

CITY OF KETCHIKAN, ALASKA  
2022 - 2026 KETCHIKAN PUBLIC UTILITIES  
CAPITAL IMPROVEMENT PROGRAM

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**Ketchikan Public Utilities  
2022 - 2026 Capital Improvement Program  
2022 Capital Budget**

| Department/Division/Project                                   | Revenues/<br>Reserves | Grants | Other | Revenue<br>Bonds | 2022<br>Total    |
|---|-----------------------|--------|-------|------------------|------------------|
| <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                              | 90,000                |        |       |                  | 90,000           |
| Ketchikan Tunnel Penstock Valves Replacement                  | 100,000               |        |       |                  | 100,000          |
| Bailey Generator No. 4 Wartsilla PLC Upgrade                  | 115,000               |        |       |                  | 115,000          |
| Generation Equipment Planning, Cleaning & Testing             | 50,000                |        |       |                  | 50,000           |
| Whitman Tailrace Modification                                 | 25,000                |        |       |                  | 25,000           |
| Diesel Generation Modernization                               | 60,000                |        |       |                  | 60,000           |
| Bailey Exhaust Stack Re-Coating                               | 25,000                |        |       |                  | 25,000           |
| Ketchikan Beaver Falls Switch Gear Replacement                | 1,372,150             |        |       |                  | 1,372,150        |
| Ketchikan Lakes Utilities                                     | 125,000               |        |       |                  | 125,000          |
| Ketchikan International Airport & Pennock Upgrade             | 260,000               |        |       |                  | 260,000          |
| Feeder Protective Relay Upgrades                              | 100,000               |        |       |                  | 100,000          |
| Battery System and Chargers                                   | 60,000                |        |       |                  | 60,000           |
| Transformer Purchase  | 90,000                |        |       |                  | 90,000           |
| AMI, Meters and Meter Replacement Parts                       | 250,000               |        |       |                  | 250,000          |
| Reimbursable Projects   | 25,000                |        |       |                  | 25,000           |
| Bailey Mooring Dolphin Replacement                            | 110,000               |        |       |                  | 110,000          |
| Beaver Falls Powerhouse Exterior                              | 750,000               |        |       |                  | 750,000          |
| Vehicles & Moving Equipment                                   | 175,000               |        |       |                  | 175,000          |
| Operating Equipment   | 355,000               |        |       |                  | 355,000          |
| Additional Projects   | 164,000               |        |       |                  | 164,000          |
| <b>Electric Division Total</b>                                | <b>4,301,150</b>      |        |       |                  | <b>4,301,150</b> |

**Ketchikan Public Utilities  
2022 - 2026 Capital Improvement Program  
2022 Capital Budget**

| <b>Department/Division/Project</b>         | <b>Revenues/<br/>Reserves</b> | <b>Grants</b> | <b>Other</b> | <b>Revenue<br/>Bonds</b> | <b>2022<br/>Total</b> |
|--|-------------------------------|---------------|--------------|--------------------------|-----------------------|
| <b>Telecommunications Division</b>         |                               |               |              |                          |                       |
| Normal Growth and Repair - Buildings       | 10,000                        |               |              |                          | 10,000                |
| Normal Growth and Repair - Copper Cable    | 20,000                        |               |              |                          | 20,000                |
| Normal Growth and Repair - Fiber Cable     | 100,000                       |               |              |                          | 100,000               |
| Normal Growth and Repair - CO Transmission | 150,000                       |               |              |                          | 150,000               |
| Normal Growth and Repair - Provisioning    | 10,000                        |               |              |                          | 10,000                |
| Fiber to the Home                          | 224,266                       |               |              |                          | 224,266               |
| Remote Cabinets for Advanced Services      | 10,000                        |               |              |                          | 10,000                |
| Core Network Upgrade                       | 80,000                        |               |              |                          | 80,000                |
| Server Environment                         | 60,000                        |               |              |                          | 60,000                |
| Multi-Dwelling Unit Project                | 60,000                        |               |              |                          | 60,000                |
| Operating Equipment                        | 15,000                        |               |              |                          | 15,000                |
| PC Hardware & Software                     | 50,000                        |               |              |                          | 50,000                |
| Power Expansion/Reclamation                | 5,000                         |               |              |                          | 5,000                 |
| Visual Mapping Software                    | 10,000                        |               |              |                          | 10,000                |
| Network Monitoring                         | 110,000                       |               |              |                          | 110,000               |
| Video Set Top Boxes                        | 80,000                        |               |              |                          | 80,000                |
| 4G LTE                                     | 60,000                        |               |              |                          | 60,000                |
| Hosted                                     | 80,000                        |               |              |                          | 80,000                |
| Wi-Fi                                      | 40,000                        |               |              |                          | 40,000                |
| Internet Expansion                         |                               |               |              | 257,600                  | 257,600               |
| <b>Telecommunications Division Total</b>   | <b>1,174,266</b>              |               |              | <b>257,600</b>           | <b>1,431,866</b>      |

**Ketchikan Public Utilities  
2022 - 2026 Capital Improvement Program  
2022 Capital Budget**

| <b>Department/Division/Project</b>                | <b>Revenues/<br/>Reserves</b> | <b>Grants</b> | <b>Other</b> | <b>Revenue<br/>Bonds</b> | <b>2022<br/>Total</b> |
|---|-------------------------------|---------------|--------------|--------------------------|-----------------------|
| <b>Water Division</b>                             |                               |               |              |                          |                       |
| Filtration Facility-Preliminary Preparation Tasks | 199,869                       |               |              |                          | 199,869               |
| Water Meters - Business & Commercial Customers    |                               |               |              | 650,613                  | 650,613               |
| Pump Station Switchgear Improvements              | 22,650                        |               |              |                          | 22,650                |
| Utility Vehicles                                  | 98,000                        |               |              |                          | 98,000                |
| West Fairy Chasm Main Replacement                 | 15,000                        |               |              |                          | 15,000                |
| Skyline Water Main Replacement                    | 10,000                        |               |              |                          | 10,000                |
| Valve Boxes - Repair of Surrounding Pavement      | 50,000                        |               |              |                          | 50,000                |
| 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>495,519</b>                |               |              | <b>650,613</b>           | <b>1,146,132</b>      |
| <b>GRAND TOTAL</b>                                | <b>5,990,935</b>              |               |              | <b>908,213</b>           | <b>6,899,148</b>      |

**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

| Division/Project   | Prior Years | 2022      | 2023      | 2024      | 2025      | 2026      | 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                         | 615,000     | 90,000    | 30,000    | 30,000    |           |           | 150,000         | 765,000       |
| Generator Rewind & Repair                                |             |           | 650,000   |           | 700,000   |           | 1,350,000       | 1,350,000     |
| Ketchikan Tunnel Penstock Valves Replacement             | 50,000      | 100,000   | 250,000   |           |           |           | 350,000         | 400,000       |
| 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       |
| Whitman Tailrace Modification                            | 11,291      | 25,000    |           |           |           |           | 25,000          | 36,291        |
| Diesel Generation Moderization                           | 120,000     | 60,000    |           |           |           |           | 60,000          | 180,000       |
| Bailey Exhaust Stack Re-Coating                          |             | 25,000    | 30,000    | 35,000    |           |           | 90,000          | 90,000        |
| Bailey Unit No. 1 Rehabilitation                         | 15,835      |           | 850,000   |           |           |           | 850,000         | 865,835       |
| Bailey Generator Radiator Replacement                    |             |           | 40,000    | 300,000   |           |           | 340,000         | 340,000       |
| Beaver Falls Governor Upgrade                            |             |           |           | 250,000   |           |           | 250,000         | 250,000       |
| Silvis Shaft & Turbine Overhaul                          |             |           |           |           | 750,000   |           | 750,000         | 750,000       |
| Ketchikan Lakes Project Relicensing                      |             |           |           | 300,000   | 300,000   | 300,000   | 900,000         | 900,000       |
| Ketchikan Beaver Falls Switch Gear Replacement           | 105,000     | 1,372,150 |           |           |           |           | 1,372,150       | 1,477,150     |
| Ketchikan Lakes Utilities                                |             | 125,000   | 100,000   |           |           |           | 225,000         | 225,000       |
| Ketchikan International Airport & Pennock Is. Upgrade    | 295,000     | 260,000   | 300,000   | 25,000    |           |           | 585,000         | 880,000       |
| Feeder Protective Relay Upgrades                         |             | 100,000   |           |           |           |           | 100,000         | 100,000       |
| Battery Systems and Chargers                             | 36,000      | 60,000    | 76,000    | 46,000    | 50,500    | 50,500    | 283,000         | 319,000       |
| Transformer Purchase                                     |             | 90,000    | 95,000    | 100,000   | 105,000   | 110,000   | 500,000         | 500,000       |
| AMI, Meters and Meter Replacement Parts                  |             | 250,000   | 185,000   | 125,000   | 125,000   | 125,000   | 810,000         | 810,000       |
| Reimbursable Projects                                    |             | 25,000    | 150,000   | 125,000   | 125,000   | 125,000   | 550,000         | 550,000       |
| 34.5 kV Tie Breaker and Relay Spares                     |             |           |           |           | 105,000   |           | 105,000         | 105,000       |
| Bailey Mooring Dolphin Replacement                       |             | 110,000   |           |           |           |           | 110,000         | 110,000       |
| Beaver Falls Powerhouse Exterior                         | 36,070      | 750,000   |           |           |           |           | 750,000         | 786,070       |
| Vehicles & Moving Equipment                              |             | 175,000   | 500,000   | 400,000   | 90,000    | 90,000    | 1,255,000       | 1,255,000     |
| Operating Equipment                                      |             | 355,000   | 300,000   | 300,000   | 300,000   | 300,000   | 1,555,000       | 1,555,000     |
| Additional Projects                                      |             | 164,000   | 164,000   | 164,000   | 164,000   | 164,000   | 820,000         | 820,000       |
| Bailey Fuel Tank Painting                                |             |           |           | 100,000   |           |           | 100,000         | 100,000       |
| Vehicle Lift Replacement                                 |             |           | 80,000    |           |           |           | 80,000          | 80,000        |
| Digital Radio System Upgrade                             |             |           | 125,000   |           |           |           | 125,000         | 125,000       |
| <b>Electric Division Total</b>                           | 1,475,591   | 4,301,150 | 3,925,000 | 2,350,000 | 2,814,500 | 1,264,500 | 14,655,150      | 16,130,741    |

**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

| Division/Project                           | Prior<br>Years | 2022      | 2023      | 2024      | 2025      | 2026      | Five Year<br>Total | Project<br>Total |
|--|----------------|-----------|-----------|-----------|-----------|-----------|--------------------|------------------|
| <b>Telecommunications Division</b>         |                |           |           |           |           |           |                    |                  |
| Normal Growth and Repair - Buildings       |                | 10,000    | 20,000    | 20,000    | 25,000    | 25,000    | 100,000            | 100,000          |
| Normal Growth and Repair - CO Switching    |                |           | 500,000   | 200,000   | 100,000   | 100,000   | 900,000            | 900,000          |
| Normal Growth and Repair - Copper Cable    |                | 20,000    | 20,000    | 30,000    | 30,000    | 35,000    | 135,000            | 135,000          |
| Normal Growth and Repair - Fiber Cable     |                | 100,000   | 200,000   | 200,000   | 200,000   | 200,000   | 900,000            | 900,000          |
| Normal Growth and Repair - CO Transmission |                | 150,000   | 200,000   | 200,000   | 350,000   | 350,000   | 1,250,000          | 1,250,000        |
| Normal Growth and Repair - Expansion       |                |           | 20,000    | 20,000    | 35,000    | 35,000    | 110,000            | 110,000          |
| Normal Growth and Repair - Provisioning    |                | 10,000    | 100,000   | 50,000    | 50,000    | 50,000    | 260,000            | 260,000          |
| Fiber to the Home                          |                | 224,266   | 100,000   | 100,000   | 125,000   | 150,000   | 699,266            | 699,266          |
| Remote Cabinets for Advanced Services      |                | 10,000    | 25,000    | 25,000    | 25,000    | 35,000    | 120,000            | 120,000          |
| Core Network Upgrade                       |                | 80,000    | 750,000   | 750,000   | 750,000   | 450,000   | 2,780,000          | 2,780,000        |
| Server Environment                         |                | 60,000    | 400,000   | 200,000   | 200,000   | 500,000   | 1,360,000          | 1,360,000        |
| Multi-Dwelling Unit Project                |                | 60,000    | 100,000   | 150,000   | 150,000   | 150,000   | 610,000            | 610,000          |
| Operating Equipment                        |                | 15,000    | 75,000    | 50,000    | 50,000    | 50,000    | 240,000            | 240,000          |
| PC Hardware & Software                     |                | 50,000    | 50,000    | 60,000    | 60,000    | 65,000    | 285,000            | 285,000          |
| Power Expansion/Reclamation                |                | 5,000     | 25,000    | 25,000    | 30,000    | 35,000    | 120,000            | 120,000          |
| Visual Mapping Software                    |                | 10,000    | 20,000    | 20,000    | 20,000    | 20,000    | 90,000             | 90,000           |
| Network Monitoring                         |                | 110,000   | 100,000   | 200,000   | 200,000   | 300,000   | 910,000            | 910,000          |
| Vehicle Acquisition                        |                |           | 250,000   | 300,000   | 350,000   | 350,000   | 1,250,000          | 1,250,000        |
| Security                                   |                |           | 100,000   | 200,000   | 200,000   | 300,000   | 800,000            | 800,000          |
| Headend Expansion                          |                |           | 30,000    | 20,000    | 20,000    | 10,000    | 80,000             | 80,000           |
| Video Set Top Boxes                        |                | 80,000    | 100,000   | 25,000    |           |           | 205,000            | 205,000          |
| 4G/LTE                                     |                | 60,000    | 80,000    | 80,000    | 150,000   | 500,000   | 870,000            | 870,000          |
| Microwave                                  |                |           | 20,000    | 20,000    | 20,000    |           | 60,000             | 60,000           |
| Hosted                                     |                | 80,000    | 150,000   | 150,000   | 175,000   | 200,000   | 755,000            | 755,000          |
| Wi-Fi                                      |                | 40,000    | 60,000    | 80,000    | 100,000   | 120,000   | 400,000            | 400,000          |
| Internet Expansion                         | 10,313,610     | 257,600   | 100,000   | 200,000   | 200,000   | 300,000   | 1,057,600          | 11,371,210       |
| <b>Telecommunications Division Total</b>   | 10,313,610     | 1,431,866 | 3,595,000 | 3,375,000 | 3,615,000 | 4,330,000 | 16,346,866         | 26,660,476       |
|  |                |           |           |           |           |           |                    |                  |

**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Division - All Years**

| Division/Project                                    | Prior<br>Years    | 2022             | 2023             | 2024             | 2025             | 2026              | Five Year<br>Total | Project<br>Total  |
|---|-------------------|------------------|------------------|------------------|------------------|-------------------|--------------------|-------------------|
| <b>Water Division</b>                               |                   |                  |                  |                  |                  |                   |                    |                   |
| Filtration Facility - Preliminary Preparation Tasks | 559,290           | 199,869          |                  |                  |                  |                   | 199,869            | 759,159           |
| Water Meters - Business & Commercial Customers      | 435,211           | 650,613          |                  |                  |                  |                   | 650,613            | 1,085,824         |
| Pump Station Switchgear Improvements                |                   | 22,650           | 23,150           | 23,800           |                  | 24,750            | 94,350             | 94,350            |
| Utility Vehicles                                    |                   | 98,000           |                  | 37,500           | 96,000           |                   | 231,500            | 231,500           |
| West Fairy Chasm Main Replacement                   |                   | 15,000           |                  |                  |                  | 550,600           | 565,600            | 565,600           |
| Skyline Water Main Replacement                      |                   | 10,000           |                  |                  |                  | 360,800           | 370,800            | 370,800           |
| Valve Boxes - Repair of Surrounding Pavement        |                   | 50,000           | 50,000           | 50,000           | 50,000           | 50,000            | 250,000            | 250,000           |
| 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            |
| SCADA PLC Controllers                               | 256,500           |                  | 265,000          |                  | 285,000          |                   | 550,000            | 806,500           |
| UV Facility - UPS Battery Replacement               |                   |                  | 45,000           |                  |                  |                   | 45,000             | 45,000            |
| Replace ClorTec Generating Cells                    |                   |                  | 52,500           | 54,000           | 37,000           | 38,000            | 181,500            | 181,500           |
| Woodland Ave Utility Improvements                   |                   |                  | 25,000           |                  |                  | 430,000           | 455,000            | 455,000           |
| Harris Street Utility Improvements                  |                   |                  | 25,000           |                  |                  | 600,000           | 625,000            | 625,000           |
| Replace Tongass Ave/Water St. Suspended Water Main  |                   |                  | 245,000          |                  | 1,230,000        |                   | 1,475,000          | 1,475,000         |
| Highlands Reservoir Property Acquisition            |                   |                  | 270,000          |                  |                  |                   | 270,000            | 270,000           |
| Second Avenue Main Replacement                      |                   |                  | 15,000           |                  |                  | 1,300,800         | 1,315,800          | 1,315,800         |
| Evergreen Ave. Main Replacement                     |                   |                  | 15,000           |                  |                  | 440,000           | 455,000            | 455,000           |
| Denali Ave. Main Replacement                        |                   |                  | 15,000           |                  |                  | 512,000           | 527,000            | 527,000           |
| <b>Water Division Total</b>                         | <b>1,251,001</b>  | <b>1,146,132</b> | <b>1,145,650</b> | <b>265,300</b>   | <b>1,798,000</b> | <b>4,406,950</b>  | <b>8,762,032</b>   | <b>10,013,033</b> |
| <b>TOTAL</b>  | <b>13,479,194</b> | <b>6,899,148</b> | <b>8,665,650</b> | <b>5,990,300</b> | <b>8,227,500</b> | <b>10,001,450</b> | <b>39,784,048</b>  | <b>53,263,242</b> |

**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Funding Source - All Years**

| Division/Project   | Prior<br>Years | Revenue<br>Generating<br>Fund | Grants | Other | Revenue<br>Bonds | State<br>Drinking<br>Water<br>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                         | 615,000        | 150,000                       |        |       |                  |   | 765,000    |
| Generator Rewind & Repair                                |                | 1,350,000                     |        |       |                  |   | 1,350,000  |
| Ketchikan Tunnel Penstock Valves Replacement             | 50,000         | 350,000                       |        |       |                  |   | 400,000    |
| Bailey Generator No. 4 Wartsilia PLC Upgrade             |                | 115,000                       |        |       |                  |   | 115,000    |
| Generation Equipment Planning, Cleaning & Testing        | 191,395        | 100,000                       |        |       |                  |   | 291,395    |
| Whitman Tailrace Modification                            | 11,291         | 25,000                        |        |       |                  |   | 36,291     |
| Diesel Generation Moderization                           | 120,000        | 60,000                        |        |       |                  |   | 180,000    |
| Bailey Exhaust Stack Re-Coating                          |                | 90,000                        |        |       |                  |   | 90,000     |
| Bailey Unit No. 1 Rehabilitation                         | 15,835         | 850,000                       |        |       |                  |   | 865,835    |
| Bailey Generator Radiator Replacement                    |                | 340,000                       |        |       |                  |   | 340,000    |
| Beaver Falls Governor Upgrade                            |                | 250,000                       |        |       |                  |   | 250,000    |
| Silvis Shaft & Turbine Overhaul                          |                | 750,000                       |        |       |                  |   | 750,000    |
| Ketchikan Lakes Project Relicensing                      |                | 900,000                       |        |       |                  |   | 900,000    |
| Ketchikan Beaver Falls Switch Gear Replacement           | 105,000        | 1,372,150                     |        |       |                  |   | 1,477,150  |
| Ketchikan Lakes Utilities                                |                | 225,000                       |        |       |                  |   | 225,000    |
| Ketchikan International Airport & Penneck Is. Upgrade    | 295,000        | 585,000                       |        |       |                  |   | 880,000    |
| Feeder Protective Relay Upgrades                         |                | 100,000                       |        |       |                  |   | 100,000    |
| Battery Systems and Chargers                             | 36,000         | 283,000                       |        |       |                  |   | 319,000    |
| Transformer Purchase                                     |                | 500,000                       |        |       |                  |   | 500,000    |
| AMI, Meters and Meter Replacement Parts                  |                | 810,000                       |        |       |                  |   | 810,000    |
| Reimbursable Projects                                    |                | 550,000                       |        |       |                  |   | 550,000    |
| 34.5 kV Tie Breaker and Relay Spares                     |                | 105,000                       |        |       |                  |   | 105,000    |
| Bailey Mooring Dolphin Replacement                       |                | 110,000                       |        |       |                  |   | 110,000    |
| Beaver Falls Powerhouse Exterior                         | 36,070         | 750,000                       |        |       |                  |   | 786,070    |
| Vehicles & Moving Equipment                              |                | 1,255,000                     |        |       |                  |   | 1,255,000  |
| Operating Equipment                                      |                | 1,555,000                     |        |       |                  |   | 1,555,000  |
| Additional Projects                                      |                | 820,000                       |        |       |                  |   | 820,000    |
| Bailey Fuel Tank Painting                                |                | 100,000                       |        |       |                  |   | 100,000    |
| Vehicle Lift Replacement                                 |                | 80,000                        |        |       |                  |   | 80,000     |
| Digital Radio System Upgrade                             |                | 125,000                       |        |       |                  |   | 125,000    |
| <b>Electric Division Total</b>                           | 1,475,591      | 14,655,150                    |        |       |                  |   | 16,130,741 |



**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Funding Source - All Years**

| Division/Project                           | Prior<br>Years    | Revenue<br>Generating<br>Fund | Grants | Other | Revenue<br>Bonds | State<br>Drinking<br>Water<br>Loan Fund | Total             |
|--|-------------------|-------------------------------|--------|-------|------------------|---|-------------------|
| <b>Telecommunications Division</b>         |                   |                               |        |       |                  |   |                   |
| Normal Growth and Repair - Buildings       |                   | 100,000                       |        |       |                  |   | 100,000           |
| Normal Growth and Repair - CO Switching    |                   | 900,000                       |        |       |                  |   | 900,000           |
| Normal Growth and Repair - Copper Cable    |                   | 135,000                       |        |       |                  |   | 135,000           |
| Normal Growth and Repair - Fiber Cable     |                   | 900,000                       |        |       |                  |   | 900,000           |
| Normal Growth and Repair - CO Transmission |                   | 1,250,000                     |        |       |                  |   | 1,250,000         |
| Normal Growth and Repair - Expansion       |                   | 110,000                       |        |       |                  |   | 110,000           |
| Normal Growth and Repair - Provisioning    |                   | 260,000                       |        |       |                  |   | 260,000           |
| Fiber to the Home                          |                   | 699,266                       |        |       |                  |   | 699,266           |
| Remote Cabinets for Advanced Services      |                   | 120,000                       |        |       |                  |   | 120,000           |
| Core Network Upgrade                       |                   | 2,780,000                     |        |       |                  |   | 2,780,000         |
| Server Environment                         |                   | 1,360,000                     |        |       |                  |   | 1,360,000         |
| Multi-Dwelling Unit Project                |                   | 610,000                       |        |       |                  |   | 610,000           |
| Operating Equipment                        |                   | 240,000                       |        |       |                  |   | 240,000           |
| PC Hardware & Software                     |                   | 285,000                       |        |       |                  |   | 285,000           |
| Power Expansion/Reclamation                |                   | 120,000                       |        |       |                  |   | 120,000           |
| Visual Mapping Software                    |                   | 90,000                        |        |       |                  |   | 90,000            |
| Network Monitoring                         |                   | 910,000                       |        |       |                  |   | 910,000           |
| Vehicle Acquisition                        |                   | 1,250,000                     |        |       |                  |   | 1,250,000         |
| Security                                   |                   | 800,000                       |        |       |                  |   | 800,000           |
| Headend Expansion                          |                   | 80,000                        |        |       |                  |   | 80,000            |
| Video Set Top Boxes                        |                   | 205,000                       |        |       |                  |   | 205,000           |
| 4G/LTE                                     |                   | 870,000                       |        |       |                  |   | 870,000           |
| Microwave                                  |                   | 60,000                        |        |       |                  |   | 60,000            |
| Hosted                                     |                   | 755,000                       |        |       |                  |   | 755,000           |
| Wi-Fi                                      |                   | 400,000                       |        |       |                  |   | 400,000           |
| Internet Expansion                         | 10,313,610        | 800,000                       |        |       | 257,600          |   | 11,371,210        |
| <b>Telecommunications Division Total</b>   | <b>10,313,610</b> | <b>16,089,266</b>             |        |       | <b>257,600</b>   |   | <b>26,660,476</b> |
|  |                   |                               |        |       |                  |   |                   |

**Ketchikan Public Utilities**  
**2022 - 2026 Capital Improvement Program**  
**Summary of Projects by Funding Source - All Years**

| Division/Project                                    | Prior<br>Years    | Revenue<br>Generating<br>Fund | Grants           | Other | Revenue<br>Bonds | State<br>Drinking<br>Water<br>Loan Fund | Total             |
|---|-------------------|-------------------------------|------------------|-------|------------------|---|-------------------|
| <b>Water Division</b>                               |                   |                               |                  |       |                  |   |                   |
| Filtration Facility - Preliminary Preparation Tasks | 559,290           | 199,869                       |                  |       |                  |   | 759,159           |
| Water Meters - Business & Commercial Customers      | 435,211           |                               |                  |       |                  | 650,613                                 | 1,085,824         |
| Pump Station Switchgear Improvements                |                   | 94,350                        |                  |       |                  |   | 94,350            |
| Utility Vehicles                                    |                   | 231,500                       |                  |       |                  |   | 231,500           |
| West Fairy Chasm Main Replacement                   |                   | 15,000                        | 275,300          |       |                  | 275,300                                 | 565,600           |
| Skyline Water Main Replacement                      |                   | 10,000                        | 180,400          |       |                  | 180,400                                 | 370,800           |
| Valve Boxes - Repair of Surrounding Pavement        |                   | 250,000                       |                  |       |                  |   | 250,000           |
| 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            |
| SCADA PLC Controllers                               | 256,500           | 550,000                       |                  |       |                  |   | 806,500           |
| UV Facility - UPS Battery Replacement               |                   | 45,000                        |                  |       |                  |   | 45,000            |
| Replace ClorTec Generating Cells                    |                   | 181,500                       |                  |       |                  |   | 181,500           |
| Woodland Ave Utility Improvements                   |                   | 25,000                        | 215,000          |       |                  | 215,000                                 | 455,000           |
| Harris Street Utility Improvements                  |                   | 25,000                        | 300,000          |       |                  | 300,000                                 | 625,000           |
| Replace Tongass Ave/Water St. Suspended Water Main  |                   | 245,000                       | 615,000          |       |                  | 615,000                                 | 1,475,000         |
| Highlands Reservoir Property Acquisition            |                   |                               | 135,000          |       |                  | 135,000                                 | 270,000           |
| Second Avenue Main Replacement                      |                   | 15,000                        | 650,400          |       |                  | 650,400                                 | 1,315,800         |
| Evergreen Ave. Main Replacement                     |                   | 15,000                        | 220,000          |       |                  | 220,000                                 | 455,000           |
| Denali Ave. Main Replacement                        |                   | 15,000                        | 256,000          |       |                  | 256,000                                 | 527,000           |
| <b>Water Division Total</b>                         | 1,251,001         | 2,417,219                     | 2,847,100        |       |                  | 3,497,713                               | 10,013,033        |
| <b>TOTAL</b>  | <b>13,479,194</b> | <b>33,181,635</b>             | <b>2,847,100</b> |       | <b>257,600</b>   | <b>3,497,713</b>                        | <b>53,263,242</b> |

**Ketchikan Public Utilities  
2022 - 2026 Capital Improvement Program**

**Department: General Manager**

| Project Title  | Priority | Prior Years | Adopted 2022        |                |        | Projected Requirements |      |      |      | Total Project |
|--|----------|-------------|---------------------|----------------|--------|------------------------|------|------|------|---------------|
|  |          |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024 | 2025 | 2026 |               |
| Financial & Accounting Information System Implementation | 1        | 438,992     | 20,000              |                | 20,000 |                        |      |      |      | 458,992       |
| <b>Total</b>   |          | 438,992     | 20,000              |                | 20,000 |                        |      |      |      | 458,992       |
|  |          |             |                     |                |        |                        |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022        |                |        | Projected Requirements |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund                                  |          | 438,992     | 20,000              |                | 20,000 |                        |      |      |      | 458,992       |
| <b>Total</b>   |          | 438,992     | 20,000              |                | 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<br><b>End Date:</b> 12/22  |                |        | <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 2022. 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 2022. 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 2022 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<br>Land/Right-of-Way<br>Consultation 51,975<br>Construction<br>Equip, Software & Implementation Services 391,517<br>Other - Training 15,500<br>Project Total 458,992 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022  |                |        | Projected Requirements  |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated   | New<br>Funding | Total  | 2023  | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund  |          | 438,992     | 20,000  |                | 20,000 |   |      |      |      | 458,992       |
| <b>Total</b>   |          | 438,992     | 20,000  |                | 20,000 |   |      |      |      | 458,992       |

| <b>Ketchikan Public Utilities</b><br><b>2022 - 2026 Capital Improvement Program</b><br><b>Division: Electric</b> |          |             |                     |                |           |                        |           |           |           |               |
|--|----------|-------------|---------------------|----------------|-----------|------------------------|-----------|-----------|-----------|---------------|
| Project Title  | Priority | Prior Years | Adopted 2022        |                |           | Projected Requirements |           |           |           | Total Project |
|  |          |             | Reappro-<br>priated | New<br>Funding | Total     | 2023                   | 2024      | 2025      | 2026      |               |
| <b>Generation (Hydro and Diesel) Projects</b>  |          |             |                     |                |           |                        |           |           |           |               |
| Beaver Falls Relicensing   | 1        | 615,000     |                     | 90,000         | 90,000    | 30,000                 | 30,000    |           |           | 765,000       |
| Generator Rewind & Repair  | 2        |             |                     |                |           | 650,000                |           | 700,000   |           | 1,350,000     |
| Ketchikan Tunnel Penstock Valves Replacement   | 3        | 50,000      |                     | 100,000        | 100,000   | 250,000                |           |           |           | 400,000       |
| Bailey Generator No. 4 Wartsila PLC Upgrade  | 4        |             |                     | 115,000        | 115,000   |                        |           |           |           | 115,000       |
| Generation Equipment Planning, Cleaning & Testing  | 6        | 191,395     |                     | 50,000         | 50,000    |                        | 50,000    |           |           | 291,395       |
| Whitman Tailrace Modifications   | 12       | 11,291      | 25,000              |                | 25,000    |                        |           |           |           | 36,291        |
| Diesel Generation Modernization  | 13       | 120,000     | 60,000              |                | 60,000    |                        |           |           |           | 180,000       |
| Bailey Exhaust Stack Re-Coating  | 16       |             |                     | 25,000         | 25,000    | 30,000                 | 35,000    |           |           | 90,000        |
| Bailey Unit No. 1 Rehabilitation   | 17       | 15,835      |                     |                |           | 850,000                |           |           |           | 865,835       |
| Bailey Generator Radiator Replacement  | 22       |             |                     |                |           | 40,000                 | 300,000   |           |           | 340,000       |
| Beaver Falls Governor Upgrade  | 23       |             |                     |                |           |                        | 250,000   |           |           | 250,000       |
| Silvis Shaft & Turbine Overhaul  | 24       |             |                     |                |           |                        |           | 750,000   |           | 750,000       |
| Ketchikan Lakes Project Relicensing  | 25       |             |                     |                |           |                        | 300,000   | 300,000   | 300,000   | 900,000       |
| Ketchikan Beaver Falls Switch Gear Replacement   | 30       | 105,000     | 1,372,150           |                | 1,372,150 |                        |           |           |           | 1,477,150     |
| <b>Transmission and Distribution Projects</b>  |          |             |                     |                |           |                        |           |           |           |               |
| Ketchikan Lakes Utilities  | 5        |             |                     | 125,000        | 125,000   | 100,000                |           |           |           | 225,000       |
| Ketchikan International Airport & Pennock Upgrade  | 8        | 295,000     |                     | 260,000        | 260,000   | 300,000                | 25,000    |           |           | 880,000       |
| Feeder Protective Relay Upgrades   | 9        |             |                     | 100,000        | 100,000   |                        |           |           |           | 100,000       |
| Battery System and Chargers  | 10       | 36,000      |                     | 60,000         | 60,000    | 76,000                 | 46,000    | 50,500    | 50,500    | 319,000       |
| Transformer Purchase   | 18       |             |                     | 90,000         | 90,000    | 95,000                 | 100,000   | 105,000   | 110,000   | 500,000       |
| AMI, Meters, Meter Replacement Parts   | 19       |             |                     | 250,000        | 250,000   | 185,000                | 125,000   | 125,000   | 125,000   | 810,000       |
| Reimbursable Projects  | 21       |             |                     | 25,000         | 25,000    | 150,000                | 125,000   | 125,000   | 125,000   | 550,000       |
| 34.5 kV Breaker and Relay Spares   | 26       |             |                     |                |           |                        |           | 105,000   |           | 105,000       |
| <b>General Plant Projects</b>  |          |             |                     |                |           |                        |           |           |           |               |
| Bailey Mooring Dolphin Replacement   | 7        |             |                     | 110,000        | 110,000   |                        |           |           |           | 110,000       |
| Beaver Falls Powerhouse Exterior   | 11       | 36,070      |                     | 750,000        | 750,000   |                        |           |           |           | 786,070       |
| Vehicles & Moving Equipment  | 14       |             |                     | 175,000        | 175,000   | 500,000                | 400,000   | 90,000    | 90,000    | 1,255,000     |
| Operating Equipment  | 15       |             |                     | 355,000        | 355,000   | 300,000                | 300,000   | 300,000   | 300,000   | 1,555,000     |
| Additional Projects  | 20       |             |                     | 164,000        | 164,000   | 164,000                | 164,000   | 164,000   | 164,000   | 820,000       |
| Bailey Fuel Tank Painting  | 27       |             |                     |                |           |                        | 100,000   |           |           | 100,000       |
| Vehicle Lift Replacement   | 28       |             |                     |                |           | 80,000                 |           |           |           | 80,000        |
| Digital Radio System Upgrade   | 29       |             |                     |                |           | 125,000                |           |           |           | 125,000       |
| <b>Total</b>   |          | 1,475,591   | 1,457,150           | 2,844,000      | 4,301,150 | 3,925,000              | 2,350,000 | 2,814,500 | 1,264,500 | 16,130,741    |
|  |          |             |                     |                |           |                        |           |           |           |               |
| Source of Funds  |          | Prior Years | Adopted 2022        |                |           | Projected Requirements |           |           |           | Total Project |
|  |          |             | Reappro-<br>priated | New<br>Funding | Total     | 2023                   | 2024      | 2025      | 2026      |               |
| Revenue Generating Fund  |          | 1,475,591   | 1,457,150           | 2,844,000      | 4,301,150 | 3,925,000              | 2,350,000 | 2,814,500 | 1,264,500 | 16,130,741    |
| <b>Total</b>   |          | 1,475,591   | 1,457,150           | 2,844,000      | 4,301,150 | 3,925,000              | 2,350,000 | 2,814,500 | 1,264,500 | 16,130,741    |

| <b>Division:</b> Electric   |          |             | <b>Project Priority:</b> 1                         |                |        | <b>Project Number:</b>  |        |      |      |               |
|---|----------|-------------|--|----------------|--------|---|--------|------|------|---------------|
| <b>Project Title:</b> Beaver Falls Relicensing  |          |             | <b>Start Date:</b> 01/18<br><b>End Date:</b> 12/24 |                |        | <b>Estimated Project Cost:</b>  |        |      |      |               |
| <b>Description:</b><br><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 765,000<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment<br>Other<br>Project Total 765,000 |        |      |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                                       |                |        | Projected Requirements  |        |      |      | Total Project |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total  | 2023  | 2024   | 2025 | 2026 |               |
| Revenue Generating Fund   |          | 615,000     |  | 90,000         | 90,000 | 30,000  | 30,000 |      |      | 765,000       |
| <b>Total</b>  |          | 615,000     |  | 90,000         | 90,000 | 30,000  | 30,000 |      |      | 765,000       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 2                         |                |       | <b>Project Number:</b>  |      |         |      |               |
|--|----------|-------------|--|----------------|-------|---|------|---------|------|---------------|
| <b>Project Title:</b> Generator Rewind & Repair  |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/25 |                |       | <b>Estimated Project Cost:</b>  |      |         |      |               |
| <b>Description:</b><br><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)<br/> Beaver Falls: Unit No. 1 (2014), Unit No. 3 (2018), and Unit No. 4 (2018)<br/> Ketchikan: Unit No. 3 (2015), Unit No. 4 (1951), and Unit No. 5 (1991)</p> |          |             |  |                |       | Design 50,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 800,000<br>Equipment 450,000<br>Other 50,000<br>Project Total 1,350,000 |      |         |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |      |         |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025    | 2026 |               |
| 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> 3                         |      | <b>Project Number:</b>  |      |               |
|---|-------------|---------------------|----------------|---------|--|------|---|------|---------------|
| <b>Project Title:</b> Ketchikan Tunnel Penstock Valves Replacement  |             |                     |                |         | <b>Start Date:</b> 01/13<br><b>End Date:</b> 12/23 |      | <b>Estimated Project Cost:</b>  |      |               |
| <b>Description:</b><br><p>The three gate valves on the penstocks at the downstream end of the Ketchikan power tunnel are old and are nearing the end of their reliable service life. They must be capable of closing under flow and are critical to penstock safety. The valves are embedded in concrete and will be difficult to remove or to replace due to their location. As the tunnel provides the City's only potable water supply, it cannot be drained during the work. The assessment, design and replacement of the valves will be coordinated with the Water Division to ensure continuity of potable water service, slated for 2022.</p> |             |                     |                |         |  |      | Design 100,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 200,000<br>Equipment 100,000<br>Other<br>Project Total 400,000 |      |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |         | Projected Requirements                             |      |   |      | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total   | 2023   | 2024 | 2025  | 2026 |               |
| Revenue Generating Fund   | 50,000      |                     | 100,000        | 100,000 | 250,000  |      |   |      | 400,000       |
| <b>Total</b>  | 50,000      |                     | 100,000        | 100,000 | 250,000  |      |   |      | 400,000       |



| <b>Division:</b> Electric   |          |             |                     |                | <b>Project Priority:</b> 4                         |                        | <b>Project Number:</b>  |      |      |               |
|---|----------|-------------|---------------------|----------------|--|------------------------|---|------|------|---------------|
| <b>Project Title:</b> Bailey Generator No. 4 Wartsila PLC Upgrade   |          |             |                     |                | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/22 |                        | <b>Estimated Project Cost:</b>  |      |      |               |
| <b>Description:</b><br><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 20,000<br>Land/Right-of-Way<br>Construction Management 10,000<br>Construction<br>Equipment 75,000<br>Other 10,000<br>Project Total 115,000 |      |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022        |                |  | Projected Requirements |   |      |      | Total Project |
|   |          |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024  | 2025 | 2026 |               |
| Revenue Generating Fund   |          |             |                     | 115,000        | 115,000  |                        |   |      |      | 115,000       |
| <b>Total</b>  |          |             |                     | 115,000        | 115,000  |                        |   |      |      | 115,000       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 5                         |                |         | <b>Project Number:</b>  |      |      |      |               |
|--|----------|-------------|--|----------------|---------|---|------|------|------|---------------|
| <b>Project Title:</b> Ketchikan Lakes Utilities  |          |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/23 |                |         | <b>Estimated Project Cost:</b>  |      |      |      |               |
| <b>Description:</b><br>This project provides funding to install power & communications to the Ketchikan Lakes hydro project, including Fawn Lake, Ketchikan Lakes and to the Granite Basin area. Power at these sites is currently provided by solar panels and small back-up generators; with communications limited to line of site antennas. Further work includes, but is not limited to, the installation of security cameras, emergency lighting, and fiber optic communications for lake level indications. |          |             |  |                |         | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 225,000<br>Equipment<br>Other<br>Project Total 225,000 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |         | Projected Requirements  |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total   | 2023  | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund  |          |             |  | 125,000        | 125,000 | 100,000   |      |      |      | 225,000       |
| <b>Total</b>   |          |             |  | 125,000        | 125,000 | 100,000   |      |      |      | 225,000       |

| <b>Division:</b> Electric   |             |                     |                |        | <b>Project Priority:</b> 6                         |        | <b>Project Number:</b>   |      |               |
|---|-------------|---------------------|----------------|--------|--|--------|--|------|---------------|
| <b>Project Title:</b> Generation Equipment Planning, Cleaning & Testing   |             |                     |                |        | <b>Start Date:</b> 01/14<br><b>End Date:</b> 12/24 |        | <b>Estimated Project Cost:</b><br>Design/License<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment<br>Other |      |               |
| <b>Description:</b><br><br>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 2022        |                |        | Projected Requirements                             |        |  |      | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total  | 2023   | 2024   | 2025   | 2026 |               |
| Revenue Generating Fund   | 191,395     |                     | 50,000         | 50,000 |  | 50,000 |  |      | 291,395       |
| <b>Total</b>  | 191,395     |                     | 50,000         | 50,000 |  | 50,000 |  |      | 291,395       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 7                         |                |         | <b>Project Number:</b>  |      |      |      |               |
|--|----------|-------------|--|----------------|---------|---|------|------|------|---------------|
| <b>Project Title:</b> Bailey Mooring Dolphin Replacement   |          |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/22 |                |         | <b>Estimated Project Cost:</b>  |      |      |      |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction 80,000<br>Equipment<br>Other<br>Project Total 110,000 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |         | Projected Requirements  |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total   | 2023  | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund  |          |             |  | 110,000        | 110,000 |   |      |      |      | 110,000       |
| <b>Total</b>   |          |             |  | 110,000        | 110,000 |   |      |      |      | 110,000       |

| <b>Division:</b> Electric   |             |                     |                |         | <b>Project Priority:</b> 8                         |        | <b>Project Number:</b>   |      |               |
|---|-------------|---------------------|----------------|---------|--|--------|--|------|---------------|
| <b>Project Title:</b> Ketchikan International Airport and Pennock Island Upgrade  |             |                     |                |         | <b>Start Date:</b> 01/12<br><b>End Date:</b> 12/24 |        | <b>Estimated Project Cost:</b>   |      |               |
| <b>Description:</b><br>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 Powerhouse tank farm and runs through the area of the Ketchikan Shipyard, 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 2022, along with continued uplands work and material. The new cable is programmed for installation in 2023 as the State's airport ferry terminal project progresses. |             |                     |                |         |  |        | Design/License 50,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 430,000<br>Equipment 400,000<br>Other<br>Project Total 880,000 |      |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |         | Projected Requirements                             |        |  |      | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total   | 2023   | 2024   | 2025   | 2026 |               |
| Revenue Generating Fund   | 295,000     |                     | 260,000        | 260,000 | 300,000  | 25,000 |  |      | 880,000       |
| <b>Total</b>  | 295,000     |                     | 260,000        | 260,000 | 300,000  | 25,000 |  |      | 880,000       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 9                         |                |         | <b>Project Number:</b>   |      |      |      |               |
|--|----------|-------------|--|----------------|---------|--|------|------|------|---------------|
| <b>Project Title:</b> Feeder Protective Relay Upgrades   |          |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/22 |                |         | <b>Estimated Project Cost:</b>   |      |      |      |               |
| <b>Description:</b><br>Feeder protective relays are at end-of-life and are in need of upgrades. Feeder protective relays provide line protection, fault locating, event analysis, and other system protection. This project will include design, engineering, equipment, installation, and testing for twenty-two (22) relays. |          |             |  |                |         | Design 20,000<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 70,000<br>Other 10,000<br>Project Total 100,000 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |         | Projected Requirements   |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total   | 2023   | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund  |          |             |  | 100,000        | 100,000 |  |      |      |      | 100,000       |
| <b>Total</b>   |          |             |  | 100,000        | 100,000 |  |      |      |      | 100,000       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 10                        |                |        | <b>Project Number:</b>  |        |        |        |               |
|--|----------|-------------|--|----------------|--------|---|--------|--------|--------|---------------|
| <b>Project Title:</b> Battery Systems and Chargers   |          |             | <b>Start Date:</b> 01/20<br><b>End Date:</b> 12/26 |                |        | <b>Estimated Project Cost:</b>  |        |        |        |               |
| <b>Description:</b><br><br>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. 2022 funding will replace one of these systems. |          |             |  |                |        | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 319,000<br>Other<br>Project Total 319,000 |        |        |        |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |        | Projected Requirements  |        |        |        | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total  | 2023  | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund  |          | 36,000      |  | 60,000         | 60,000 | 76,000  | 46,000 | 50,500 | 50,500 | 319,000       |
| <b>Total</b>   |          | 36,000      |  | 60,000         | 60,000 | 76,000  | 46,000 | 50,500 | 50,500 | 319,000       |

| <b>Division:</b> Electric  |             |                     |                |         | <b>Project Priority:</b> 11                        |      | <b>Project Number:</b>   |      |               |
|--|-------------|---------------------|----------------|---------|--|------|--|------|---------------|
| <b>Project Title:</b> Beaver Falls Powerhouse Exterior   |             |                     |                |         | <b>Start Date:</b> 01/13<br><b>End Date:</b> 12/22 |      | <b>Estimated Project Cost:</b>   |      |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction 776,070<br>Equipment<br>Other<br>Project Total 786,070 |      |               |
| Source of Funds  | Prior Years | Adopted 2022        |                |         | Projected Requirements                             |      |  |      | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total   | 2023   | 2024 | 2025   | 2026 |               |
| Revenue Generating Fund  | 36,070      |                     | 750,000        | 750,000 |  |      |  |      | 786,070       |
| <b>Total</b>   | 36,070      |                     | 750,000        | 750,000 |  |      |  |      | 786,070       |



| <b>Division:</b> Electric  |          |             |                     |                | <b>Project Priority:</b> 12                        |                        | <b>Project Number:</b>  |      |      |               |
|--|----------|-------------|---------------------|----------------|--|------------------------|---|------|------|---------------|
| <b>Project Title:</b> Whitman Tailrace Modification  |          |             |                     |                | <b>Start Date:</b> 01/20<br><b>End Date:</b> 12/22 |                        | <b>Estimated Project Cost:</b>  |      |      |               |
| <b>Description:</b><br><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<br>Land/Right-of-Way<br>Construction Management<br>Construction 36,291<br>Equipment<br>Other<br>Project Total 36,291 |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022        |                |  | Projected Requirements |   |      |      | Total Project |
|  |          |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024  | 2025 | 2026 |               |
| 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> 13 |                |        | <b>Project Number:</b>         |      |      |      |               |
|---|----------|-------------|-----------------------------|----------------|--------|--------------------------------|------|------|------|---------------|
| <b>Project Title:</b> Diesel Generation Modernization   |          |             | <b>Start Date:</b> 01/19    |                |        | <b>Estimated Project Cost:</b> |      |      |      |               |
| <b>Description:</b><br>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. 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. |          |             | <b>End Date:</b> 12/22      |                |        | Design                         |      |      |      |               |
|   |          |             |                             |                |        | Land/Right-of-Way              |      |      |      |               |
|   |          |             |                             |                |        | Construction Management        |      |      |      |               |
|   |          |             |                             |                |        | Construction                   |      |      |      |               |
|   |          |             |                             |                |        | Equipment                      |      |      |      |               |
|   |          |             |                             |                |        | Other                          |      |      |      | 180,000       |
|   |          |             |                             |                |        | Project Total                  |      |      |      | 180,000       |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                |                |        | Projected Requirements         |      |      |      | Total Project |
|   |          |             | Reappro-<br>priated         | New<br>Funding | Total  | 2023                           | 2024 | 2025 | 2026 |               |
| 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> 14 |                | <b>Project Number:</b>         |                        |         |        |        |               |
|---|-------------|-----------------------------|----------------|--------------------------------|------------------------|---------|--------|--------|---------------|
| <b>Project Title:</b> Vehicles & Moving Equipment   |             | <b>Start Date:</b> 01/22    |                | <b>Estimated Project Cost:</b> |                        |         |        |        |               |
| <b>Description:</b><br><br>This project is for purchase of two (2) new vehicles, replacing three (3) existing vehicles. In order to maintain an efficient and safe operating fleet, vehicles and equipment need to be replaced based on a regular cycle. The following is a schedule of the vehicles to be purchased and the vehicles to be replaced in 2022. The Electric Division has not purchased any replacement vehicles or equipment since 2018.<br><u>Purchase:</u><br>1) F-350/450 equivalent dumping flat bed truck - estimated \$95,000 (Linecrew)<br>2) F-250 equivalent pickup with utility camper shell - estimated \$80,000 (Metershop)<br><u>Replaces:</u><br>1) 2000 Chevy K3500 1-ton dumping flatbed #185-44 (66,525 miles)<br>2A) 2002 Chevy K2500 3/4-ton pickup #185-57 (Salvage titled)<br>2B) 2006 Ford E250 work van #185-80 (57,144 miles)<br><u>Projections:</u><br>2023 Replace mini-excavator and digger/derrick boom truck \$500,000<br>2024 Replace large bucket truck \$400,000<br>2025 Replace small work truck(s)/van(s) \$90,000<br>2026 Replace small work truck(s)/van(s) \$90,000 |             | <b>End Date:</b> 12/26      |                | Design                         |                        |         |        |        |               |
|   |             | Land/Right-of-Way           |                |                                |                        |         |        |        |               |
|   |             | Construction Management     |                |                                |                        |         |        |        |               |
|   |             | Construction                |                |                                |                        |         |        |        |               |
|   |             | Equipment 1,255,000         |                |                                |                        |         |        |        |               |
|   |             | Other                       |                |                                |                        |         |        |        |               |
|   |             | Project Total 1,255,000     |                |                                |                        |         |        |        |               |
|   |             |                             |                |                                |                        |         |        |        |               |
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|   |             |                             |                |                                |                        |         |        |        |               |
| Source of Funds   | Prior Years | Adopted 2022                |                |                                | Projected Requirements |         |        |        | Total Project |
|   |             | Reappro-<br>priated         | New<br>Funding | Total                          | 2023                   | 2024    | 2025   | 2026   |               |
| Revenue Generating Fund   |             |                             | 175,000        | 175,000                        | 500,000                | 400,000 | 90,000 | 90,000 | 1,255,000     |
| <b>Total</b>  |             |                             | 175,000        | 175,000                        | 500,000                | 400,000 | 90,000 | 90,000 | 1,255,000     |

| <b>Division:</b> Electric  |             | <b>Project Priority:</b> 15 |             |         | <b>Project Number:</b>         |         |         |         |               |
|--|-------------|-----------------------------|-------------|---------|--------------------------------|---------|---------|---------|---------------|
| <b>Project Title:</b> Operating Equipment  |             | <b>Start Date:</b> 01/22    |             |         | <b>Estimated Project Cost:</b> |         |         |         |               |
|  |             | <b>End Date:</b> 12/26      |             |         | Design                         |         |         |         |               |
| <b>Description:</b>  |             |                             |             |         | Land/Right-of-Way              |         |         |         |               |
| This capital account provides for the purchase of new or replacement equipment used for the operation and maintenance of electrical service. |             |                             |             |         | Construction Management        |         |         |         |               |
| 1) Substation and Powerhouse Electronic Meters, Relays and Control Equipment   |             | \$ 25,000                   |             |         | Construction                   |         |         |         |               |
| 2) Recording Equipment   |             | \$ 10,000                   |             |         | Equipment                      |         |         |         |               |
| 3) New Test/Indication/Recording Equipment, Repair & Recalibration   |             | \$ 30,000                   |             |         | Other                          |         |         |         |               |
| 4) Meters, Probes, Hand Tools, Radios  |             | \$ 25,000                   |             |         | Project Total                  |         |         |         |               |
| 5) Customer Current & Potential Transformers   |             | \$ 50,000                   |             |         | 1,555,000                      |         |         |         |               |
| 6) Generation and Powerhouse Spare Parts   |             | \$ 65,000                   |             |         |                                |         |         |         |               |
| 7) Spare Powerhouse Generator Breakers   |             | \$ 15,000                   |             |         |                                |         |         |         |               |
| 8) Control Equipment Upgrades  |             | \$ 25,000                   |             |         |                                |         |         |         |               |
| 9) SCADA Critical Parts  |             | \$ 10,000                   |             |         |                                |         |         |         |               |
| 10) Motorola Mobile/Portable Radio Replacements/Antennas   |             | \$ 10,000                   |             |         |                                |         |         |         |               |
| 11) NovaTech I/O Solutions/Site PLC Replacement  |             | \$ 35,000                   |             |         |                                |         |         |         |               |
| 12) AXIS Camera System-Substation Security Camera's and spares   |             | \$ 8,000                    |             |         |                                |         |         |         |               |
| 13) Powerhouse HVAC Replacements   |             | \$ 5,000                    |             |         |                                |         |         |         |               |
| 14) Holiday Lighting Replacements (Skyline/Pole Mount/Wraps/Bulbs)   |             | \$ 30,000                   |             |         |                                |         |         |         |               |
| 15) Hydraulic Rammer (Breaker) for Kubota Excavator  |             | \$ 12,000                   |             |         |                                |         |         |         |               |
| Source of Funds  | Prior Years | Adopted 2022                |             |         | Projected Requirements         |         |         |         | Total Project |
|  |             | Reappro-priated             | New Funding | Total   | 2023                           | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund  |             |                             | 355,000     | 355,000 | 300,000                        | 300,000 | 300,000 | 300,000 | 1,555,000     |
| <b>Total</b>   |             |                             | 355,000     | 355,000 | 300,000                        | 300,000 | 300,000 | 300,000 | 1,555,000     |

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| <b>Division:</b> Electric  |  | <b>Project Priority:</b> 16                        |  | <b>Project Number:</b>         |        |
| <b>Project Title:</b> Bailey Exhaust Stack Re-Coating  |  | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/24 |  | <b>Estimated Project Cost:</b> |        |
| <b>Description:</b><br><br>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 and 2024. |  |  |  | Design/License                 | 25,000 |
|  |  |  |  | Land/Right-of-Way              |        |
|  |  |  |  | Construction Management        |        |
|  |  |  |  | Construction                   | 65,000 |
|  |  |  |  | Equipment                      |        |
|  |  |  |  | Other                          |        |
|  |  |  |  | Project Total                  | 90,000 |

| Source of Funds         | Prior Years | Adopted 2022        |                |        | Projected Requirements |        |      |      | Total Project |
|-------------------------|-------------|---------------------|----------------|--------|------------------------|--------|------|------|---------------|
|                         |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024   | 2025 | 2026 |               |
| Revenue Generating Fund |             |                     | 25,000         | 25,000 | 30,000                 | 35,000 |      |      | 90,000        |
|                         |             |                     |                |        |                        |        |      |      |               |
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| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 17                        |                |       | <b>Project Number:</b>  |      |      |      |               |
|--|----------|-------------|--|----------------|-------|---|------|------|------|---------------|
| <b>Project Title:</b> Bailey Unit No. 1 Rehabilitation   |          |             | <b>Start Date:</b> 01/19<br><b>End Date:</b> 12/23 |                |       | <b>Estimated Project Cost:</b>  |      |      |      |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction 325,000<br>Equipment 540,835<br>Other<br>Project Total 865,835 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund  |          | 15,835      |  |                |       | 850,000   |      |      |      | 865,835       |
| <b>Total</b>   |          | 15,835      |  |                |       | 850,000   |      |      |      | 865,835       |

| <b>Division:</b> Electric   |             |                     |                |        | <b>Project Priority:</b> 18                        |         | <b>Project Number:</b>  |         |               |
|---|-------------|---------------------|----------------|--------|--|---------|---|---------|---------------|
| <b>Project Title:</b> Transformer Purchase  |             |                     |                |        | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |         | <b>Estimated Project Cost:</b>  |         |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 500,000<br>Other<br>Project Total 500,000 |         |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |        | Projected Requirements                             |         |   |         | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total  | 2023   | 2024    | 2025  | 2026    |               |
| Revenue Generating Fund   |             |                     | 90,000         | 90,000 | 95,000   | 100,000 | 105,000   | 110,000 | 500,000       |
| <b>Total</b>  |             |                     | 90,000         | 90,000 | 95,000   | 100,000 | 105,000   | 110,000 | 500,000       |

| <b>Division:</b> Electric  |          |             |                     |                | <b>Project Priority:</b> 19                        |                        | <b>Project Number:</b>  |         |         |               |
|--|----------|-------------|---------------------|----------------|--|------------------------|---|---------|---------|---------------|
| <b>Project Title:</b> AMI, Meters and Meter Replacement Parts  |          |             |                     |                | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |                        | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 810,000<br>Other<br>Project Total 810,000 |         |         |               |
| <b>Description:</b><br>The division continues phasing in the AMI meters to make available advanced metering functions, including automated billing. This project 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). |          |             |                     |                |  |                        |   |         |         |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022        |                |  | Projected Requirements |   |         |         | Total Project |
|  |          |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                   | 2024  | 2025    | 2026    |               |
| Revenue Generating Fund  |          |             |                     | 250,000        | 250,000  | 185,000                | 125,000   | 125,000 | 125,000 | 810,000       |
| <b>Total</b>   |          |             |                     | 250,000        | 250,000  | 185,000                | 125,000   | 125,000 | 125,000 | 810,000       |





| <b>Division:</b> Electric   |             |                     |                |        | <b>Project Priority:</b> 21                        |         | <b>Project Number:</b>  |         |               |
|---|-------------|---------------------|----------------|--------|--|---------|---|---------|---------------|
| <b>Project Title:</b> Reimbursable Projects   |             |                     |                |        | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |         | <b>Estimated Project Cost:</b>  |         |               |
| <b>Description:</b><br>This capital account represents funds for materials for work that the division will be called upon to perform at the request of outside agencies and customers. Examples of reimbursable projects are new line extensions and damage repairs to the electrical system resulting from accidents, negligence and vandalism. The division's expectation is that such work will be reimbursed 100%. This CIP provides a means for warehouse inventory and transformer accounts to be replenished due to customer projects. |             |                     |                |        |  |         | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 550,000<br>Other<br>Project Total 550,000 |         |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |        | Projected Requirements                             |         |   |         | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total  | 2023   | 2024    | 2025  | 2026    |               |
| Revenue Generating Fund   |             |                     | 25,000         | 25,000 | 150,000  | 125,000 | 125,000   | 125,000 | 550,000       |
| <b>Total</b>  |             |                     | 25,000         | 25,000 | 150,000  | 125,000 | 125,000   | 125,000 | 550,000       |

| <b>Division:</b> Electric   |             |                 |             |       | <b>Project Priority:</b> 22                       |         | <b>Project Number:</b>  |      |               |
|---|-------------|-----------------|-------------|-------|---|---------|---|------|---------------|
| <b>Project Title:</b> Bailey Generator Radiator Replacement   |             |                 |             |       | <b>Start Date:</b> 1/23<br><b>End Date:</b> 12/24 |         | <b>Estimated Project Cost:</b>  |      |               |
| <b>Description:</b><br>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 replacement/upgrade of the radiators and cooling systems. It may be possible to design a more cost effective solution in lieu of complete replacement. 2023 funding allows for inspections, review of replacement options, and development of replacement specifications (if necessary). |             |                 |             |       |   |         | Design/License 40,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 60,000<br>Equipment 240,000<br>Other<br>Project Total 340,000 |      |               |
| Source of Funds   | Prior Years | Adopted 2022    |             |       | Projected Requirements                            |         |   |      | Total Project |
|   |             | Reappro-priated | New Funding | Total | 2023  | 2024    | 2025  | 2026 |               |
| Revenue Generating Fund   |             |                 |             |       | 40,000  | 300,000 |   |      | 340,000       |
| <b>Total</b>  |             |                 |             |       | 40,000  | 300,000 |   |      | 340,000       |

| <b>Division:</b> Electric   |             |                     |                |       | <b>Project Priority:</b> 23                        |         | <b>Project Number:</b>  |      |               |
|---|-------------|---------------------|----------------|-------|--|---------|---|------|---------------|
| <b>Project Title:</b> Beaver Falls Governor Upgrade   |             |                     |                |       | <b>Start Date:</b> 01/24<br><b>End Date:</b> 12/24 |         | <b>Estimated Project Cost:</b>  |      |               |
| <b>Description:</b><br>KPU's hydro systems lack provision for isochronous operation (precise frequency control) if islanded, as sometimes occurs during outages and restoration. This proposed upgrade would provide SCADA selection for isoc/droop governor operation for Beaver Falls Nos. 3 & 4. |             |                     |                |       |  |         | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 250,000<br>Other<br>Project Total 250,000 |      |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |       | Projected Requirements                             |         |   |      | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total | 2023   | 2024    | 2025  | 2026 |               |
| Revenue Generating Fund   |             |                     |                |       |  | 250,000 |   |      | 250,000       |
| <b>Total</b>  |             |                     |                |       |  | 250,000 |   |      | 250,000       |

| <b>Division:</b> Electric   |          |             | <b>Project Priority:</b> 24                        |                |       | <b>Project Number:</b>   |      |         |      |               |
|---|----------|-------------|--|----------------|-------|--|------|---------|------|---------------|
| <b>Project Title:</b> Silvis Shaft & Turbine Overhaul   |          |             | <b>Start Date:</b> 01/25<br><b>End Date:</b> 12/25 |                |       | <b>Estimated Project Cost:</b>   |      |         |      |               |
| <b>Description:</b><br>The original turbine has had numerous repairs over its lifecycle; the seal rings are out-of-tolerance, the shaft bearing surfaces require machining, the wicket gate assembly is out-of-tolerance and other major components require upgrades. This work does not include the major electrical components. |          |             |  |                |       | Design 750,000<br>Land/Right-of-Way<br>Construction Management<br>Construction Equipment<br>Other<br>Project Total 750,000 |      |         |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements   |      |         |      | Total Project |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023   | 2024 | 2025    | 2026 |               |
| Revenue Generating Fund   |          |             |  |                |       |  |      | 750,000 |      | 750,000       |
| <b>Total</b>  |          |             |  |                |       |  |      | 750,000 |      | 750,000       |

| <b>Division:</b> Electric  |          |             | <b>Project Priority:</b> 25                        |                |       | <b>Project Number:</b>  |         |         |         |               |
|--|----------|-------------|--|----------------|-------|---|---------|---------|---------|---------------|
| <b>Project Title:</b> Ketchikan Lakes Project Relicensing  |          |             | <b>Start Date:</b> 01/24<br><b>End Date:</b> 12/30 |                |       | <b>Estimated Project Cost:</b>  |         |         |         |               |
| <b>Description:</b><br><p>The Ketchikan Lakes Hydroelectric Project is licensed through the Federal Energy Regulatory Commission (FERC) for a term of 30 years. KPU's current license expires in 2030. To renew its FERC license, KPU must begin the process in 2024 with development of a Preliminary Application Document (PAD), and file Notice of Intent (NOI) in 2025. Following NEPA and tribal consultations, and completion of studies, a final license application is due in 2028. 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 900,000<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment<br>Other<br>Project Total 900,000 |         |         |         |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |         |         |         | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund  |          |             |  |                |       |   | 300,000 | 300,000 | 300,000 | 900,000       |
| <b>Total</b>   |          |             |  |                |       |   | 300,000 | 300,000 | 300,000 | 900,000       |

| <b>Division:</b> Electric   |          |             | <b>Project Priority:</b> 26                        |                |       | <b>Project Number:</b>  |      |         |      |               |
|---|----------|-------------|--|----------------|-------|---|------|---------|------|---------------|
| <b>Project Title:</b> 34.5 kV Breaker and Relay Spares  |          |             | <b>Start Date:</b> 01/25<br><b>End Date:</b> 12/25 |                |       | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 105,000<br>Other<br>Project Total 105,000 |      |         |      |               |
| <b>Description:</b><br><br>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 2022                                       |                |       | Projected Requirements  |      |         |      | Total Project |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025    | 2026 |               |
| Revenue Generating Fund   |          |             |  |                |       |   |      | 105,000 |      | 105,000       |
| <b>Total</b>  |          |             |  |                |       |   |      | 105,000 |      | 105,000       |

| <b>Division:</b> Electric  |             |                     |                |       | <b>Project Priority:</b> 27                        |         | <b>Project Number:</b>  |      |               |
|--|-------------|---------------------|----------------|-------|--|---------|---|------|---------------|
| <b>Project Title:</b> Bailey Fuel Tank Painting  |             |                     |                |       | <b>Start Date:</b> 01/24<br><b>End Date:</b> 12/24 |         | <b>Estimated Project Cost:</b>  |      |               |
| <b>Description:</b><br>Bailey 210,000 gallon fuel tank pressure wash, prep and painting. The tank is approximately 32 feet tall and 30' in diameter. |             |                     |                |       |  |         | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 100,000<br>Other<br>Project Total 100,000 |      |               |
| Source of Funds  | Prior Years | Adopted 2022        |                |       | Projected Requirements                             |         |   |      | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total | 2023   | 2024    | 2025  | 2026 |               |
| Revenue Generating Fund  |             |                     |                |       |  | 100,000 |   |      | 100,000       |
| <b>Total</b>   |             |                     |                |       |  | 100,000 |   |      | 100,000       |



| <b>Division:</b> Electric  |             |                     |                |       | <b>Project Priority:</b> 28                      |      | <b>Project Number:</b>  |      |               |
|--|-------------|---------------------|----------------|-------|--|------|---|------|---------------|
| <b>Project Title:</b> Vehicle Lift Replacement   |             |                     |                |       | <b>Start Date:</b> 1/23<br><b>End Date:</b> 1/23 |      | <b>Estimated Project Cost:</b>  |      |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 80,000<br>Other<br>Project Total 80,000 |      |               |
| Source of Funds  | Prior Years | Adopted 2022        |                |       | Projected Requirements                           |      |   |      | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total | 2023   | 2024 | 2025  | 2026 |               |
| Revenue Generating Fund  |             |                     |                |       | 80,000   |      |   |      | 80,000        |
| <b>Total</b>   |             |                     |                |       | 80,000   |      |   |      | 80,000        |

| <b>Division:</b> Electric   |          |             | <b>Project Priority:</b> 29                        |                |       | <b>Project Number:</b>   |      |      |      |               |
|---|----------|-------------|--|----------------|-------|--|------|------|------|---------------|
| <b>Project Title:</b> Digital Radio System Upgrades   |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/23 |                |       | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 115,000<br>Other 10,000<br>Project Total 125,000 |      |      |      |               |
| <b>Description:</b><br><br>KPU utilizes an island-wide radio system; it is an important safety tool when maintaining utility equipment. This project will update the existing Motorola radio system. The existing system has coverage issues and uses multiple channels for communication. The upgraded system will improve island-wide coverage and migrate to a single use channel. |          |             |  |                |       |  |      |      |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements   |      |      |      | Total Project |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023   | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund   |          |             |  |                |       | 125,000  |      |      |      | 125,000       |
| <b>Total</b>  |          |             |  |                |       | 125,000  |      |      |      | 125,000       |

| <b>Division:</b> Electric   |             | <b>Project Priority:</b> 30 |                | <b>Project Number:</b>          |                        |      |      |      |               |
|---|-------------|-----------------------------|----------------|---------------------------------|------------------------|------|------|------|---------------|
| <b>Project Title:</b> Beaver Falls Switch Gear Replacement  |             | <b>Start Date:</b> 01/17    |                | <b>Estimated Project Cost:</b>  |                        |      |      |      |               |
| <b>Description:</b><br><br>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. |             | <b>End Date:</b> 12/22      |                | Design/License 90,000           |                        |      |      |      |               |
|   |             |                             |                | Land/Right-of-Way 10,000        |                        |      |      |      |               |
|   |             |                             |                | Construction Management 207,150 |                        |      |      |      |               |
|   |             |                             |                | Construction 1,000,000          |                        |      |      |      |               |
|   |             |                             |                | Equipment 140,000               |                        |      |      |      |               |
|   |             |                             |                | Project Total 1,447,150         |                        |      |      |      |               |
| Source of Funds   | Prior Years | Adopted 2022                |                |                                 | Projected Requirements |      |      |      | Total Project |
|   |             | Reappro-<br>priated         | New<br>Funding | Total                           | 2023                   | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund   | 105,000     | 1,372,150                   |                | 1,372,150                       |                        |      |      |      | 1,477,150     |
| <b>Total</b>  | 105,000     | 1,372,150                   |                | 1,372,150                       |                        |      |      |      | 1,477,150     |

| Ketchikan Public Utilities<br>2022 - 2026 Capital Improvement Program<br>Division: Telecommunications |          |             |                     |                |           |                        |           |           |           |                  |            |
|---|----------|-------------|---------------------|----------------|-----------|------------------------|-----------|-----------|-----------|------------------|------------|
| Project Title   | Priority | Prior Years | Adopted 2022        |                |           | Projected Requirements |           |           |           | Total Project    |            |
|   |          |             | Reappro-<br>priated | New<br>Funding | Total     | 2023                   | 2024      | 2025      | 2026      |                  |            |
| REGULATED   |          |             |                     |                |           |                        |           |           |           |                  |            |
| Normal Growth and Repair - Buildings  | 1        |             |                     | 10,000         | 10,000    | 20,000                 | 20,000    | 25,000    | 25,000    | 100,000          |            |
| Normal Growth and Repair - CO Switching   | 2        |             |                     |                |           | 500,000                | 200,000   | 100,000   | 100,000   | 900,000          |            |
| Normal Growth and Repair - Copper Cable   | 3        |             |                     | 20,000         | 20,000    | 20,000                 | 30,000    | 30,000    | 35,000    | 135,000          |            |
| Normal Growth and Repair - Fiber Cable  | 4        |             |                     | 100,000        | 100,000   | 200,000                | 200,000   | 200,000   | 200,000   | 900,000          |            |
| Normal Growth and Repair - CO Transmission  | 5        |             |                     | 150,000        | 150,000   | 200,000                | 200,000   | 350,000   | 350,000   | 1,250,000        |            |
| Normal Growth and Repair - Expansion  | 6        |             |                     |                |           |                        | 20,000    | 20,000    | 35,000    | 35,000           | 110,000    |
| Normal Growth and Repair - Provisioning   | 7        |             |                     |                | 10,000    | 10,000                 | 100,000   | 50,000    | 50,000    | 50,000           | 260,000    |
| Fiber to the Home   | 8        |             |                     |                | 224,266   | 224,266                | 100,000   | 100,000   | 125,000   | 150,000          | 699,266    |
| Remote Cabinets for Advanced Services   | 9        |             |                     |                | 10,000    | 10,000                 | 25,000    | 25,000    | 25,000    | 35,000           | 120,000    |
| Core Network Upgrade  | 10       |             |                     |                | 80,000    | 80,000                 | 750,000   | 750,000   | 750,000   | 450,000          | 2,780,000  |
| Server Environment  | 11       |             |                     |                | 60,000    | 60,000                 | 400,000   | 200,000   | 200,000   | 500,000          | 1,360,000  |
| Multi-Dwelling Unit Project   | 12       |             |                     |                | 60,000    | 60,000                 | 100,000   | 150,000   | 150,000   | 150,000          | 610,000    |
| Operating Equipment   | 13       |             |                     |                | 15,000    | 15,000                 | 75,000    | 50,000    | 50,000    | 50,000           | 240,000    |
| PC Hardware & Software  | 14       |             |                     |                | 50,000    | 50,000                 | 50,000    | 60,000    | 60,000    | 65,000           | 285,000    |
| Power Expansion/Reclamation   | 15       |             |                     |                | 5,000     | 5,000                  | 25,000    | 25,000    | 30,000    | 35,000           | 120,000    |
| Visual Mapping Software   | 16       |             |                     |                | 10,000    | 10,000                 | 20,000    | 20,000    | 20,000    | 20,000           | 90,000     |
| Network Monitoring  | 17       |             |                     |                | 110,000   | 110,000                | 100,000   | 200,000   | 200,000   | 300,000          | 910,000    |
| Vehicle Acquisition   | 18       |             |                     |                |           |                        | 250,000   | 300,000   | 350,000   | 350,000          | 1,250,000  |
| Security  | 19       |             |                     |                |           |                        | 100,000   | 200,000   | 200,000   | 300,000          | 800,000    |
| NON-REGULATED   |          |             |                     |                |           |                        |           |           |           |                  |            |
| Headend Expansion   | 20       | 10,313,610  | 257,600             |                |           | 30,000                 | 20,000    | 20,000    | 10,000    | 80,000           |            |
| Video Set Top Boxes   | 21       |             |                     |                | 80,000    | 80,000                 | 100,000   | 25,000    |           |                  | 205,000    |
| 4G/LTE  | 22       |             |                     |                | 60,000    | 60,000                 | 80,000    | 80,000    | 150,000   | 500,000          | 870,000    |
| Microwave   | 23       |             |                     |                |           |                        | 20,000    | 20,000    | 20,000    |                  | 60,000     |
| Hosted  | 24       |             |                     |                | 80,000    | 80,000                 | 150,000   | 150,000   | 175,000   | 200,000          | 755,000    |
| WiFi  | 25       |             |                     |                | 40,000    | 40,000                 | 60,000    | 80,000    | 100,000   | 120,000          | 400,000    |
| Internet Expansion  | 26       |             |                     |                |           |                        |           |           |           |                  |            |
| Total   |          |             |                     |                |           |                        |           |           |           |                  |            |
|   |          |             | 10,313,610          | 257,600        | 1,174,266 | 1,431,866              | 3,595,000 | 3,375,000 | 3,615,000 | 4,330,000        | 26,660,476 |
|   |          |             |                     |                |           |                        |           |           |           |                  |            |
| Source of Funds   |          | Prior Years | Reappro-<br>priated | New<br>Funding | Total     | Projected Requirements |           |           |           | Total<br>Project |            |
| Revenue Generating Fund   |          | 100,000     |                     | 1,174,266      | 1,174,266 | 3,595,000              | 3,375,000 | 3,615,000 | 4,330,000 | 16,189,266       |            |
| Revenue Bonds   |          | 10,213,610  | 257,600             |                | 257,600   |                        |           |           |           | 10,471,210       |            |
| Total   |          | 10,313,610  | 257,600             | 1,174,266      | 1,431,866 | 3,595,000              | 3,375,000 | 3,615,000 | 4,330,000 | 26,660,476       |            |

| <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> 01/22<br><b>End Date:</b> 12/26 |                |        | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 100,000<br>Other<br>Project Total 100,000 |        |        |        |               |
| <b>Description:</b><br><br>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. |             |  |                |        |   |        |        |        |               |
| Source of Funds  | Prior Years | Adopted 2022                                       |                |        | Projected Requirements  |        |        |        | Total Project |
|  |             | Reappro-<br>priated                                | New<br>Funding | Total  | 2023  | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund  |             |  | 10,000         | 10,000 | 20,000  | 20,000 | 25,000 | 25,000 | 100,000       |
| <b>Total</b>   |             |  | 10,000         | 10,000 | 20,000  | 20,000 | 25,000 | 25,000 | 100,000       |

| <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> 01/23<br><b>End Date:</b> 12/26 |                |       | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 900,000<br>Other<br>Project Total 900,000 |         |         |         |               |
| <b>Description:</b><br><br>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.<br><br>Additionally, this budget item purchases one new softswitch to replace the end-of-life T7000 class 5 switch in 2023 to work in tandem with the Broadworks feature softswitch. This also includes funding to replace the ACME session border controllers with newer hardware and software to facilitate the protection of all of the division's ip voice platforms. |             |  |                |       |   |         |         |         |               |
| Source of Funds  | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |         |         |         | Total Project |
|  |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund  |             |  |                |       | 500,000   | 200,000 | 100,000 | 100,000 | 900,000       |
| <b>Total</b>   |             |  |                |       | 500,000   | 200,000 | 100,000 | 100,000 | 900,000       |

| <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> 01/22<br><b>End Date:</b> 12/26  |                |        | <b>Estimated Project Cost:</b> |        |        |        |               |
| <b>Description:</b><br><br>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. The copper plant while decreasing in importance is aging and will need maintenance work to keep functioning optimally over the next 10 years. |             | Design 5,400<br>Land/Right-of-Way<br>Construction Management<br>Construction 54,000<br>Equipment 75,600<br>Other<br>Project Total 135,000 |                |        |                                |        |        |        |               |
| Source of Funds   | Prior Years | Adopted 2022  |                |        | Projected Requirements         |        |        |        | Total Project |
|   |             | Reappro-<br>priated   | New<br>Funding | Total  | 2023                           | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund   |             |   | 20,000         | 20,000 | 20,000                         | 30,000 | 30,000 | 35,000 | 135,000       |
| <b>Total</b>  |             |   | 20,000         | 20,000 | 20,000                         | 30,000 | 30,000 | 35,000 | 135,000       |

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| <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> 01/22<br><b>End Date:</b> 12/26   |             |         | <b>Estimated Project Cost:</b> |         |         |         |               |
| <b>Description:</b><br><br>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 services. As circuits reach 1Gbps and beyond to 10Gbps copper circuits will no longer be a feasible option for internet customers. |             | Design 18,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 495,000<br>Equipment 387,000<br>Other<br>Project Total 900,000 |             |         |                                |         |         |         |               |
| Source of Funds  | Prior Years | Adopted 2022   |             |         | Projected Requirements         |         |         |         | Total Project |
|  |             | Reappro-priated  | New Funding | Total   | 2023                           | 2024    | 2025    | 2026    |               |
| 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       |

| Source of Funds         | Prior Years | Adopted 2022    |             |         | Projected Requirements |         |         |         | Total Project |
|-------------------------|-------------|-----------------|-------------|---------|------------------------|---------|---------|---------|---------------|
|                         |             | Reappro-priated | New Funding | Total   | 2023                   | 2024    | 2025    | 2026    |               |
| 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> 5  |                        | <b>Project Number:</b>         |                               |             |             |             |                      |
| <b>Project Title:</b> Normal Growth and Repair - CO Transmission   |                    | <b>Start Date:</b> 01/22    |                        | <b>Estimated Project Cost:</b> |                               |             |             |             |                      |
| <b>Description:</b><br><br>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; internal network fiber ports; network transmission electronics necessary to serve business customers with new private line services including digital data service, optical wide area network, T1s, etc.; finishing 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 2025 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> 12/26      |                        | Design                         |                               |             |             |             |                      |
|  |                    | Land/Right-of-Way           |                        |                                |                               |             |             |             |                      |
|  |                    | Construction Management     |                        |                                |                               |             |             |             |                      |
|  |                    | Construction 100,000        |                        |                                |                               |             |             |             |                      |
|  |                    | Equipment 1,150,000         |                        |                                |                               |             |             |             |                      |
|  |                    | Other                       |                        |                                |                               |             |             |             |                      |
|  |                    |                             |                        | Project Total 1,250,000        |                               |             |             |             |                      |
|  |                    |                             |                        |                                |                               |             |             |             |                      |
| <b>Source of Funds</b>   | <b>Prior Years</b> | <b>Adopted 2022</b>         |                        |                                | <b>Projected Requirements</b> |             |             |             | <b>Total Project</b> |
|  |                    | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b> | <b>Total</b>                   | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> |                      |
| Revenue Generating Fund  |                    |                             | 150,000                | 150,000                        | 200,000                       | 200,000     | 350,000     | 350,000     | 1,250,000            |
|  |                    |                             |                        |                                |                               |             |             |             |                      |
| <b>Total</b>   |                    |                             | 150,000                | 150,000                        | 200,000                       | 200,000     | 350,000     | 350,000     | 1,250,000            |

| <b>Division:</b> Telecommunications<br><br><b>Project Title:</b> Normal Growth and Repair - Expansion<br><br><b>Description:</b><br>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. |             |                     |                |       | <b>Project Priority:</b> 6                         |        | <b>Project Number:</b>  |        |               |
|--|-------------|---------------------|----------------|-------|--|--------|---|--------|---------------|
|  |             |                     |                |       | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/26 |        | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 22,000<br>Equipment 88,000<br>Other<br>Project Total 110,000 |        |               |
| Source of Funds  | Prior Years | Adopted 2022        |                |       | Projected Requirements                             |        |   |        | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total | 2023   | 2024   | 2025  | 2026   |               |
| Revenue Generating Fund  |             |                     |                |       | 20,000   | 20,000 | 35,000  | 35,000 | 110,000       |
| <b>Total</b>   |             |                     |                |       | 20,000   | 20,000 | 35,000  | 35,000 | 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> 01/22<br><b>End Date:</b> 12/26 |  | <b>Estimated Project Cost:</b><br>Design 70,200<br>Land/Right-of-Way<br>Construction Management<br>Software 137,800<br>Equipment 28,600<br>Other 23,400<br>Project Total 260,000 |  |
| <b>Description:</b><br>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. |  |  |  |  |  |

| Source of Funds         | Prior Years | Adopted 2022       |                |        | Projected Requirements |        |        |        | Total Project |
|-------------------------|-------------|--------------------|----------------|--------|------------------------|--------|--------|--------|---------------|
|                         |             | Reappro-<br>riated | New<br>Funding | Total  | 2023                   | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund |             |                    | 10,000         | 10,000 | 100,000                | 50,000 | 50,000 | 50,000 | 260,000       |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
| <b>Total</b>            |             |                    | 10,000         | 10,000 | 100,000                | 50,000 | 50,000 | 50,000 | 260,000       |

| <b>Division:</b> Telecommunications<br><br><b>Project Title:</b> Fiber to the Home<br><br><b>Description:</b><br>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. |             |                     |                |         | <b>Project Priority:</b> 8<br><br><b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |         | <b>Project Number:</b><br><br><b>Estimated Project Cost:</b><br>Design 17,482<br>Land/Right-of-Way<br>Construction Management<br>Construction 262,225<br>Equipment 419,560<br>Other<br>Project Total 699,266 |         |               |
|--|-------------|---------------------|----------------|---------|--|---------|--|---------|---------------|
| Source of Funds  | Prior Years | Adopted 2022        |                |         | Projected Requirements   |         |  |         | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total   | 2023   | 2024    | 2025   | 2026    |               |
| Revenue Generating Fund  |             |                     | 224,266        | 224,266 | 100,000  | 100,000 | 125,000  | 150,000 | 699,266       |
| <b>Total</b>   |             |                     | 224,266        | 224,266 | 100,000  | 100,000 | 125,000  | 150,000 | 699,266       |

| <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> 01/22<br><b>End Date:</b> 12/26 |        | <b>Estimated Project Cost:</b>  |        |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction 9,000<br>Equipment 108,000<br>Other<br>Project Total 120,000 |        |               |
| Source of Funds  | Prior Years | Adopted 2022        |                |        | Projected Requirements                             |        |   |        | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding | Total  | 2023   | 2024   | 2025  | 2026   |               |
| 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> 10                        |                | <b>Project Number:</b>  |                        |         |         |         |               |
|--|-------------|--|----------------|---|------------------------|---------|---------|---------|---------------|
| <b>Project Title:</b> Core Network Upgrade   |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |                | <b>Estimated Project Cost:</b>  |                        |         |         |         |               |
| <b>Description:</b>  |             |  |                |   |                        |         |         |         |               |
| This capital account provides funding for the expansion of the existing core to add additional resiliency and diversity to key components. The current core of the network reaches end-of-life 2023-2025 depending on various types of hardware so there is an effort in 2023 to move the network from a 10G to a 100G backbone. |             |  |                | Design 139,000<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 2,502,000<br>Other 139,000<br>Project Total 2,780,000 |                        |         |         |         |               |
| Source of Funds  | Prior Years | Adopted 2022                                       |                |   | Projected Requirements |         |         |         | Total Project |
|  |             | Reappro-<br>priated                                | New<br>Funding | Total   | 2023                   | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund  |             |  | 80,000         | 80,000  | 750,000                | 750,000 | 750,000 | 450,000 | 2,780,000     |
|  |             |  |                |   |                        |         |         |         |               |
|  |             |  |                |   |                        |         |         |         |               |
|  |             |  |                |   |                        |         |         |         |               |
|  |             |  |                |   |                        |         |         |         |               |
|  |             |  |                |   |                        |         |         |         |               |
| <b>Total</b>   |             |  | 80,000         | 80,000  | 750,000                | 750,000 | 750,000 | 450,000 | 2,780,000     |

| <b>Division:</b> Telecommunications   |             |                     |                |        | <b>Project Priority:</b> 11 |         | <b>Project Number:</b>  |         |               |
|---|-------------|---------------------|----------------|--------|-----------------------------|---------|---|---------|---------------|
| <b>Project Title:</b> Server Environment  |             |                     |                |        | <b>Start Date:</b> 01/22    |         | <b>Estimated Project Cost:</b>  |         |               |
| <b>Description:</b><br><br>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> 12/26      |         | Design 34,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 34,000<br>Equipment 1,292,000<br>Other<br>Project Total 1,360,000 |         |               |
| Source of Funds   | Prior Years | Adopted 2022        |                |        | Projected Requirements      |         |   |         | Total Project |
|   |             | Reappro-<br>priated | New<br>Funding | Total  | 2023                        | 2024    | 2025  | 2026    |               |
| Revenue Generating Fund   |             |                     | 60,000         | 60,000 | 400,000                     | 200,000 | 200,000   | 500,000 | 1,360,000     |
| <b>Total</b>  |             |                     | 60,000         | 60,000 | 400,000                     | 200,000 | 200,000   | 500,000 | 1,360,000     |

| <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> 01/22<br><b>End Date:</b> 12/26 |         | <b>Estimated Project Cost:</b>  |         |               |
| <b>Description:</b><br><br>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 15,250<br>Land/Right-of-Way<br>Construction Management<br>Construction 15,250<br>Equipment 579,500<br>Other<br>Project Total 610,000 |         |               |
| Source of Funds  | Prior Years | Adopted 2022    |             |        | Projected Requirements                             |         |   |         | Total Project |
|  |             | Reappro-priated | New Funding | Total  | 2023   | 2024    | 2025  | 2026    |               |
| Revenue Generating Fund  |             |                 | 60,000      | 60,000 | 100,000  | 150,000 | 150,000   | 150,000 | 610,000       |
| <b>Total</b>   |             |                 | 60,000      | 60,000 | 100,000  | 150,000 | 150,000   | 150,000 | 610,000       |



|  |  |  |  |   |  |
|--|--|--|--|---|--|
| <b>Division:</b> Telecommunications  |  | <b>Project Priority:</b> 13                        |  | <b>Project Number:</b>  |  |
| <b>Project Title:</b> Operating Equipment  |  | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |  | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 240,000<br>Other<br>Project Total 240,000 |  |
| <b>Description:</b><br><br>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. A higher expenditure in 2023 involves the purchase of a 100G test set which is considerably more expensive but necessary to pre-qualify subsea fiber circuits the division might sell to a larger customer that would expect proof of capability. As the division sells more capacity over our subsea fiber expectations are that KPU will need to invest more in high-end test equipment. |  |  |  |   |  |

| Source of Funds         | Prior Years | Adopted 2022       |                |        | Projected Requirements |        |        |        | Total Project |
|-------------------------|-------------|--------------------|----------------|--------|------------------------|--------|--------|--------|---------------|
|                         |             | Reappro-<br>riated | New<br>Funding | Total  | 2023                   | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund |             |                    | 15,000         | 15,000 | 75,000                 | 50,000 | 50,000 | 50,000 | 240,000       |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
|                         |             |                    |                |        |                        |        |        |        |               |
| <b>Total</b>            |             |                    | 15,000         | 15,000 | 75,000                 | 50,000 | 50,000 | 50,000 | 240,000       |

| <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> 01/22<br><b>End Date:</b> 12/26 |        |                        | <b>Estimated Project Cost:</b>  |        |        |               |
| <b>Description:</b><br><br>This capital account funds replacement of outdated computers and purchases of new pc hardware for PBX, OSP, CONT, and admin staff. For 2022, purchases including the following:<br><br>1-Warehouse desktop replacement<br>2-CSS laptop replacements w/monitors<br>2-OSP Foreman desktop replacements<br>2-OSP splicer laptops<br>1-OSP I&R replacement laptop<br>1-OSP Engineering desktop replacement (died recently) for OSP Engineering w/monitor<br>1-ISP Engineering laptop (legacy and too slow to troubleshoot current internet speed offerings)<br>1-NOEM laptop (troubleshooting and training to replace legacy old one)<br>2-OSP Engineering desktops - CAD capable machines<br>4-Monitors<br>2-iPad Pros for wireless internet troubleshooting |             |                     |  |        |                        | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 285,000<br>Other<br>Project Total 285,000 |        |        |               |
| Source of Funds  | Prior Years | Adopted 2022        |  |        | Projected Requirements |   |        |        | Total Project |
|  |             | Reappro-<br>priated | New<br>Funding                                     | Total  | 2023                   | 2024  | 2025   | 2026   |               |
| Revenue Generating Fund  |             |                     | 50,000   | 50,000 | 50,000                 | 60,000  | 60,000 | 65,000 | 285,000       |
| <b>Total</b>   |             |                     | 50,000   | 50,000 | 50,000                 | 60,000  | 60,000 | 65,000 | 285,000       |

| <b>Division:</b> Telecommunications   |             | <b>Project Priority:</b> 15                        |             |       | <b>Project Number:</b>  |        |        |        |               |
|---|-------------|--|-------------|-------|---|--------|--------|--------|---------------|
| <b>Project Title:</b> Power Expansion/Reclamation   |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |             |       | <b>Estimated Project Cost:</b>  |        |        |        |               |
| <b>Description:</b><br>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<br>Land/Right-of-Way<br>Construction Management<br>Construction 3,000<br>Equipment 114,000<br>Other<br>Project Total 120,000 |        |        |        |               |
| Source of Funds   | Prior Years | Adopted 2022                                       |             |       | Projected Requirements  |        |        |        | Total Project |
|   |             | Reappropriated                                     | New Funding | Total | 2023  | 2024   | 2025   | 2026   |               |
| 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> 01/22<br><b>End Date:</b> 12/26 |             |        | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 10,800<br>Equipment 33,300<br>Other 45,900<br>Project Total 90,000 |        |        |        |               |
| <b>Description:</b><br><br>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.<br><br>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. |             |  |             |        |   |        |        |        |               |
| Source of Funds  | Prior Years | Adopted 2022                                       |             |        | Projected Requirements  |        |        |        | Total Project |
|  |             | Reappro-priated                                    | New Funding | Total  | 2023  | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund  |             |  | 10,000      | 10,000 | 20,000  | 20,000 | 20,000 | 20,000 | 90,000        |
|  |             |  |             |        |   |        |        |        |               |
|  |             |  |             |        |   |        |        |        |               |
|  |             |  |             |        |   |        |        |        |               |
|  |             |  |             |        |   |        |        |        |               |
| <b>Total</b>   |             |  | 10,000      | 10,000 | 20,000  | 20,000 | 20,000 | 20,000 | 90,000        |

|  |  |  |  |  |  |  |   |  |  |
|--|--|--|--|--|--|--|---|--|--|
| <b>Division:</b> Telecommunications  |  |  |  |  | <b>Project Priority:</b> 17                        |  | <b>Project Number:</b>  |  |  |
| <b>Project Title:</b> Network Monitoring   |  |  |  |  | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |  | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 318,500<br>Other 591,500<br>Project Total 910,000 |  |  |
| <b>Description:</b><br><br>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. Network packet brokers in 2024 for 100G monitoring and a Network Management platform overhaul in 2026 make up some of the larger expenditures looming in the future. |  |  |  |  |  |  |   |  |  |

| Source of Funds         | Prior Years | Adopted 2022       |                |         | Projected Requirements |         |         |         | Total Project |
|-------------------------|-------------|--------------------|----------------|---------|------------------------|---------|---------|---------|---------------|
|                         |             | Reappro-<br>riated | New<br>Funding | Total   | 2023                   | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund |             |                    | 110,000        | 110,000 | 100,000                | 200,000 | 200,000 | 300,000 | 910,000       |
| <b>Total</b>            |             |                    | 110,000        | 110,000 | 100,000                | 200,000 | 200,000 | 300,000 | 910,000       |

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| <b>Division:</b> Telecommunications  |             |                    |                |       | <b>Project Priority:</b> 18   |         | <b>Project Number:</b>         |         |               |
|--|-------------|--------------------|----------------|-------|---|---------|--------------------------------|---------|---------------|
| <b>Project Title:</b> Vehicle Acquisition  |             |                    |                |       | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/26  |         | <b>Estimated Project Cost:</b> |         |               |
| <b>Description:</b><br>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 new vehicle needs have been deferred to 2023. Several of the division's bucket trucks are aging and need to be replaced over the next few years. |             |                    |                |       | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 1,250,000<br>Other<br>Project Total 1,250,000 |         |                                |         |               |
| Source of Funds  | Prior Years | Adopted 2022       |                |       | Projected Requirements  |         |                                |         | Total Project |
|  |             | Reappro-<br>riated | New<br>Funding | Total | 2023  | 2024    | 2025                           | 2026    |               |
| Revenue Generating Fund  |             |                    |                |       | 250,000   | 300,000 | 350,000                        | 350,000 | 1,250,000     |
| <b>Total</b>   |             |                    |                |       | 250,000   | 300,000 | 350,000                        | 350,000 | 1,250,000     |

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|  |  |  |  |   |  |
|--|--|--|--|---|--|
| <b>Division:</b> Telecommunications  |  | <b>Project Priority:</b> 20                        |  | <b>Project Number:</b>  |  |
| <b>Project Title:</b> Headend Expansion  |  | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/26 |  | <b>Estimated Project Cost:</b>  |  |
| <b>Description:</b><br><br>This capital account provides funding for the maintenance of the Video Distribution platform in the Headend as the division phases out delivering IPTV. |  |  |  | Design 400<br>Land/Right-of-Way<br>Construction Management<br>Construction 4,000<br>Equipment 75,600<br>Other<br>Project Total 80,000 |  |

| Source of Funds         | Prior Years | Adopted 2022       |                |       | Projected Requirements |        |        |        | Total Project |
|-------------------------|-------------|--------------------|----------------|-------|------------------------|--------|--------|--------|---------------|
|                         |             | Reappro-<br>riated | New<br>Funding | Total | 2023                   | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund |             |                    |                |       | 30,000                 | 20,000 | 20,000 | 10,000 | 80,000        |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
|                         |             |                    |                |       |                        |        |        |        |               |
| <b>Total</b>            |             |                    |                |       | 30,000                 | 20,000 | 20,000 | 10,000 | 80,000        |



|   |  |  |  |   |  |
|---|--|--|--|---|--|
| <b>Division:</b> Telecommunications   |  | <b>Project Priority:</b> 21                        |  | <b>Project Number:</b>  |  |
| <b>Project Title:</b> Video Set Top Boxes   |  | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/24 |  | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 205,000<br>Other<br>Project Total 205,000 |  |
| <b>Description:</b><br><br>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. As we phase out traditional IPTV delivery via STB's our needs will disappear over the next few years. |  |  |  |   |  |

| Source of Funds         | Prior Years | Adopted 2022       |                |        | Projected Requirements |        |      |      | Total Project |
|-------------------------|-------------|--------------------|----------------|--------|------------------------|--------|------|------|---------------|
|                         |             | Reappro-<br>riated | New<br>Funding | Total  | 2023                   | 2024   | 2025 | 2026 |               |
| Revenue Generating Fund |             |                    | 80,000         | 80,000 | 100,000                | 25,000 |      |      | 205,000       |
|                         |             |                    |                |        |                        |        |      |      |               |
| <b>Total</b>            |             |                    | 80,000         | 80,000 | 100,000                | 25,000 |      |      | 205,000       |

|   |  |  |  |   |  |
|---|--|--|--|---|--|
| <b>Division:</b> Telecommunications   |  | <b>Project Priority:</b> 22                        |  | <b>Project Number:</b>  |  |
| <b>Project Title:</b> 4G/LTE  |  | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |  | <b>Estimated Project Cost:</b>  |  |
| <b>Description:</b><br><br>This capital account provides continued funding to construct and maintain KPU's 4G/LTE Mobile network. The future of the division's 4G/LTE network is unclear but future estimates include the replacement of existing nodes based upon a potential 5G future. |  |  |  | Design 8,700<br>Land/Right-of-Way<br>Construction Management<br>Construction 130,500<br>Equipment 730,800<br>Other<br>Project Total 870,000 |  |

| Source of Funds         | Prior Years | Adopted 2022     |             |        | Projected Requirements |        |         |         | Total Project |
|-------------------------|-------------|------------------|-------------|--------|------------------------|--------|---------|---------|---------------|
|                         |             | Reappro- priated | New Funding | Total  | 2023                   | 2024   | 2025    | 2026    |               |
| Revenue Generating Fund |             |                  | 60,000      | 60,000 | 80,000                 | 80,000 | 150,000 | 500,000 | 870,000       |
|                         |             |                  |             |        |                        |        |         |         |               |
|                         |             |                  |             |        |                        |        |         |         |               |
|                         |             |                  |             |        |                        |        |         |         |               |
|                         |             |                  |             |        |                        |        |         |         |               |
|                         |             |                  |             |        |                        |        |         |         |               |
|                         |             |                  |             |        |                        |        |         |         |               |
| <b>Total</b>            |             |                  | 60,000      | 60,000 | 80,000                 | 80,000 | 150,000 | 500,000 | 870,000       |

| <b>Division:</b> Telecommunications  |             | <b>Project Priority:</b> 23   |             |       | <b>Project Number:</b>         |        |        |      |               |
|--|-------------|---|-------------|-------|--------------------------------|--------|--------|------|---------------|
| <b>Project Title:</b> Microwave  |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/25  |             |       | <b>Estimated Project Cost:</b> |        |        |      |               |
| <b>Description:</b><br>This capital account provides continued funding to construct, expand and maintain KPU's microwave system to Canada. As the division enhances fiber redundancy off-island our NEC microwave system will likely be retired. |             | Design 600<br>Land/Right-of-Way<br>Construction Management<br>Construction 9,000<br>Equipment 50,400<br>Other<br>Project Total 60,000 |             |       |                                |        |        |      |               |
| Source of Funds  | Prior Years | Adopted 2022  |             |       | Projected Requirements         |        |        |      | Total Project |
|  |             | Reappropriated  | New Funding | Total | 2023                           | 2024   | 2025   | 2026 |               |
| Revenue Generating Fund  |             |   |             |       | 20,000                         | 20,000 | 20,000 |      | 60,000        |
| <b>Total</b>   |             |   |             |       | 20,000                         | 20,000 | 20,000 |      | 60,000        |

| <b>Division:</b> Telecommunications   |             |                 |             |        | <b>Project Priority:</b> 24                        |         | <b>Project Number:</b>   |         |               |
|---|-------------|-----------------|-------------|--------|--|---------|--|---------|---------------|
| <b>Project Title:</b> Hosted  |             |                 |             |        | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |         | <b>Estimated Project Cost:</b>   |         |               |
| <b>Description:</b><br>This capital account provides funding to upgrade, maintain and expand business offerings on the division's Hosted PBX Platforms. |             |                 |             |        |  |         | Lab System 113,250<br>Jazz 113,250<br>Training 173,650<br>Licenses 241,600<br>Integration 113,250<br>Project Total 755,000 |         |               |
| Source of Funds   | Prior Years | Adopted 2022    |             |        | Projected Requirements                             |         |  |         | Total Project |
|   |             | Reappro-priated | New Funding | Total  | 2023   | 2024    | 2025   | 2026    |               |
| Revenue Generating Fund   |             |                 | 80,000      | 80,000 | 150,000  | 150,000 | 175,000  | 200,000 | 755,000       |
| <b>Total</b>  |             |                 | 80,000      | 80,000 | 150,000  | 150,000 | 175,000  | 200,000 | 755,000       |

| <b>Division:</b> Telecommunications  |             | <b>Project Priority:</b> 25 |                | <b>Project Number:</b>         |                        |        |         |         |               |
|--|-------------|-----------------------------|----------------|--------------------------------|------------------------|--------|---------|---------|---------------|
| <b>Project Title:</b> WiFi   |             | <b>Start Date:</b> 01/22    |                | <b>Estimated Project Cost:</b> |                        |        |         |         |               |
| <b>Description:</b>  |             | <b>End Date:</b> 12/26      |                | Design 10,000                  |                        |        |         |         |               |
| 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. WiFi is a fast growing technology and to keep pace with the industry the division will need to respond with an increase in our investment in these products to provide the best service including managed WiFi. |             |                             |                | Land/Right-of-Way              |                        |        |         |         |               |
|  |             |                             |                | Construction Management        |                        |        |         |         |               |
|  |             |                             |                | Construction 80,000            |                        |        |         |         |               |
|  |             |                             |                | Equipment 310,000              |                        |        |         |         |               |
|  |             |                             |                | Other                          |                        |        |         |         |               |
|  |             |                             |                | Project Total 400,000          |                        |        |         |         |               |
| Source of Funds  | Prior Years | Adopted 2022                |                |                                | Projected Requirements |        |         |         | Total Project |
|  |             | Reappro-<br>priated         | New<br>Funding | Total                          | 2023                   | 2024   | 2025    | 2026    |               |
| Revenue Generating Fund  |             |                             | 40,000         | 40,000                         | 60,000                 | 80,000 | 100,000 | 120,000 | 400,000       |
| <b>Total</b>   |             |                             | 40,000         | 40,000                         | 60,000                 | 80,000 | 100,000 | 120,000 | 400,000       |

| <b>Division:</b> Telecommunications   |             | <b>Project Priority:</b> 26 |                |         | <b>Project Number:</b>         |         |         |         |               |
|---|-------------|-----------------------------|----------------|---------|--------------------------------|---------|---------|---------|---------------|
| <b>Project Title:</b> Internet Expansion  |             | <b>Start Date:</b> 01/23    |                |         | <b>Estimated Project Cost:</b> |         |         |         |               |
| <b>Description:</b><br><br>This capital account provides funding for the growth and change of the Internet distribution systems and off-island transport networks providing broadband to the division's non-regulated customers. As the division sells subsea fiber circuits and capacity to migrate the internet links to 100G, subsea fiber optical equipment maintenance and growth will be necessary in the future. |             | <b>End Date:</b> 12/26      |                |         | Design 109,000                 |         |         |         |               |
|   |             |                             |                |         | Land/Right-of-Way              |         |         |         |               |
|   |             |                             |                |         | Construction Management        |         |         |         |               |
|   |             |                             |                |         | Construction 6,501,313         |         |         |         |               |
|   |             |                             |                |         | Equipment 4,760,897            |         |         |         |               |
|   |             |                             |                |         | Other                          |         |         |         |               |
|   |             |                             |                |         | Project Total 11,371,210       |         |         |         |               |
| Source of Funds   | Prior Years | Adopted 2022                |                |         | Projected Requirements         |         |         |         | Total Project |
|   |             | Reappro-<br>priated         | New<br>Funding | Total   | 2023                           | 2024    | 2025    | 2026    |               |
| Revenue Generating Fund - Growth  | 100,000     |                             |                |         | 100,000                        | 200,000 | 200,000 | 300,000 | 900,000       |
| Revenue Bonds   | 10,213,610  | 257,600                     |                | 257,600 |                                |         |         |         | 10,471,210    |
|   |             |                             |                |         |                                |         |         |         |               |
|   |             |                             |                |         |                                |         |         |         |               |
|   |             |                             |                |         |                                |         |         |         |               |
| <b>Total</b>  | 10,313,610  | 257,600                     |                | 257,600 | 100,000                        | 200,000 | 200,000 | 300,000 | 11,371,210    |

**Ketchikan Public Utilities  
2022 - 2026 Capital Improvement Program**

**Division: Water**

| Project Title                                       | Priority | Prior Years | Adopted 2022       |                |           | Projected Requirements |         |           |           | Total Project |
|---|----------|-------------|--------------------|----------------|-----------|------------------------|---------|-----------|-----------|---------------|
|   |          |             | Reappro-<br>riated | New<br>Funding | Total     | 2023                   | 2024    | 2025      | 2026      |               |
| Filtration Facility - Preliminary Preparation Tasks | 1        | 559,290     | 199,869            |                | 199,869   |                        |         |           |           | 759,159       |
| Water Meters - Business & Commercial Customers      | 2        | 435,211     | 650,613            |                | 650,613   |                        |         |           |           | 1,085,824     |
| Pump Station Switchgear Improvements                | 3        |             |                    | 22,650         | 22,650    | 23,150                 | 23,800  |           | 24,750    | 94,350        |
| Utility Vehicles                                    | 4        |             |                    | 98,000         | 98,000    |                        | 37,500  | 96,000    |           | 231,500       |
| West Fairy Chasm Main Replacement                   | 5        |             |                    | 15,000         | 15,000    |                        |         |           | 550,600   | 565,600       |
| Skyline Water Main Replacement                      | 6        |             |                    | 10,000         | 10,000    |                        |         |           | 360,800   | 370,800       |
| Valve Boxes - Repair of Surrounding Pavement        | 7        |             |                    | 50,000         | 50,000    | 50,000                 | 50,000  | 50,000    | 50,000    | 250,000       |
| Water Distribution Grid Improvements                | 8        |             |                    | 30,000         | 30,000    | 30,000                 | 30,000  | 30,000    | 30,000    | 150,000       |
| Additional Projects                                 | 9        |             |                    | 40,000         | 40,000    | 40,000                 | 40,000  | 40,000    | 40,000    | 200,000       |
| Water Service Upgrade Program                       | 10       |             |                    | 15,000         | 15,000    | 15,000                 | 15,000  | 15,000    | 15,000    | 75,000        |
| Backflow Prevention Program                         | 11       |             |                    | 15,000         | 15,000    | 15,000                 | 15,000  | 15,000    | 15,000    | 75,000        |
| SCADA PLC Controllers                               | 12       | 256,500     |                    |                |           | 265,000                |         | 285,000   |           | 806,500       |
| UV Facility - UPS Battery Replacement               | 13       |             |                    |                |           | 45,000                 |         |           |           | 45,000        |
| Replace ClorTec Generating Cells                    | 14       |             |                    |                |           | 52,500                 | 54,000  | 37,000    | 38,000    | 181,500       |
| Woodland Ave Utility Improvements                   | 15       |             |                    |                |           | 25,000                 |         |           | 430,000   | 455,000       |
| Harris Street Utility Improvements                  | 16       |             |                    |                |           | 25,000                 |         |           | 600,000   | 625,000       |
| Replace Tongass Ave/ Water St. Suspended Water Main | 17       |             |                    |                |           | 245,000                |         | 1,230,000 |           | 1,475,000     |
| Highlands Reservoir Property Acquisition            | 18       |             |                    |                |           | 270,000                |         |           |           | 270,000       |
| Second Avenue Main Replacement                      | 19       |             |                    |                |           | 15,000                 |         |           | 1,300,800 | 1,315,800     |
| Evergreen Ave. Main Replacement                     | 20       |             |                    |                |           | 15,000                 |         |           | 440,000   | 455,000       |
| Denali Ave. Main Replacement                        | 21       |             |                    |                |           | 15,000                 |         |           | 512,000   | 527,000       |
| Total   |          | 1,251,001   | 850,482            | 295,650        | 1,146,132 | 1,145,650              | 265,300 | 1,798,000 | 4,406,950 | 10,013,033    |
|   |          |             |                    |                |           |                        |         |           |           |               |
| Source of Funds                                     |          | Prior Years | Adopted 2022       |                |           | Projected Requirements |         |           |           | Total Project |
|   |          |             | Reappro-<br>riated | New<br>Funding | Total     | 2023                   | 2024    | 2025      | 2026      |               |
| Revenue Generating Fund                             |          | 815,790     | 199,869            | 295,650        | 495,519   | 875,650                | 265,300 | 568,000   | 212,750   | 3,233,009     |
| Revenue Bonds - ADWF Loan                           |          | 435,211     | 650,613            |                | 650,613   |                        |         |           |           | 1,085,824     |
| Proposed ADWF Loan                                  |          |             |                    |                |           | 135,000                |         | 615,000   | 2,097,100 | 2,847,100     |
| Proposed State 50% Municipal Assistance Funding     |          |             |                    |                |           | 135,000                |         | 615,000   | 2,097,100 | 2,847,100     |
|   |          | 1,251,001   | 850,482            | 295,650        | 1,146,132 | 1,145,650              | 265,300 | 1,798,000 | 4,406,950 | 10,013,033    |

| <b>Division:</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>End Date:</b> 12/22     |             |         | Design                               |      |      |      |               |
| <b>Description:</b>   |          |             |                            |             |         | Land/Right-of-Way                    |      |      |      |               |
| <p>Jacobs Engineering's proposal for an amendment to their existing Contract 19-44 for professional services supporting Ketchikan attaining a LAF has been approved by the City Council. This proposal summarizes the necessary documentation that will meet the requirements of four of the tasks that are described in the COBC. They include preparations of a Watershed Control Program, a Source Water Control Study, the Provisions for Public Involvement in the COBC as set out by the EPA, and a report demonstrating how Ketchikan's present disinfection process already exceeds the requirements of national drinking water regulations. The fifth task, Consolidated Ownership Status of the Watershed, is felt to be entirely a legal matter and best handled by the municipal attorney with support as needed provided by Perkins-Coie, a legal firm who are already familiar with the consolidated property ownership that has been questioned earlier by the EPA. Extensive research including collection of all the necessary documentation continues as individual responses are being prepared for each of the five identified COBC Action Items. The remaining items will be completed and delivered to ADEC well before the specified date of May 31, 2022 identified in the COBC document.</p> |          |             |                            |             |         | Construction Management              |      |      |      |               |
|   |          |             |                            |             |         | Construction                         |      |      |      |               |
|   |          |             |                            |             |         | Equipment                            |      |      |      |               |
|   |          |             |                            |             |         | Other                                |      |      |      |               |
|   |          |             |                            |             |         | Project Total                        |      |      |      |               |
|   |          |             |                            |             |         | 759,159                              |      |      |      |               |
|   |          |             |                            |             |         | 759,159                              |      |      |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022               |             |         | Projected Requirements               |      |      |      | Total Project |
|   |          |             | Reappropriated             | New Funding | Total   | 2023                                 | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund   |          | 559,290     | 199,869                    |             | 199,869 |                                      |      |      |      | 759,159       |
| <b>Total</b>  |          | 559,290     | 199,869                    |             | 199,869 |                                      |      |      |      | 759,159       |



| <b>Division:</b> Water  |             | <b>Project Priority:</b> 2                         |                | <b>Project Number:</b> Comb 2018 001  |                        |      |      |      |               |
|---|-------------|--|----------------|---|------------------------|------|------|------|---------------|
| <b>Project Title:</b> Water Meters - Business & Commercial Customers  |             | <b>Start Date:</b> 01/18<br><b>End Date:</b> 12/22 |                | <b>Estimated Project Cost:</b><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 1,085,824<br>Equipment<br>Other<br>Project Total 1,085,824 |                        |      |      |      |               |
| <b>Description:</b><br>Achieving the goal of having all of Ketchikan's businesses, commercial buildings, and large residential apartment complexes fully metered before the end of 2022 will require continued significant effort as there are still approximately 225 unmetered businesses and large apartment buildings remaining. Progress has been slow during 2021 as the continuing coronavirus pandemic has severely affected material deliveries for both water meters as well as the radio-frequency nodes that allow them to electronically communicate and transmit information through KPU's electric meters. Although additional meters have been installed in the commercial downtown area, they can't communicate until each has a node installed and the promised delivery dates for KPU's October 2020 order of additional nodes continues to slip drastically. The vendor's latest shipment estimate is now a year later, October 2021. In addition, before this entire project becomes fully operational in 2023, the 2016 Water/ Wastewater Rate Study will need to be updated as well as amendments made to the Ketchikan Municipal Code, anticipated to take place in 2023. |             |  |                |   |                        |      |      |      |               |
| Source of Funds   | Prior Years | Adopted 2022                                       |                |   | Projected Requirements |      |      |      | Total Project |
|   |             | Reappro-<br>riated                                 | New<br>Funding | Total   | 2023                   | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund<br>Revenue Bonds - ADWF Loan  | 435,211     | 650,613  |                | 650,613   |                        |      |      |      | 1,085,824     |
| <b>Total</b>  | 435,211     | 650,613  |                | 650,613   |                        |      |      |      | 1,085,824     |

| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 3                         |                |        | <b>Project Number:</b>  |        |      |        |               |
|--|----------|-------------|--|----------------|--------|---|--------|------|--------|---------------|
| <b>Project Title:</b> Pump Station Switchgear Improvements   |          |             | <b>Start Date:</b> 01/22<br><b>End Date:</b> 12/26 |                |        | <b>Estimated Project Cost:</b>  |        |      |        |               |
| <b>Description:</b><br>Each pump station will be upgraded individually in order of highest concern to lowest concern beginning with the Baranof Zone. All of the mechanical motor starters in each of KPU's pump stations have been in service between 25 to 34 years and are well overdue for an upgrade. Mechanical motor starters rely on moving contactors to supply electricity to the pump motor and the sudden in-rush of starting electric current encounters some resistance which causes some heat. Over time, starting the pumps to refill the reservoir slowly but continually degrades the contactor mechanisms. Considering the age of our existing motor contactors, direct replacement contactors are becoming very difficult to find and may become impossible. Instead, each pump station is proposed to have both mechanical motor starters replaced with modern, solid-state soft starters. Solid-state soft motor starters have a smooth acceleration to full speed, have no moving components, minimal reactive power losses, and cost about half as much as a mechanical motor starter. |          |             |  |                |        | Design 2,500<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 91,850<br>Other<br>Project Total 94,350 |        |      |        |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |        | Projected Requirements  |        |      |        | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total  | 2023  | 2024   | 2025 | 2026   |               |
| Revenue Generating Fund  |          |             |  | 22,650         | 22,650 | 23,150  | 23,800 |      | 24,750 | 94,350        |
| <b>Total</b>   |          |             |  | 22,650         | 22,650 | 23,150  | 23,800 |      | 24,750 | 94,350        |

| <b>Division:</b> Water  |          |             | <b>Project Priority:</b> 4 |                |        | <b>Project Number:</b>  |        |        |      |               |
|---|----------|-------------|----------------------------|----------------|--------|---|--------|--------|------|---------------|
| <b>Project Title:</b> Utility Vehicles  |          |             | <b>Start Date:</b> 01/22   |                |        | <b>Estimated Project Cost:</b>  |        |        |      |               |
|   |          |             | <b>End Date:</b> 12/25     |                |        |   |        |        |      |               |
| <b>Description:</b><br>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 substantial mechanical issues. It is proposed for replacement in 2022 for \$98,000 and will be a sole Water Division asset. Replacement of Vehicle 46, a Chevrolet Blazer purchased in 2000 is proposed in 2024. 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 2023 utilizing the State of Alaska's contract purchasing. 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 2025, this would be equivalent to \$96,000. |          |             |                            |                |        | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 231,500<br>Other<br>Project Total 231,500 |        |        |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022               |                |        | Projected Requirements  |        |        |      | Total Project |
|   |          |             | Reappro-<br>priated        | New<br>Funding | Total  | 2023  | 2024   | 2025   | 2026 |               |
| Revenue Generating Fund   |          |             |                            | 98,000         | 98,000 |   | 37,500 | 96,000 |      | 231,500       |
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| <b>Division:</b> Water  |          |             | <b>Project Priority:</b> 5 |                |        | <b>Project Number:</b>         |      |      |         |               |
|---|----------|-------------|----------------------------|----------------|--------|--------------------------------|------|------|---------|---------------|
| <b>Project Title:</b> West Fairy Chasm Main Replacement   |          |             | <b>Start Date:</b> 01/22   |                |        | <b>Estimated Project Cost:</b> |      |      |         |               |
| <b>Description:</b><br>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 2026. |          |             | <b>End Date:</b> 12/26     |                |        | Design 15,000                  |      |      |         |               |
|   |          |             |                            |                |        | Land/Right-of-Way              |      |      |         |               |
|   |          |             |                            |                |        | Construction Management        |      |      |         |               |
|   |          |             |                            |                |        | Construction 550,600           |      |      |         |               |
|   |          |             |                            |                |        | Equipment                      |      |      |         |               |
|   |          |             |                            |                |        | Other                          |      |      |         |               |
|   |          |             |                            |                |        | Project Total 565,600          |      |      |         |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022               |                |        | Projected Requirements         |      |      |         | Total Project |
|   |          |             | Reappro-<br>priated        | New<br>Funding | Total  | 2023                           | 2024 | 2025 | 2026    |               |
| Revenue Generating Fund   |          |             |                            | 15,000         | 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         | 15,000 |                                |      |      | 550,600 | 565,600       |

| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 6 |                |        | <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><br>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, most recently in August 2021, 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 2026. |          |             | <b>End Date:</b> 12/26     |                |        | 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 2022               |                |        | Projected Requirements         |      |      |         | Total Project |
|  |          |             | Reappro-<br>priated        | New<br>Funding | Total  | 2023                           | 2024 | 2025 | 2026    |               |
| Revenue Generating Fund<br>Proposed 50% State Municipal Assistance Funding<br>Proposed Revenue Bonds - ADWF Loan   |          |             |                            | 10,000         | 10,000 |                                |      |      |         | 10,000        |
|  |          |             |                            |                |        |                                |      |      | 180,400 | 180,400       |
|  |          |             |                            |                |        |                                |      |      | 180,400 | 180,400       |
| <b>Total</b>   |          |             |                            | 10,000         | 10,000 |                                |      |      | 360,800 | 370,800       |

|   |  |  |                            |                    |                             |   |              |                               |             |             |             |                          |
|---|--|--|----------------------------|--------------------|-----------------------------|---|--------------|-------------------------------|-------------|-------------|-------------|--------------------------|
| <b>Division:</b> Water  |  |  | <b>Project Priority:</b> 7 |                    |                             | <b>Project Number:</b>  |              |                               |             |             |             |                          |
| <b>Project Title:</b> Valve Boxes - Repair of Surrounding Pavement  |  |  | <b>Start Date:</b> 01/22   |                    |                             | Design<br>Land/Right-of-Way<br>Construction Management 250,000<br>Construction<br>Equipment<br>Other<br>Project Total 250,000 |              |                               |             |             |             |                          |
| <b>Description:</b><br><br>In order for the Water Division to respond immediately to water main failures that occur beneath Ketchikan's streets, it must have ready access through the valve boxes to its in-line water main valves and hydrant valves in the street. In the 7-year period before 2020, when repavement of an asphalt street occurred, all cast-iron valve boxes were first lowered below the finished grade. After repavement was completed, a diamond shape was cut in the new asphalt, the valve box raised to the surface, and the surrounding diamond then refilled with warm asphalt. Unfortunately, the resultant compaction was minimal which allowed water to penetrate the new asphalt diamond. During the next subfreezing winter season, this became ice which expanded and caused the asphalt diamond to crack and fail. While concrete diamonds once solved this problem, after the surrounding asphalt roadway surface eroded by traffic, it caused snow plow problems and was no longer used. Since 2020, Ketchikan has ceased cutting these diamonds and instead brings critical valve boxes to the surface during the asphalt repaving process. For the earlier failing asphalt diamonds, Ketchikan needs to find a solution which addresses everyone's concerns. This CIP will be used to repair the failed asphalt diamonds around valve boxes during 2022's repaving season and, if successful, will be continued in subsequent years. |  |  | <b>End Date:</b> 12/26     |                    |                             |   |              |                               |             |             |             |                          |
| <b>Source of Funds</b>  |  |  | <b>Fund No.</b>            | <b>Prior Years</b> | <b>Adopted 2022</b>         |   |              | <b>Projected Requirements</b> |             |             |             |                          |
|   |  |  |                            |                    | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b>  | <b>Total</b> | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> | <b>Total<br/>Project</b> |
| Revenue Generating Fund   |  |  |                            |                    |                             | 50,000  | 50,000       | 50,000                        | 50,000      | 50,000      | 50,000      | 250,000                  |
| <b>Total</b>  |  |  |                            |                    |                             | 50,000  | 50,000       | 50,000                        | 50,000      | 50,000      | 50,000      | 250,000                  |

|  |  |                 |                            |                             |                        |   |                               |             |             |             |                      |
|--|--|-----------------|----------------------------|-----------------------------|------------------------|---|-------------------------------|-------------|-------------|-------------|----------------------|
| <b>Division:</b> Water   |  |                 | <b>Project Priority:</b> 8 |                             |                        | <b>Project Number:</b><br><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 150,000<br>Equipment<br>Other<br>Project Total 150,000 |                               |             |             |             |                      |
| <b>Project Title:</b> Water Distribution Grid Improvements   |  |                 | <b>Start Date:</b> 01/22   |                             |                        |   |                               |             |             |             |                      |
|  |  |                 | <b>End Date:</b> 12/26     |                             |                        |   |                               |             |             |             |                      |
| <b>Description:</b><br>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>Source of Funds</b>   |  | <b>Fund No.</b> | <b>Prior Years</b>         | <b>Adopted 2022</b>         |                        |   | <b>Projected Requirements</b> |             |             |             | <b>Total Project</b> |
|  |  |                 |                            | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b> | <b>Total</b>  | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</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              |

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| <b>Division:</b> Water  |  |                 | <b>Project Priority:</b> 9 |                             |                        | <b>Project Number:</b><br><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 200,000<br>Equipment<br>Other<br>Project Total 200,000 |                               |             |             |             |                      |
| <b>Project Title:</b> Additional Projects   |  |                 | <b>Start Date:</b> 01/22   |                             |                        |   |                               |             |             |             |                      |
|   |  |                 | <b>End Date:</b> 12/26     |                             |                        |   |                               |             |             |             |                      |
| <b>Description:</b><br>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 2022, 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>Fund No.</b> | <b>Prior Years</b>         | <b>Adopted 2022</b>         |                        |   | <b>Projected Requirements</b> |             |             |             | <b>Total Project</b> |
|   |  |                 |                            | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b> | <b>Total</b>  | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> |                      |
| Revenue Generating Fund   |  |                 |                            |                             | 40,000                 | 40,000  | 40,000                        | 40,000      | 40,000      | 40,000      | 200,000              |
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| <b>Division:</b> Water  |  |                 | <b>Project Priority:</b> 10 |                             |                        | <b>Project Number:</b><br><br>Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 75,000<br>Equipment<br>Other<br>Project Total 75,000 |                               |             |             |             |                      |
| <b>Project Title:</b> Water Service Upgrade Program   |  |                 | <b>Start Date:</b> 01/22    |                             |                        |   |                               |             |             |             |                      |
| <b>Description:</b><br><br>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 2022. 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> 12/26      |                             |                        |   |                               |             |             |             |                      |
|   |  |                 |                             |                             |                        |   |                               |             |             |             |                      |
| <b>Source of Funds</b>  |  | <b>Fund No.</b> | <b>Prior Years</b>          | <b>Adopted 2022</b>         |                        |   | <b>Projected Requirements</b> |             |             |             | <b>Total Project</b> |
|   |  |                 |                             | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b> | <b>Total</b>  | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> |                      |
| Revenue Generating Fund   |  |                 |                             |                             | 15,000                 | 15,000  | 15,000                        | 15,000      | 15,000      | 15,000      | 75,000               |
| <b>Total</b>  |  |                 |                             |                             | 15,000                 | 15,000  | 15,000                        | 15,000      | 15,000      | 15,000      | 75,000               |

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| <b>Division:</b> Water  |  |                 | <b>Project Priority:</b> 11 |                             |                        | <b>Project Number:</b>  |                               |             |             |             |                      |
| <b>Project Title:</b> Backflow Prevention Program   |  |                 | <b>Start Date:</b> 01/22    |                             |                        | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction 75,000<br>Equipment<br>Other<br>Project Total 75,000 |                               |             |             |             |                      |
|   |  |                 | <b>End Date:</b> 12/26      |                             |                        |   |                               |             |             |             |                      |
| <b>Description:</b><br>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 2022 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 are in need of backflow preventer installation that 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>Fund No.</b> | <b>Prior Years</b>          | <b>Adopted 2022</b>         |                        |   | <b>Projected Requirements</b> |             |             |             | <b>Total Project</b> |
|   |  |                 |                             | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b> | <b>Total</b>  | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> |                      |
| Revenue Generating Fund   |  |                 |                             |                             | 15,000                 | 15,000  | 15,000                        | 15,000      | 15,000      | 15,000      | 75,000               |
| <b>Total</b>  |  |                 |                             |                             | 15,000                 | 15,000  | 15,000                        | 15,000      | 15,000      | 15,000      | 75,000               |

| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 12 |                |       | <b>Project Number:</b> 5400 2020 006 |      |         |      |               |
|--|----------|-------------|-----------------------------|----------------|-------|--------------------------------------|------|---------|------|---------------|
| <b>Project Title:</b> SCADA PLC Controllers  |          |             | <b>Start Date:</b> 01/19    |                |       | <b>Estimated Project Cost:</b>       |      |         |      |               |
| <b>Description:</b>  |          |             | <b>End Date:</b> 12/25      |                |       | Design                               |      |         |      |               |
| 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. As identified in Contract 21-03 - Cyber Security Evaluation, this version of Allen Bradley PLCs, which were introduced in 2005, have ceased receiving any further factory support. This includes no longer maintaining any inventory of spare parts or the necessary input/output (I/O) modules. Although this project had been approved for construction in the division's 2020 CIP program, by that March everyone suddenly found themselves in the midst of the worldwide coronavirus pandemic and all that entailed. Accordingly, to minimize the Utilities' annual operating expenditures during 2020, KPU elected to defer any planned PLC upgrading until 2021. The contract for upgrading the PLC located at the Water Treatment UV Facility (CP-100) has been approved for construction in 2021. It will be followed in 2023 by replacing the PLC located at the Old Chlorination Building (CP-300), and replace the third and final PLC at the Ammonia Building (CP-400) in 2026. This will allow all these critical PLC's to migrate to the modern Allen-Bradley ControlLogix PLC platform while spreading the expenditure over several years. |          |             |                             |                |       | Land/Right-of-Way                    |      |         |      |               |
|  |          |             |                             |                |       | Construction Management              |      |         |      |               |
|  |          |             |                             |                |       | Construction                         |      |         |      | 806,500       |
|  |          |             |                             |                |       | Equipment                            |      |         |      |               |
|  |          |             |                             |                |       | Other                                |      |         |      |               |
|  |          |             |                             |                |       | Project Total                        |      |         |      | 806,500       |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                |                |       | Projected Requirements               |      |         |      | Total Project |
|  |          |             | Reappro-<br>riated          | New<br>Funding | Total | 2023                                 | 2024 | 2025    | 2026 |               |
| Revenue Generating Fund  |          | 256,500     |                             |                |       | 265,000                              |      | 285,000 |      | 806,500       |
| <b>Total</b>   |          | 256,500     |                             |                |       | 265,000                              |      | 285,000 |      | 806,500       |

| <b>Division: Water</b>  |          |             | <b>Project Priority:</b> 13                        |                |       | <b>Project Number:</b>  |      |      |      |               |
|---|----------|-------------|--|----------------|-------|---|------|------|------|---------------|
| <b>Project Title:</b> UV Facility - UPS Battery Replacement   |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/23 |                |       | <b>Estimated Project Cost:</b>  |      |      |      |               |
| <b>Description:</b><br>Ketchikan's UV Disinfection Facility is a vital component of our complicated disinfection system that provides Ketchikan with potable water. Due to the critical nature of this Facility and the requirement that it be fully operational at all times, there is a separate, dedicated standby generator and uninterruptible power supply (UPS) supplying power in the event of any electrical distribution failure. The large battery bank that is the UPS provides all the electrical power necessary to keep the programmable logic controllers (PLC's) operating the UV Facility for the short period needed until the standby generator can automatically start and come on-line. All UPS batteries have a limited service life which shouldn't exceed 5-6 years, regardless of how or when the UPS is deployed, since they use sealed or maintenance free batteries which offer the advantage of not containing any sloshing liquid that might leak or drip. However, this level of protection comes at a cost as they undergo repeated charge/discharge cycles. Chemical depletion slowly occurs which finally results in battery cell failure and power loss. Last replaced in 2017, the 60 UPS batteries are again due for replacement in 2023. |          |             |  |                |       | Design<br>Land/Right-of-Way<br>Construction Management<br>Construction<br>Equipment 45,000<br>Other<br>Project Total 45,000 |      |      |      |               |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |      |      |      | Total Project |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025 | 2026 |               |
| Revenue Generating Fund   |          |             |  |                |       | 45,000  |      |      |      | 45,000        |
| <b>Total</b>  |          |             |  |                |       | 45,000  |      |      |      | 45,000        |

| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 14 |                |       | <b>Project Number:</b>         |        |        |        |               |
|--|----------|-------------|-----------------------------|----------------|-------|--------------------------------|--------|--------|--------|---------------|
| <b>Project Title:</b> Replace ClorTec Generating Cells   |          |             | <b>Start Date:</b> 01/23    |                |       | <b>Estimated Project Cost:</b> |        |        |        |               |
| <b>Description:</b><br>Since September 16, 2002, KPU has been using proprietary ClorTec titanium generating cells to manufacture a 0.8% sodium hypochlorite disinfection solution. This process involves electrolytic separation by impressing a controlled amount of direct current (DC) electricity onto the titanium electrodes submerged in a saturated salt brine solution. A certain amount of degradation also occurs to the titanium generating cells themselves during their operation and they have an expected service life of about 7 years. Fortunately, Ketchikan's water is very soft with minimal hardness and buffering with the result in initial cells serving for 12 years, much longer than expected before being replaced in 2015. The Two-point Chlorination Facility, which also uses the same design ClorTec generating cells, began service in 2016. These two facilities with 4 machines have a total of 10 cells in service that will be due for replacement soon. Beginning in 2023 with the two older 3-cell machines, start building sufficient cell inventory that will allow one ClorTech machine to be re-equipped every year followed by the 2-cell machines. Each cell is estimated to cost about \$17,500 in 2023 with a 2.5% inflation allowance for purchase during the subsequent years. |          |             | <b>End Date:</b> 12/26      |                |       | Design                         |        |        |        |               |
|  |          |             | Land/Right-of-Way           |                |       |                                |        |        |        |               |
|  |          |             | Construction Management     |                |       |                                |        |        |        |               |
|  |          |             | Construction                |                |       |                                |        |        |        |               |
|  |          |             | Equipment 181,500           |                |       |                                |        |        |        |               |
|  |          |             | Other                       |                |       |                                |        |        |        |               |
| Project Total 181,500  |          |             |                             |                |       |                                |        |        |        |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                |                |       | Projected Requirements         |        |        |        | Total Project |
|  |          |             | Reappro-<br>priated         | New<br>Funding | Total | 2023                           | 2024   | 2025   | 2026   |               |
| Revenue Generating Fund  |          |             |                             |                |       | 52,500                         | 54,000 | 37,000 | 38,000 | 181,500       |
|  |          |             |                             |                |       |                                |        |        |        |               |
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| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 16                        |                |       | <b>Project Number:</b>   |      |      |         |               |
|--|----------|-------------|--|----------------|-------|--|------|------|---------|---------------|
| <b>Project Title:</b> Harris Street Utility Improvements   |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/26 |                |       | <b>Estimated Project Cost:</b>   |      |      |         |               |
| <b>Description:</b><br>Harris Street's 855 feet of cast-iron water mains were originally installed in 1956 and 1969. Since then, there has been no further progress replacing this fragile, old 6-inch cast-iron water main. Including the corrugated metal pipe sewer, both are long overdue for replacement with non-corrodible plastic pipe. There is no present funding available for its replacement but if there were, it would also be a joint venture between Public Works and the Water Division. Both CIP budgets are proposing for design in 2023 of the Harris Street Utility Improvement Project in a 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 2026. |          |             |  |                |       | Design 25,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 600,000<br>Equipment<br>Other<br>Project Total 625,000 |      |      |         |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements   |      |      |         | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023   | 2024 | 2025 | 2026    |               |
| Revenue Generating Fund  |          |             |  |                |       | 25,000   |      |      |         | 25,000        |
| Proposed 50% State Municipal Assistance Funding  |          |             |  |                |       |  |      |      | 300,000 | 300,000       |
| Proposed Revenue Bonds - ADWF Loan   |          |             |  |                |       |  |      |      | 300,000 | 300,000       |
| <b>Total</b>   |          |             |  |                |       | 25,000   |      |      | 600,000 | 625,000       |

| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 17                        |                |       | <b>Project Number:</b>  |      |           |      |               |
|--|----------|-------------|--|----------------|-------|---|------|-----------|------|---------------|
| <b>Project Title:</b> Replace Tongass/ Water St. Suspended Water Main  |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/25 |                |       | <b>Estimated Project Cost:</b>  |      |           |      |               |
| <b>Description:</b><br>Installed in 1992, the 1680-feet of ductile iron water main located beneath the exposed portions of the Tongass Ave. & Water St. viaducts is in poor condition. Submerged in salt water during high tides, galvanic corrosion has degraded many of the individual galvanized suspension components. The concrete roadway consists of both precast concrete girder spans as well as flat slab sections. While the ductile iron pipe is readily supported by galvanized pipe chairs attached to the girders, it is a different matter at the flat slab roadway sections. Here steel mechanical couplings were needed to create longer pipe segments between the individual pipe supports that are fastened to the concrete flat slab section as well as providing the necessary deflection where needed to avoid other existing concrete structures under the viaduct. Services to individual waterfront buildings and fire hydrants are in equally bad shape. Rather than attempting repairs, this entire water main needs to be replaced with modern, non-corrodible HDPE pipe. |          |             |  |                |       | Design 245,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 1,230,000<br>Equipment<br>Other<br>Project Total 1,475,000 |      |           |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |      |           |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025      | 2026 |               |
| Revenue Generating Fund  |          |             |  |                |       | 245,000   |      |           |      | 245,000       |
| Proposed ADWF Loan   |          |             |  |                |       |   |      | 615,000   |      | 615,000       |
| Proposed State 50% Municipal Assistance Funding  |          |             |  |                |       |   |      | 615,000   |      | 615,000       |
| <b>Total</b>   |          |             |  |                |       | 245,000   |      | 1,230,000 |      | 1,475,000     |



| <b>Division:</b> Water   |          |             | <b>Project Priority:</b> 18                        |                |       | <b>Project Number:</b>  |      |      |      |               |
|--|----------|-------------|--|----------------|-------|---|------|------|------|---------------|
| <b>Project Title:</b> Highlands Reservoir Property Acquisition   |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/23 |                |       | <b>Estimated Project Cost:</b>  |      |      |      |               |
| <b>Description:</b><br>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 adjacent property at the same elevation needed to construct a modern, much larger reservoir, the sale was never completed at the proposed price of \$270,000. Once purchased, site investigations should begin in 2025 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<br>Land/Right-of-Way 270,000<br>Construction Management<br>Construction<br>Equipment<br>Other<br>Project Total 270,000 |      |      |      |               |
| Source of Funds  | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements  |      |      |      | Total Project |
|  |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023  | 2024 | 2025 | 2026 |               |
| Proposed ADWF Loan   |          |             |  |                |       | 135,000   |      |      |      | 135,000       |
| Proposed State 50% Municipal Assistance Funding  |          |             |  |                |       | 135,000   |      |      |      | 135,000       |
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| <b>Total</b>   |          |             |  |                |       | 270,000   |      |      |      | 270,000       |

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| <b>Division:</b> Water   |  |  | <b>Project Priority:</b> 19 |                    |                             | <b>Project Number:</b>         |              |                               |             |             |             |
| <b>Project Title:</b> Second Avenue Main Replacement   |  |  | <b>Start Date:</b> 01/23    |                    |                             | <b>Estimated Project Cost:</b> |              |                               |             |             |             |
| <b>Description:</b><br>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 and is 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 2026. |  |  | <b>End Date:</b> 12/26      |                    |                             | Design 15,000                  |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Land/Right-of-Way              |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Construction Management        |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Construction 1,300,800         |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Equipment                      |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Other                          |              |                               |             |             |             |
|  |  |  |                             |                    |                             | Project Total 1,315,800        |              |                               |             |             |             |
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| <b>Source of Funds</b>   |  |  | <b>Fund No.</b>             | <b>Prior Years</b> | <b>Adopted 2022</b>         |                                |              | <b>Projected Requirements</b> |             |             |             |
|  |  |  |                             |                    | <b>Reappro-<br/>priated</b> | <b>New<br/>Funding</b>         | <b>Total</b> | <b>2023</b>                   | <b>2024</b> | <b>2025</b> | <b>2026</b> |
| Revenue Generating Fund<br>Proposed 50% State Municipal Assistance Funding<br>Proposed Revenue Bonds - ADWF Loan   |  |  |                             |                    |                             |                                | 15,000       |                               |             |             | 15,000      |
|  |  |  |                             |                    |                             |                                |              |                               |             |             | 650,400     |
|  |  |  |                             |                    |                             |                                |              |                               |             |             | 650,400     |
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| <b>Division:</b> Water  |          |             | <b>Project Priority:</b> 20                        |                |       | <b>Project Number:</b>   |      |      |                    |                              |
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| <b>Project Title:</b> Evergreen Ave. Main Replacement   |          |             | <b>Start Date:</b> 01/23<br><b>End Date:</b> 12/26 |                |       | <b>Estimated Project Cost:</b>   |      |      |                    |                              |
| <b>Description:</b><br>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 designed in 2023 along with other utility improvement projects contributing to the combined design contract. 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 2026. |          |             |  |                |       | Design 15,000<br>Land/Right-of-Way<br>Construction Management<br>Construction 440,000<br>Equipment<br>Other<br>Project Total 455,000 |      |      |                    |                              |
| Source of Funds   | Fund No. | Prior Years | Adopted 2022                                       |                |       | Projected Requirements   |      |      |                    | Total Project                |
|   |          |             | Reappro-<br>priated                                | New<br>Funding | Total | 2023   | 2024 | 2025 | 2026               |                              |
| Revenue Generating Fund<br>Proposed 50% State Municipal Assistance Funding<br>Proposed Revenue Bonds - ADWF Loan  |          |             |  |                |       | 15,000   |      |      | 220,000<br>220,000 | 15,000<br>220,000<br>220,000 |
| <b>Total</b>  |          |             |  |                |       | 15,000   |      |      | 440,000            | 455,000                      |

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| <b>Division:</b> Water   |  |  | <b>Project Priority:</b> 21 |  |  | <b>Project Number:</b>         |  |  |  |  |
| <b>Project Title:</b> Denali Ave. Main Replacement   |  |  | <b>Start Date:</b> 01/23    |  |  | <b>Estimated Project Cost:</b> |  |  |  |  |
| <b>Description:</b><br>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 designed in 2023 along other utility improvement projects contributing to the combined design contract. 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 2026. |  |  | <b>End Date:</b> 12/26      |  |  | 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 2022        |                |       | Projected Requirements |      |      |         | Total Project |
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|   |          |             | Reappro-<br>priated | New<br>Funding | Total | 2023                   | 2024 | 2025 | 2026    |               |
| Revenue Generating Fund                         |          |             |                     |                |       | 15,000                 |      |      |         | 15,000        |
| Proposed 50% State Municipal Assistance Funding |          |             |                     |                |       |                        |      |      | 256,000 | 256,000       |
| Proposed Revenue Bonds - ADWF Loan              |          |             |                     |                |       |                        |      |      | 256,000 | 256,000       |
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