tank is approximately 32 feet tall and 30' in diameter.							Design Land/Right-of-Way Construction Management Construction Equipment 100,000 Other Project Total 100,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					100,000				100,000
<b>Total</b>					100,000				100,000

<b>Department:</b> KPU Electric					<b>Project Priority:</b> 18		<b>Project Number:</b>			
<b>Project Title:</b> Bailey Mooring Dolphin Replacement					<b>Start Date:</b> 01/18 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>			
<b>Description:</b> Fuel is delivered to the Bailey Power Plant by barge. One of the mooring dolphins used to secure the barge 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 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						110,000				110,000
<b>Total</b>						110,000				110,000



<b>Division:</b> Electric		<b>Project Priority:</b> 19		<b>Project Number:</b>						
<b>Project Title:</b> Operating Equipment		<b>Start Date:</b> 01/21		<b>Estimated Project Cost:</b>						
<b>Description:</b>		<b>End Date:</b> 12/25		Design						
This capital account provides for the purchase of new or replacement equipment used for the operation and maintenance of electrical service. 1) SCADA Critical Parts \$ 15,000 2) Substation and Powerhouse Electronic Meters, Relays and Control Eq. 20,000 3) New Test/Indication/Recorder Equipment, Repair & Recalibration 25,000 4) Meters, Probes, Hand Tools, Radios 20,000 5) Customer Current & Potential Transformers 40,000 6) Generation and Powerhouse Spare Parts 50,000 7) Recording Equipment 10,000 8) NovaTech RTU Upgrade Orion 5R to Orion LX (Qty. 4) 15,000 9) Spare Powerhouse Generator Breakers 10,000 10) Control Equipment Upgrades 20,000 11) Communication and Control Cable Rreplacement-Upper Silvis Lake to Powerhouse 10,000 12) Data Radio Upgrade - RipEX 20,000 13) Capacitor Bank Control Upgrades and Parts 8,000				Land/Right-of-Way						
				Construction Management						
				Construction						
				Equipment						
				Other						
				Project Total						
				1,463,500						
				1,463,500						
<b>Source of Funds</b>		<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
			<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund				263,000	263,000	375,500	275,000	275,000	275,000	1,463,500
<b>Total</b>				263,000	263,000	375,500	275,000	275,000	275,000	1,463,500

<b>Division:</b> Electric		<b>Project Priority:</b> 20			<b>Project Number:</b>				
<b>Project Title:</b> Vehicles & Moving Equipment		<b>Start Date:</b> 01/22 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 1,210,000 Other Project Total 1,210,000				
<b>Description:</b> <u>2022 Purchases:</u> Replace #185-44 1-ton dumpbed truck with new F-450 equivalent \$90,000 Replace #185-57 3/4-ton pick-up and 185-80 work van with new 3/4-ton pick-up with utility camper \$75,000 <u>Projections:</u> 2023: Replace #183-55/57 mini-excavator with new 75-85 sized mini-excavator \$125,000 Replace #185-11 digger/derrick boom truck \$350,000 2024: Replace #185-59 large bucket truck \$300,000 Replace small work truck(s)/van(s) \$80,000 2025: Replace small work truck(s)/van(s) \$90,000 Replace small work truck(s)/van(s) \$100,000									
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					165,000	475,000	380,000	190,000	1,210,000
Total					165,000	475,000	380,000	190,000	1,210,000

<b>Division:</b> Electric					<b>Project Priority:</b> 21		<b>Project Number:</b>		
<b>Project Title:</b> Additional Projects					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> This project represents funds for materials and labor for unidentified jobs that the division will be called upon to perform in 2021. 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 820,000 Equipment Other Project Total 820,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			164,000	164,000	164,000	164,000	164,000	164,000	820,000
<b>Total</b>			164,000	164,000	164,000	164,000	164,000	164,000	820,000

<b>Division:</b> Electric		<b>Project Priority:</b> 22		<b>Project Number:</b>					
<b>Project Title:</b> Bailey Exhaust Stack Re-Coating		<b>Start Date:</b> 01/22 <b>End Date:</b> 12/23		<b>Estimated Project Cost:</b>					
<b>Description:</b>  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 2022 will include development of detailed scope, specifications, and a more refined estimate to undertake the work in 2023  .		Design/License		25,000					
		Land/Right-of-Way							
		Construction Management							
		Construction		225,000					
		Equipment							
		Other							
		Project Total		250,000					
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					25,000	225,000			250,000



<b>Division:</b> Electric			<b>Project Priority:</b> 24			<b>Project Number:</b>				
<b>Project Title:</b> 34.5 kV Breaker and Relay Spares			<b>Start Date:</b> 01/23 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 155,000 Other Project Total 155,000				
<b>Description:</b>  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.										
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund							50,000		105,000	155,000
<b>Total</b>							50,000		105,000	155,000

<b>Division:</b> Electric		<b>Project Priority:</b> 25		<b>Project Number:</b>	
<b>Project Title:</b> Bailey Generator Radiator Replacement		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b> Design/License 25,000 Land/Right-of-Way Construction Management Construction 60,000 Equipment 240,000 Other  Project Total 325,000	
<b>Description:</b> The exterior radiators for Bailey Generator No. 3 (BAG3) and 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 may result in the eventual need for complete radiator replacement. It may be possible to design a more cost effective solution in lieu of complete replacement.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			25,000	25,000	300,000				325,000
<b>Total</b>			25,000	25,000	300,000				325,000

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			25,000	25,000	300,000				325,000
<b>Total</b>			25,000	25,000	300,000				325,000

<b>Division:</b> Electric					<b>Project Priority:</b> 26		<b>Project Number:</b>		
<b>Project Title:</b> Beaver Falls Powerhouse Exterior					<b>Start Date:</b> 01/13 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>		
<b>Description:</b> The exterior of the Beaver Falls Powerhouse, which was built in 1954, contains asbestos coating that is failing. Signs of water intrusion into the concrete walls and structure are apparent. This project will entail an engineering evaluation of the building structure, an environmental evaluation, creation of plans and specifications for asbestos removal and disposal, concrete/structural repairs, a new coating system and required contractual work.							Design 10,000 Land/Right-of-Way Construction Management Construction 626,070 Equipment Other Project Total 636,070		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	36,070				600,000				636,070
<b>Total</b>	36,070				600,000				636,070



<b>Division:</b> Electric		<b>Project Priority:</b> 27		<b>Project Number:</b>					
<b>Project Title:</b> Beaver Falls Governor Upgrade		<b>Start Date:</b> 01/23		<b>Estimated Project Cost:</b>					
<b>Description:</b>  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.		<b>End Date:</b> 12/23		Design					
				Land/Right-of-Way					
				Construction Management					
				Construction					
				Equipment 250,000					
				Other					
				Project Total 250,000					
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						250,000			250,000
<b>Total</b>						250,000			250,000

<b>Department:</b> Electric					<b>Project Priority:</b> 28		<b>Project Number:</b>			
<b>Project Title:</b> Bailey Generator No. 4 Wartsila PLC Upgrade					<b>Start Date:</b> 01/22 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>			
<b>Description:</b> <p>The BAG4 PLC and I/O hardware are past end of life and beyond legacy support. This project will update the generator to a modern PLC and I/O hardware platform. This project will be completed in phases and requires engineering services, planning, plans and specifications, the procurement of equipment, the demolition/installation of equipment, factory acceptance testing (FAT) and commissioning.</p>							Design Land/Right-of-Way Construction Management 115,000 Construction Equipment Other Project Total 115,000			
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						115,000				115,000
<b>Total</b>						115,000				115,000

<b>Division:</b> Electric					<b>Project Priority:</b> 29		<b>Project Number:</b>		
<b>Project Title:</b> Vehicle Lift Replacement					<b>Start Date:</b> 01/22 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>		
<b>Description:</b> The existing stationary 4-post vehicle lift has a capacity of 12,000 pounds, while many of the 1-ton bucket trucks weigh 18,000 pounds. The intent is to purchase a set of four (4) mobile wheel lifts with a capacity of at least 20,000 pounds.							Design Land/Right-of-Way Construction Management Construction Equipment 80,000 Other Project Total 80,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					80,000				80,000
<b>Total</b>					80,000				80,000

<b>Division:</b> Electric					<b>Project Priority:</b> 30		<b>Project Number:</b>		
<b>Project Title:</b> Generation Equipment Planning, Cleaning & Testing					<b>Start Date:</b> 01/14 <b>End Date:</b> 12/23		<b>Estimated Project Cost:</b> Design/License Land/Right-of-Way Construction Management Construction Equipment Other		
<b>Description:</b>  This project provides for comprehensive tests and evaluation of generator stator, rotor windings and generator related equipment. Detailed cleaning and generator repairs are necessary. Due to the scope of this work and required equipment, contracted work may be necessary. This work is essential in developing an updated plan for future rewinds and other major generator work. This budget is to provide funding for generator planning activities, cleaning, testing and required equipment in the KPU generation system.							291,395		
							Project Total 291,395		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	191,395				50,000	50,000			291,395
<b>Total</b>	191,395				50,000	50,000			291,395

Ketchikan Public Utilities 2021 - 2025 Capital Improvement Program Division: Telecommunications										
Project Title	Priority	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
<b>REGULATED</b>										
Normal Growth and Repair - Buildings	1			10,000	10,000	25,000	25,000	30,000	35,000	125,000
Normal Growth and Repair - CO Switching	2					500,000	150,000	100,000	50,000	800,000
Normal Growth and Repair - Copper Cable	3			10,000	10,000	20,000	20,000	20,000	25,000	95,000
Normal Growth and Repair - Fiber Cable	4			100,000	100,000	200,000	150,000	150,000	150,000	750,000
Normal Growth and Repair - CO Transmission	5			150,000	150,000	150,000	150,000	150,000	150,000	750,000
Normal Growth and Repair - Expansion	6			5,000	5,000	25,000	25,000	25,000	30,000	110,000
Normal Growth and Repair - Provisioning	7			10,000	10,000	50,000	150,000	100,000	50,000	360,000
Fiber to the Home	8			50,000	50,000	75,000	75,000	75,000	75,000	350,000
Remote Cabinets for Advanced Services	9			10,000	10,000	25,000	25,000	25,000	35,000	120,000
Core Network Upgrade	10			100,000	100,000	100,000	800,000	700,000	500,000	2,200,000
Server Environment	11			50,000	50,000	100,000	150,000	200,000	150,000	650,000
Multi-Dwelling Unit Project	12			100,000	100,000	200,000	200,000	200,000	200,000	900,000
Operating Equipment	13			15,000	15,000	50,000	60,000	60,000	65,000	250,000
PC Hardware & Software	14			40,000	40,000	45,000	50,000	50,000	55,000	240,000
Power Expansion/Reclamation	15			5,000	5,000	25,000	25,000	30,000	35,000	120,000
Visual Mapping Software	16					25,000	25,000	25,000	30,000	105,000
Network Monitoring	17			100,000	100,000	100,000	100,000	120,000	130,000	550,000
Vehicle Acquisition	18					100,000	100,000	150,000	150,000	500,000
Security	19						100,000	120,000	200,000	420,000
<b>NON-REGULATED</b>										
Headend Expansion	20			10,000	10,000	40,000	35,000	35,000	25,000	145,000
IPv4 Addressing	21					100,000	50,000	50,000		200,000
Video Set Top Boxes	22			25,000	25,000	50,000	25,000	25,000	10,000	135,000
4G/LTE	23			60,000	60,000	150,000	150,000	150,000	150,000	660,000
Microwave	24					25,000	25,000	25,000	25,000	100,000
Hosted	25			100,000	100,000	2,022	200,000	250,000	200,000	752,022
WiFi	26			50,000	50,000	50,000	75,000	75,000	100,000	350,000
Internet Expansion	27	10,425,000	1,175,000		1,175,000					11,600,000
Total		10,425,000	1,175,000	1,000,000	2,175,000	2,232,022	2,940,000	2,940,000	2,625,000	23,337,022
Source of Funds		Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		100,000		1,000,000	1,000,000	2,232,022	2,940,000	2,940,000	2,625,000	11,837,022
Revenue Bond		10,325,000	1,175,000		1,175,000					11,500,000
Total		10,425,000	1,175,000	1,000,000	2,175,000	2,232,022	2,940,000	2,940,000	2,625,000	23,337,022

<b>Division:</b> Telecommunications					<b>Project Priority:</b> 1		<b>Project Number:</b>		
<b>Project Title:</b> Normal Growth and Repair - Buildings					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> 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 125,000 Other Project Total 125,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			10,000	10,000	25,000	25,000	30,000	35,000	125,000
<b>Total</b>			10,000	10,000	25,000	25,000	30,000	35,000	125,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 2		<b>Project Number:</b>					
<b>Project Title:</b> Normal Growth and Repair - Central Office Switching		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 800,000 Other Project Total 800,000					
<b>Description:</b>  This capital account provides funding for reliability upgrades and additional capacity equipment required for the division's telecommunications switching and voice over Internet protocol network. Included are funds to enhance least cost routing and fraud detection, as well as to ensure that features work with all residential lines.  Additionally, this budget item purchases one new softswitch to replace the end-of-life T7000 class 5 switch in 2022 to work in tandem with the Broadworks feature softswitch. This also includes funding to replace the ACME session border controllers with newer hardware and software to facilitate the protection of all of the division's ip voice platforms.									
<b>Source of Funds</b>	<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
		<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund					500,000	150,000	100,000	50,000	800,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 3		<b>Project Number:</b>	
<b>Project Title:</b> Normal Growth and Repair - Copper Cable		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design 3,800 Land/Right-of-Way Construction Management Construction 38,000 Equipment 53,200 Other Project Total 95,000	
<b>Description:</b>  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.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			10,000	10,000	20,000	20,000	20,000	25,000	95,000
<b>Total</b>			10,000	10,000	20,000	20,000	20,000	25,000	95,000



<b>Division:</b> Telecommunications			<b>Project Priority:</b> 4			<b>Project Number:</b>			
<b>Project Title:</b> Normal Growth and Repair - Fiber Cable			<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>			
<b>Description:</b> This capital account provides funding for additional fiber optic network for business data circuits including smaller fiber projects necessary for the efficient operation of the Utility. This capital account also includes materials and labor for continued installation of fiber service drops for customers who order high bandwidth television services in areas served by the division's fiber cable network.						Design 15,000 Land/Right-of-Way Construction Management Construction 412,500 Equipment 322,500 Other Project Total 750,000			
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			100,000	100,000	200,000	150,000	150,000	150,000	750,000
<b>Total</b>			100,000	100,000	200,000	150,000	150,000	150,000	750,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 5		<b>Project Number:</b>						
<b>Project Title:</b> Normal Growth and Repair - CO Transmission		<b>Start Date:</b> 01/21		<b>Estimated Project Cost:</b>						
<b>Description:</b>  This capital account provides funding for the purchase and installation of additional intelligent Network Interface Devices (NIDS) and Optical Network Terminals (ONTs) required to deliver service to customers served via fiber optic cable. This capital account also includes funding for required/associated internal network fiber ports. Also included is funding for network transmission electronics necessary to serve business customers with new private line services including digital data service, optical wide area network, T1s, etc. This capital account also includes the funding to finish the migration off the division's legacy platforms, which are no longer supported, to the standard Adtran platforms for both Optical and VDSL services. In 2024 the Total Access Adtran platform will likely be end-of-life, so KPU will need to implement a new FTTH platform.		<b>End Date:</b> 12/25		Design						
		Land/Right-of-Way								
		Construction Management								
		Construction 60,000								
		Equipment 690,000								
		Other								
Project Total 750,000										
<b>Source of Funds</b>		<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
			<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund				150,000	150,000	150,000	150,000	150,000	150,000	750,000
<b>Total</b>				150,000	150,000	150,000	150,000	150,000	150,000	750,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 6		<b>Project Number:</b>	
<b>Project Title:</b> Normal Growth and Repair - Expansion		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction 22,000 Equipment 88,000 Other Project Total 110,000	
<b>Description:</b> 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.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			5,000	5,000	25,000	25,000	25,000	30,000	110,000
<b>Total</b>			5,000	5,000	25,000	25,000	25,000	30,000	110,000

<b>Division:</b> Telecommunications					<b>Project Priority:</b> 7		<b>Project Number:</b>		
<b>Project Title:</b> Normal Growth and Repair - Provisioning					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> This capital account provides funding for the introduction, upgrade, automation and integration of systems necessary to promote the enhancement of the customer service and support experience. In 2023, an effort will begin to attempt to replace the division's trouble ticketing software with a new up-to-date system.							Design 97,200 Land/Right-of-Way Construction Management Software 190,800 Equipment 39,600 Other 32,400 Project Total 360,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			10,000	10,000	50,000	150,000	100,000	50,000	360,000
<b>Total</b>			10,000	10,000	50,000	150,000	100,000	50,000	360,000

<b>Division:</b> Telecommunications					<b>Project Priority:</b> 8		<b>Project Number:</b>		
<b>Project Title:</b> Fiber to the Home					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> 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 8,750 Land/Right-of-Way Construction Management Construction 131,250 Equipment 210,000 Other Project Total 350,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			50,000	50,000	75,000	75,000	75,000	75,000	350,000
<b>Total</b>			50,000	50,000	75,000	75,000	75,000	75,000	350,000

<b>Division:</b> Telecommunications					<b>Project Priority:</b> 9		<b>Project Number:</b>		
<b>Project Title:</b> Remote Cabinets for Advanced Services					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b> This capital account provides funding for the maintenance and/or replacement of remote switching cabinets (RSC). This project also equips RSC's with remote monitoring sensors, ensuring technicians can remotely detect proper operation prior to failure. This account also funds the out-of-band network back to the Central Office.							Design 3,000 Land/Right-of-Way Construction Management Construction 9,000 Equipment 108,000 Other Project Total 120,000		
<b>Source of Funds</b>	<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
		<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund			10,000	10,000	25,000	25,000	25,000	35,000	120,000
<b>Total</b>			10,000	10,000	25,000	25,000	25,000	35,000	120,000



<b>Division:</b> Telecommunications					<b>Project Priority:</b> 11		<b>Project Number:</b>		
<b>Project Title:</b> Server Environment					<b>Start Date:</b> 01/21		<b>Estimated Project Cost:</b>		
<b>Description:</b>  This capital account provides funding for the growth, expansion and upgrade of the division's data storage and virtualized server environment. This allows the division to standardize its server infrastructure, while collapsing the physical footprint and reducing overall power consumption. Additionally, this project allows for the deployment of VM technology to supplement the division's hosted datacenter service offerings and offer cloud based services.					<b>End Date:</b> 12/25		Design 16,250 Land/Right-of-Way Construction Management Construction 16,250 Equipment 617,500 Other Project Total 650,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			50,000	50,000	100,000	150,000	200,000	150,000	650,000
<b>Total</b>			50,000	50,000	100,000	150,000	200,000	150,000	650,000



<b>Division:</b> Telecommunications					<b>Project Priority:</b> 12		<b>Project Number:</b>		
<b>Project Title:</b> Multi-Dwelling Unit Project					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b>  This capital account provides funding for the purchase of multi-dwelling unit (MDU) electronics, enabling provision of triple-play services to the 40% of KPU customers residing in apartment buildings, via a single fiber (eliminating the need to run multiple fibers into multi-dwelling units). This project will eliminate the corresponding need to install and maintain the per each fiber electronics required for multiple fiber installations.							Design 22,500 Land/Right-of-Way Construction Management Construction 22,500 Equipment 855,000 Other Project Total 900,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro-priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			100,000	100,000	200,000	200,000	200,000	200,000	900,000
<b>Total</b>			100,000	100,000	200,000	200,000	200,000	200,000	900,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 13		<b>Project Number:</b>	
<b>Project Title:</b> Operating Equipment		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 250,000 Other Project Total 250,000	
<b>Description:</b> This capital account provides funding for the test equipment utilized by KPU technicians to test, repair and install high speed data and voice circuits, particularly as it relates to KPU's expanded fiber optic network and 4G networks.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			15,000	15,000	50,000	60,000	60,000	65,000	250,000
<b>Total</b>			15,000	15,000	50,000	60,000	60,000	65,000	250,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 14		<b>Project Number:</b>	
<b>Project Title:</b> PC Hardware and Software		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 240,000 Other Project Total 240,000	
<b>Description:</b> This capital account funds replacement of outdated computers (identified by the Information Technology Department for replacement) and purchases of new hardware and software for the network operations control center. Laptops, iPads, and desktop computers for troubleshooting/training out in the field or in the Central Office.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			40,000	40,000	45,000	50,000	50,000	55,000	240,000
<b>Total</b>			40,000	40,000	45,000	50,000	50,000	55,000	240,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 15			<b>Project Number:</b>				
<b>Project Title:</b> Power Expansion/Reclamation		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b> 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 3,000 Land/Right-of-Way Construction Management Construction 3,000 Equipment 114,000 Other Project Total 120,000				
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			5,000	5,000	25,000	25,000	30,000	35,000	120,000
<b>Total</b>			5,000	5,000	25,000	25,000	30,000	35,000	120,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 16			<b>Project Number:</b>				
<b>Project Title:</b> Visual Mapping Software		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b> <p>This capital account provides funding to enhance the division's documentation and ability to automate and distribute inside and outside plant design at the physical and logical levels. Future funding procures enhancements and labor to ensure the system is properly audited and meeting the needs of division customers.</p> <p>At some point in the future Telecom may need to purchase software outside of the City's mapping software that is specific to managing a fiber/copper network from end-to-end. This budget provides funding to investigate some of those options. This project was deferred for 2021</p>		Design Land/Right-of-Way Construction Management Construction 12,600 Equipment 38,850 Other 53,550 Project Total 105,000							
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					25,000	25,000	25,000	30,000	105,000
<b>Total</b>					25,000	25,000	25,000	30,000	105,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 17		<b>Project Number:</b>	
<b>Project Title:</b> Network Monitoring		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 192,500 Other 357,500 Project Total 550,000	
<b>Description:</b> This capital account provides funding for the purchase of hardware and software critical to enhance the monitoring and complete visibility of the KPU network for the purposes of resolving customer issues quickly and putting the network in a place where a variety of monitoring products can be deployed to identify threats.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			100,000	100,000	100,000	100,000	120,000	130,000	550,000
<b>Total</b>			100,000	100,000	100,000	100,000	120,000	130,000	550,000

[illegible]

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 18		<b>Project Number:</b>	
<b>Project Title:</b> Vehicle Acquisition		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 500,000 Other Project Total 500,000	
<b>Description:</b> This capital account funds replacement of aging vehicles to prevent excessive maintenance costs and breakdowns affecting KPU Telecom's ability to meet customer demands. All vehicle needs have been deferred to 2022.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					100,000	100,000	150,000	150,000	500,000
<b>Total</b>					100,000	100,000	150,000	150,000	500,000





<b>Division:</b> Telecommunications					<b>Project Priority:</b> 20		<b>Project Number:</b>		
<b>Project Title:</b> Headend Expansion					<b>Start Date:</b> 01/21		<b>Estimated Project Cost:</b>		
<b>Description:</b>  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.					<b>End Date:</b> 12/25		Design 725 Land/Right-of-Way Construction Management Construction 7,250 Equipment 137,025 Other Project Total 145,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			10,000	10,000	40,000	35,000	35,000	25,000	145,000
<b>Total</b>			10,000	10,000	40,000	35,000	35,000	25,000	145,000

<b>Department:</b> Telecommunications			<b>Project Priority:</b> 21			<b>Project Number:</b>				
<b>Project Title:</b> IPv4 Addressing			<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment Other 200,000 Project Total 200,000				
<b>Description:</b> This capital account provides funding for the continued growth and need for additional IPv4 addressing in the division's network. This account funds the purchase an additional 8,192 addresses in order to accommodate current needs and some future growth in 2022. This project has been deferred for 2021										
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						100,000	50,000	50,000		200,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 22		<b>Project Number:</b>	
<b>Project Title:</b> Video Set Top Boxes		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction Equipment 135,000 Other Project Total 135,000	
<b>Description:</b>  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.					

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			25,000	25,000	50,000	25,000	25,000	10,000	135,000
<b>Total</b>			25,000	25,000	50,000	25,000	25,000	10,000	135,000

<b>Division:</b> Telecommunications			<b>Project Priority:</b> 23			<b>Project Number:</b>			
<b>Project Title:</b> 4G/LTE			<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>			
<b>Description:</b> This capital account provides continued funding to construct and maintain KPU's 4G/LTE Mobile network. This account will fund the addition of a new site in Ward Cove.						Design 6,600 Land/Right-of-Way Construction Management Construction 99,000 Equipment 554,400 Other Project Total 660,000			
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			60,000	60,000	150,000	150,000	150,000	150,000	660,000
<b>Total</b>			60,000	60,000	150,000	150,000	150,000	150,000	660,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 24			<b>Project Number:</b>				
<b>Project Title:</b> Microwave		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b> This capital account provides continued funding to construct, expand and maintain KPU's microwave system to Canada. Deferred for 2021					Design 1,000 Land/Right-of-Way Construction Management Construction 15,000 Equipment 84,000 Other Project Total 100,000				
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappropriated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					25,000	25,000	25,000	25,000	100,000
<b>Total</b>					25,000	25,000	25,000	25,000	100,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 25		<b>Project Number:</b>					
<b>Project Title:</b> Hosted		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>					
<b>Description:</b> This capital account provides funding to upgrade, maintain and expand business offerings on the division's Hosted Platforms.				Lab System 135,000 Jazz 135,000 Training 207,000 Licenses 288,000 Integration 135,000 Project Total 900,000					
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			100,000	100,000	150,000	200,000	250,000	200,000	900,000

<b>Division:</b> Telecommunications		<b>Project Priority:</b> 26			<b>Project Number:</b>				
<b>Project Title:</b> WiFi		<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b>  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. This account also funds efforts to make WiFi available to residential customers who are difficult to serve using wired connectivity.					Design 8,750 Land/Right-of-Way Construction Management Construction 70,000 Equipment 271,250 Other Project Total 350,000				
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund			50,000	50,000	50,000	75,000	75,000	100,000	350,000
<b>Total</b>			50,000	50,000	50,000	75,000	75,000	100,000	350,000

<b>Division:</b> Telecommunications					<b>Project Priority:</b> 27		<b>Project Number:</b>		
<b>Project Title:</b> Internet Expansion					<b>Start Date:</b> 01/19		<b>Estimated Project Cost:</b>		
<b>Description:</b> <p>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.</p>					<b>End Date:</b> 12/21		Design 100,000 Land/Right-of-Way Construction Management Construction 6,995,500 Equipment 4,504,500 Other Project Total 11,600,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund - Growth Revenue Bonds	100,000 10,325,000	1,175,000		1,175,000					100,000 11,500,000
<b>Total</b>	10,425,000	1,175,000		1,175,000					11,600,000



**Ketchikan Public Utilities  
2021 - 2025 Capital Improvement Program**

**Division: Water**

Project Title	Priority	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- riated	New Funding	Total	2022	2023	2024	2025	
Water Filtration Facility Project	1	138,300	386,700		386,700					525,000
Schoenbar Raw Water Main (Charter School - Middle School)	2	427,000	7,092,499		7,092,499					7,519,499
Water Meters - Business & Commercial Customers	3	512,840	756,178		756,178					1,269,018
Federal Act - Risk & Resilience Assessment	4			150,000	150,000					150,000
SCADA PLC Controllers	5	50,000		260,000	260,000		265,000		285,000	860,000
Water Distribution Grid Improvements	6			30,000	30,000	30,000	30,000	30,000	30,000	150,000
Additional Projects	7			40,000	40,000	40,000	40,000	40,000	40,000	200,000
Water Service Upgrade Program	8			15,000	15,000	15,000	15,000	15,000	15,000	75,000
Backflow Prevention Program	9			15,000	15,000	15,000	15,000	15,000	15,000	75,000
Highlands Reservoir Property Acquisition	10							270,000		270,000
Second Avenue Utility Improvements	11					15,000			1,300,800	1,315,800
West Fairy Chasm Utility Improvements	12					15,000			550,600	565,600
Skyline Water Main Replacement	13					10,000			360,800	370,800
Denali Ave. Utility Improvements	14					15,000			512,000	527,000
Evergreen Ave. Utility Improvements	15					15,000			440,000	455,000
Utility Vehicles	16					37,500	118,000	94,000		249,500
<b>Total</b>		1,128,140	8,235,377	510,000	8,745,377	207,500	483,000	464,000	3,549,200	14,577,217

  

Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- riated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund	263,300	386,700	510,000	896,700	207,500	483,000	194,000	385,000	2,429,500
Revenue Bonds - ADWF Loan	864,840	7,848,677		7,848,677			135,000	1,582,100	10,430,617
Proposed State 50% Municipal Assistance Funding							135,000	1,582,100	1,717,100
	1,128,140	8,235,377	510,000	8,745,377	207,500	483,000	464,000	3,549,200	14,577,217

<b>Department:</b> Water			<b>Project Priority:</b> 1			<b>Project Number:</b> 5400 2019 007				
<b>Project Title:</b> Filtration Facility - Preliminary Preparation Tasks			<b>Start Date:</b> 01/20			<b>Estimated Project Cost:</b>				
<b>Description:</b>			<b>End Date:</b> 12/21			Design				
During October 2019, Ketchikan's water system violated Federal Regulation CFR 141.71 as it applies to unfiltered water systems, which resulted in ADEC issuing notice that KPU enter a Compliance Order by Consent to begin Ketchikan's construction of a modern filtration system. The Safe Drinking Water Act Amendments of 1996 provide a Limited Alternative to Filtration (LAF) regulatory pathway for water systems like the City of Ketchikan's to remain unfiltered even with raw water coliforms above the limits as long as the delivered water meets all regulatory requirements for potable water. While the City and ADEC will continue to work with EPA to reach a non-filtration solution, if a regulatory pathway to save Ketchikan from installing costly filtration cannot be achieved, the City will be required to further develop plans for a filtration facility. This project will fund the continued professional services efforts of contractor Jacobs Engineering Group as the City navigates a non-filtration solution that meets regulatory requirements.						Land/Right-of-Way				
						Construction Management				
						Construction				
						Equipment				
						Other				
						Project Total				
						525,000				
						525,000				

  

Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		138,300	386,700		386,700					525,000
<b>Total</b>		138,300	386,700		386,700					525,000

<b>Division:</b> Water		<b>Project Priority:</b> 2		<b>Project Number:</b> Comb 2019 001					
<b>Project Title:</b> Schoenbar Water Mains (Charter School - Middle School)		<b>Start Date:</b> 01/18 <b>End Date:</b> 12/21		<b>Estimated Project Cost:</b> Design Land/Right-of-Way Construction Management Construction 6,857,099 Equipment Other (Loan Subsidy) 662,400 Project Total 7,519,499					
<b>Description:</b>  DOWL Engineers, who have already completed the earlier design work for replacement of Schoenbar Road's distribution water & sewer mains, are now designing a replacement for the portion of the failing 36-inch ductile iron main in Schoenbar Road located between the westerly edge of Norman Walker Field and the Ketchikan Charter School. Their initial analysis determined that a single permanent, buried 42-inch HDPE pipeline generally aligned along the west side of Schoenbar Road under the existing sidewalk was the most cost-effective route between the Schoenbar Middle School and the Ketchikan Charter School. As their design progressed they encountered a number of physical challenges that caused DOWL to question the feasibility, the risks, and the resulting additional costs that would be necessary to construct the 42-inch HDPE pipeline along this proposed route. Instead, authorization was sought from the City Council to seek property easements for the proposed alternative alignment over to the west and away from Schoenbar Road itself. The proposed route now passes beneath the Ketchikan Charter School playground, the driveways of the School District Maintenance Shop and Schoenbar Middle School before terminating near the southeasterly edge of Norman Walker Field.									
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund Revenue Bonds - ADWF Loan	427,000	7,092,499		7,092,499					7,519,499
<b>Total</b>		7,092,499		7,092,499					7,519,499

<b>Department:</b> Water					<b>Project Priority:</b> 3		<b>Project Number:</b> Comb 2018 001			
<b>Project Title:</b> Water Meters - Business & Commercial Customers					<b>Start Date:</b> 01/18 <b>End Date:</b> 12/22		<b>Estimated Project Cost:</b>			
<b>Description:</b> Metering commercial water and wastewater customers should be fully operational in 2022. In 2019 following a loan offer from the Alaska Department of Environmental Conservation, a bond has been issued to finance the purchase and installation of water meters on the premises of Ketchikan's approximately 450 commercial & business customers. Approximately 125 meters are already installed and another design/build contract to install another 50 meters is in progress. As before, this contract is limited in size to allow everyone involved to both gain experience and to obtain better knowledge of the difficulties that are encountered while installing individual meters. If this proves to be a satisfactory method to install water meters, subsequent design-build contracts will be advertised. Achieving the goal of having all of these business and commercial buildings and large residential apartment complexes buildings fully metered before the end of 2021 will require significant effort as there are still approximately 265 unmetered businesses and large apartment complexes. In addition, the 2016 Water/Wastewater Rate Study will need to be updated and the new metered rates adopted. A capital investment of \$2,150,000 is needed and will be shared equally by the Water and Wastewater Divisions and is being accounted for in their respective enterprise funds.							Design		75,000	
							Land/Right-of-Way			
							Construction Management			
							Construction		1,194,018	
							Equipment			
							Other			
		Project Total		1,269,018						
<b>Source of Funds</b>		<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
			<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund		75,000	756,178		756,178					75,000
Revenue Bonds - ADWF Loan		437,840								1,194,018
<b>Total</b>		512,840	756,178		756,178					1,269,018

<b>Division:</b> Water			<b>Project Priority:</b> 4			<b>Project Number:</b>				
<b>Project Title:</b> Federal Act - Risk & Resilience Assessment			<b>Start Date:</b> 01/21 <b>End Date:</b> 12/21			<b>Estimated Project Cost:</b>				
<b>Description:</b> Recently adopted Federal Regulations in the America's Water Infrastructure Act require every community water system to complete a new Risk and Resilience Assessment (RRA) and develop an Emergency Response Plan (ERP). Although KPU developed one in the aftermath of 911 and has kept it updated, this legislation includes additional specific requirements particularly in the electronic/cyber security and malevolent act detection fields. Due by June 30, 2021, the RRA requires evaluation of the risk to the system from malevolent acts, natural hazards, the resilience and security of our distribution system, monitoring practices, use and storage of chemicals, and financial infrastructure to support management of the system. Similarly, the ERP due by December 31, 2021 incorporates the findings of the RRA and includes strategies to improve system resilience, plans & procedures to respond to malevolent acts or natural hazards, as well as procedures or equipment that can be used to aid in the detection of malevolent acts or hazards that threaten the security of the water system.						Design 150,000 Land/Right-of-Way Construction Management Construction Equipment Other Project Total 150,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund				150,000	150,000					150,000
<b>Total</b>				150,000	150,000					150,000

<b>Department:</b> Water			<b>Project Priority:</b> 5			<b>Project Number:</b> 5400 2020 006				
<b>Project Title:</b> SCADA PLC Controllers			<b>Start Date:</b> 01/19 <b>End Date:</b> 12/25			<b>Estimated Project Cost:</b>				
<b>Description:</b> Collectively, KPU has three Allen-Bradley Programmable Logic Controllers (PLCs) installed at the UV Facility, the Chlorination Plant, and the Ammonia Addition Facility. They are each providing continuous supervisory control over specific critical components within KPU's complex, computer-controlled, disinfection process. This version of Allen Bradley PLCs, which were introduced in 2005, are expected to cease receiving any further factory support within the next couple of years. This includes no longer maintaining any inventory of spare parts or the necessary input/ output (I/O) modules. One PLC is located at the Water Treatment UV Facility (CP-100), another at the Old Chlorination Building (CP-300), and the third in the Ammonia Building (CP-400). The approach is to migrate to the Allen-Bradley ControlLogix PLC platform and split the replacements into three phases spread over several years beginning with CP-100. However, due to the negative impact that coronavirus has had upon the City's finances in 2020, it was deferred and removed from the 2020 Budget. It is now proposed to begin in 2021.						Design 150,000 Land/Right-of-Way Construction Management Construction 525,000 Equipment 185,000 Other Project Total 860,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund		50,000		260,000	260,000		265,000		285,000	860,000
<b>Total</b>		50,000		260,000	260,000		265,000		285,000	860,000

<b>Division:</b> Water					<b>Project Priority:</b> 6		<b>Project Number:</b>  Design Land/Right-of-Way Construction Management Construction 150,000 Equipment Other Project Total 150,000				
<b>Project Title:</b> Water Distribution Grid Improvements					<b>Start Date:</b> 01/21						
<b>Description:</b>  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.					<b>End Date:</b> 12/25						
<b>Source of Funds</b>			<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				
				<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total Project</b>
Revenue Generating Fund					30,000	30,000	30,000	30,000	30,000	30,000	150,000
<b>Total</b>					30,000	30,000	30,000	30,000	30,000	30,000	150,000

<b>Division:</b> Water					<b>Project Priority:</b> 7		<b>Project Number:</b>  Design Land/Right-of-Way Construction Management Construction 200,000 Equipment Other Project Total 200,000				
<b>Project Title:</b> Additional Projects					<b>Start Date:</b> 01/21						
					<b>End Date:</b> 12/25						
<b>Description:</b>  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 repair or installing new valve boxes in City streets when Public Works' annual repaving projects occur. Although specific streets have not yet been selected for asphalt paving in 2021, 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.											
<b>Source of Funds</b>			<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				
				<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total Project</b>
Revenue Generating Fund					40,000	40,000	40,000	40,000	40,000	40,000	200,000
<b>Total</b>					40,000	40,000	40,000	40,000	40,000	40,000	200,000



<b>Division:</b> Water		<b>Project Priority:</b> 8			<b>Project Number:</b>  Design Land/Right-of-Way Construction Management Construction 75,000 Equipment Other Project Total 75,000					
<b>Project Title:</b> Water Service Upgrade Program		<b>Start Date:</b> 01/21								
<b>Description:</b>  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 2021. 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.		<b>End Date:</b> 12/25								
<b>Source of Funds</b>		<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
			<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund				15,000	15,000	15,000	15,000	15,000	15,000	75,000

<b>Division:</b> Water					<b>Project Priority:</b> 9		<b>Project Number:</b>  Design Land/Right-of-Way Construction Management Construction75,000 Equipment Other Project Total75,000				
<b>Project Title:</b> Backflow Prevention Program					<b>Start Date:</b> 01/21 <b>End Date:</b> 12/25						
<b>Description:</b> 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 2021 with an increased reimbursement amount. 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. Currently, at least 19 systems in need of backflow preventer installation and would benefit from this program to become compliant. The program as previously offered has not provided much incentive for businesses to make the upgrade, and the last time a business took advantage of the program was in 2017. In an effort to encourage business owners to become compliant to protect the City's water system, reimbursement to the property owner is now limited to 50% of the installed cost of the backflow preventer, or \$3,000, whichever is the lesser.											
<b>Source of Funds</b>			<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
				<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund					15,000	15,000	15,000	15,000	15,000	15,000	75,000

<b>Division:</b> Water					<b>Project Priority:</b> 10		<b>Project Number:</b>		
<b>Project Title:</b> Highlands Reservoir Property Acquisition					<b>Start Date:</b> 01/24 <b>End Date:</b> 12/24		<b>Estimated Project Cost:</b>		
<b>Description:</b> 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. <b>If damaged, there are no remaining sources of wood-stave repair parts to be found anywhere.</b> 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 2024 before beginning the construction of a large, modern 650,000 gallon reservoir. The design and construction funding will take at least another 8-10 years before the project is complete, and construction would begin around 2028 with an expected cost of about \$5 - 8 million.							Design Land/Right-of-Way 270,000 Construction Management Construction Equipment Other Project Total 270,000		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Bonds - ADWF Loan Proposed State 50% Municipal Assistance Funding							135,000 135,000		135,000 135,000
<b>Total</b>							270,000		270,000

<b>Department:</b> Water			<b>Project Priority:</b> 11			<b>Project Number:</b>				
<b>Project Title:</b> Second Avenue Utility Improvements			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>				
<b>Description:</b>			<b>End Date:</b> 12/25			Design 15,000				
<p>Second Avenue's cast-iron water mains were originally installed in a number of segments between 1956 and 1958. Only the failing water and sewer portion between Madison and Adams Streets was replaced in 2001. Since then, there has been no further progress replacing the remainder of this fragile, old 6-inch cast-iron water main and there have been four further failures in the 1275-foot portion between Adams and White Cliff. Long overdue for water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2022 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2025.</p>						Land/Right-of-Way				
						Construction Management				
						Construction 1,300,800				
						Equipment				
						Other				
						Project Total 1,315,800				
			<b>Adopted 2021</b>			<b>Projected Requirements</b>				
<b>Source of Funds</b>	<b>Fund No.</b>	<b>Prior Years</b>	<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total Project</b>
Revenue Generating Fund						15,000				15,000
Proposed 50% State Municipal Assistance Funding									650,400	650,400
Proposed Revenue Bonds - ADWF Loan									650,400	650,400
<b>Total</b>						15,000			1,300,800	1,315,800

<b>Division:</b> Water					<b>Project Priority:</b> 12		<b>Project Number:</b>		
<b>Project Title:</b> West Fairy Chasm Utility Improvements					<b>Start Date:</b> 01/22 <b>End Date:</b> 12/25		<b>Estimated Project Cost:</b>		
<b>Description:</b>  This 8-inch ductile iron main was installed in 1981. The portion replaced in 2007 failed in a different manner than usually occurs. Unlike electrolytic corrosion that usually creates fairly small pits along the bottom of the pipe where the soils are moist and most conductive; in this case, the entire surface of the pipe was badly pitted. The soil layer around the pipe was black from dissolved iron and smelled slightly of sulfur. There is a possibility that the ductile iron pipe was bedded using rock that contains quite a bit of iron pyrite (fools gold) which is actually iron disulfide. Pyrites reacting with oxygen and water will form <i>Thiobacillus</i> bacteria which generate their energy through oxidizing the iron with a side effect of producing sulfuric acid, which chemically corrodes the iron pipe. Subsequent repairs made in 2017 at the Black Bear intersection have shown similar pitting and the ductile iron sewer mains are very likely in the same condition. The entire 720 foot section should be replaced with non-corrodible HDPE plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2022 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2025.							Design 15,000 Land/Right-of-Way Construction Management Construction 550,600 Equipment Other Project Total 565,600		
Source of Funds	Prior Years	Adopted 2021			Projected Requirements				Total Project
		Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund					15,000				15,000
Proposed 50% State Municipal Assistance Funding								275,300	275,300
Proposed Revenue Bonds - ADWF Loan								275,300	275,300
<b>Total</b>					15,000			550,600	565,600

<b>Department:</b> Water			<b>Project Priority:</b> 13			<b>Project Number:</b>				
<b>Project Title:</b> Skyline Water Main Replacement			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>				
<b>Description:</b> The 560-foot ductile-iron 8-inch water line serving Skyline Condominiums is an unusual proposition. It is not installed in a dedicated right-of-way but rather through a series of easements that begin by passing through the side yard of 1111 Jackson, then across Skyline Condominium's property, and finally connecting to Carlanna Lake Road. Installed in 1983, it too is continuing to fail due to electrolytic corrosion and is overdue for replacement with non-corrodible HDPE plastic pipe. There is no present funding available for its replacement but if there were, it would be designed in 2022 along with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2025.			<b>End Date:</b> 12/25			Design 10,000				
			Land/Right-of-Way							
			Construction Management							
			Construction 360,800							
			Equipment							
						Other				
						Project Total 370,800				

Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund						10,000				10,000
Proposed 50% State Municipal Assistance Funding									180,400	180,400
Proposed Revenue Bonds - ADWF Loan									180,400	180,400

<b>Department:</b> Water			<b>Project Priority:</b> 14			<b>Project Number:</b>				
<b>Project Title:</b> Denali Avenue Utility Improvements			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>				
<b>Description:</b> Denali Avenue's cast-iron 6-inch water mains between Hill & Tower Roads were installed in two segments beginning in 1968 and completed in 1969. Like other cast-iron mains, it is fragile. In just this one block segment, there have already been three failures. The 635-foot segment is overdue for both water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2022 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2025.			<b>End Date:</b> 12/25			Design 15,000				
						Land/Right-of-Way				
						Construction Management				
						Construction 512,000				
						Equipment				
						Other				
						Project Total 527,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund Proposed 50% State Municipal Assistance Funding Proposed Revenue Bonds - ADWF Loan						15,000				15,000
									256,000	256,000
									256,000	256,000
<b>Total</b>						15,000			512,000	527,000

<b>Department:</b> Water			<b>Project Priority:</b> 15			<b>Project Number:</b>				
<b>Project Title:</b> Evergreen Ave. Utility Improvements			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>				
<b>Description:</b> Evergreen Avenue's 548-feet of water main between Hill and Tower Roads was installed in two segments; the first 281-feet of 6-inch cast-iron was installed in 1970 followed by the final 267-feet in ductile-iron in 1976. The cast-iron portion has been particularly troublesome with several failures. The entire 548-foot segment is overdue for both water and sewer replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would be a joint venture between Public Works and the Water Division to be designed in 2022 with each of these four utility improvement projects contributing to the combined design contract with a single firm. Should Municipal Assistance Funding ever become available again, this would be a likely project that is already designed and has received ADEC approval for maximum points. It would also require voter approval to enter into loan agreements for the remainder of the funding. If granted, construction could begin in 2025.			<b>End Date:</b> 12/25			Design 15,000				
			Land/Right-of-Way							
			Construction Management							
			Construction 440,000							
			Equipment							
						Other				
						Project Total 455,000				
Source of Funds	Fund No.	Prior Years	Adopted 2021			Projected Requirements				Total Project
			Reappro- priated	New Funding	Total	2022	2023	2024	2025	
Revenue Generating Fund Proposed 50% State Municipal Assistance Funding Proposed Revenue Bonds - ADWF Loan						15,000				15,000
									220,000	220,000
									220,000	220,000
<b>Total</b>						15,000			440,000	455,000



<b>Department:</b> Water			<b>Project Priority:</b> 16			<b>Project Number:</b>					
<b>Project Title:</b> Utility Vehicles			<b>Start Date:</b> 01/22			<b>Estimated Project Cost:</b>					
<b>Description:</b>  Replacement in 2022 of Vehicle 46, a Chevrolet Blazer purchased in 2000. This vehicle has all the mechanical, rust, maintenance issues that can be expected for a vehicle of its age in Ketchikan. The replacement vehicle is planned to be a Ford Explorer with all wheel drive capability and can be purchased in 2022 utilizing the State of Alaska's contract purchasing. Vehicle 66, the single axle dump truck jointly shared by the Electric and Water Divisions was purchased in 2003. Already 18 years old, it is reaching the end of its useful service life with mechanical issues. It is proposed for replacement in 2023 for \$118,000. Similarly, the oldest of the two small Kubota rubber tracked backhoes that are also jointly shared by the divisions was purchased in 2007. Supremely useful in tight situations where a large, rubber-tired backhoe won't fit, it too is reaching the end of its useful service life. A replacement small backhoe from a local vendor is estimated to cost \$85,000 today. With an allowance of 2.5% inflation until 2024, this would be equivalent to \$94,000.			<b>End Date:</b> 12/25			Design					
			Land/Right-of-Way								
			Construction Management								
			Construction								
			Equipment 249,500								
						Other					
						Project Total 249,500					
<b>Source of Funds</b>		<b>Fund No.</b>	<b>Prior Years</b>	<b>Adopted 2021</b>			<b>Projected Requirements</b>				<b>Total Project</b>
				<b>Reappro- priated</b>	<b>New Funding</b>	<b>Total</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	
Revenue Generating Fund							37,500	118,000	94,000		249,500
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