

**GRAND RAPIDS
PUBLIC UTILITIES**
Service is Our Nature

**WATER COST OF SERVICE AND RATE
DESIGN STUDY**

Draft Report

November 23, 2022



REPORT OUTLINE

Cover Letter

Section 1 - Introduction

Section 2 – Projected Operating Results – Existing Rates

Section 3 – Cost of Service

Section 4 – Proposed Rates



November 29, 2022

Grand Rapids Public Utilities Commission

500 SE 4th Street
Grand Rapids, MN 55744

Subject: Water Rate Study

Commission Members:

Dave Berg Consulting, LLC has undertaken a study of the retail rates GRPUC charges its customers for water service. This report summarizes the analyses undertaken and the resulting recommendations for changes to the existing rates.

Based on the financial needs of the water utility for the projected study period of 2023-2027, I am recommending annual 10% increases in overall water rates each year. Based on the cost-of-service analysis, certain classes of customers will experience increases more than average and others will experience increases less than average. Section 4 of the report summarizes the recommendations in detail.

Thank you for the opportunity to be of service to GRPUC through the conduct of this study. I wish to express my appreciation for the valuable assistance I received from GRPUC staff relative to the execution of this study.

Sincerely,

Dave Berg Consulting, LLC

David A. Berg, PE
Principal

Dedicated to providing personal service to consumer-owned utilities

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Section 1

Introduction

The City of Grand Rapids, MN owns a municipal utility providing service to approximately 3,300 water customers. The water utility operates under the direction of the Grand Rapids Public Utilities Commission (GRPUC). This report has been prepared by Dave Berg Consulting, LLC to examine the rates and charges for water services in Grand Rapids. The study includes an examination of the allocated cost of service based on 2021 utility operations (Test Year). It also includes projected operating results for 2022-2027 (Study Period). As a result of the analyses undertaken and reported on herein, water rate recommendations have been developed for implementation by GRPUC.

Section 2

Projected Operating Results Existing Rates

The rates charged for water services by GRPUC, combined with other operating and non-operating revenues, must be sufficient to meet the cost of providing services to GRPUC's customers. This is necessary to ensure the long-term financial health of the GRPUC water utility. The cost of providing utility service consists of normal operating expenses for water systems, customer and A&G functions, system depreciation expenses, capital improvements and other non-operating expenses.

An analysis of the operating results for the GRPUC water utility during the 2022-2027 Study Period has been performed assuming the current rates and charges remain in effect through the Study Period. This analysis has been done to determine the overall need, if any, for additional revenue through rates to meet projected revenue requirements. The analyses and assumptions utilized in these projections are explained below.

Estimated Revenues – Existing Rates

Operating Revenues

GRPUC provides water services to residential, commercial and industrial customers as well as to the City of La Prairie on a wholesale basis. Total sales to GRPUC customers for the Study Period are assumed to increase 1% per year above current sales levels.

Exhibit 2-A is a summarized listing of GRPUC's historical and projected water operating results at existing rates. The historical and projected revenues from sales of water to different groups of customers are included as part of Utility Revenues.

Section 2

Other Operating Revenues

GRPUC also receives other miscellaneous operating revenue from other normal operating procedures. These other operating revenues include service connections, permit fees, thawing service, merchandizing and jobbing, antenna rent and other miscellaneous operating revenues. These revenues are also included in the Operating Revenues in Exhibit 2-A.

Revenue Requirements

Operating Expenses

Operating expenses for the water utility are shown in Exhibit 2-A. Projections of operating expenses are based on budgeted amounts provided by GRPUC.

Depreciation

GRPUC has annual depreciation costs associated with water system investments. Depreciation during the Study Period is based on budgeted GRPUC amounts. Depreciation is a funded non-cash expense that generates monies available for annual capital improvements, debt principal payments and reserves.

Non-operating Income (Expenses)

GRPUC's non-operating income and expenses are associated with penalties, interest expenses, and costs and revenues associated with the combined service center.

Capital Improvements

GRPUC makes annual capital investments in its water system. The water utility also pays a share of improvements to the combined service center. The combined capital improvements for the water utility are shown in Table 2-1 below.

Projected Operating Results – Existing Rates

Table 2-1
Capital Improvements

| Capital Item | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|------------------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|
| Water Capital | \$439,160 | \$5,912,100 | \$1,343,575 | \$969,580 | \$908,511 | \$1,270,000 |
| Service Center Capital | <u>\$13,601</u> | <u>\$93,400</u> | <u>\$20,000</u> | <u>\$4,000</u> | <u>\$4,000</u> | <u>\$4,000</u> |
| Total | \$452,761 | \$6,005,500 | \$1,363,575 | \$973,580 | \$912,511 | \$1,274,000 |

Debt Service

GRPUC had a large debt issue partially payable by the water utility that was paid in full in February of 2022. The water utility is also responsible for payment of a portion of two General Obligation bonds issued in 2021. Additionally, it is estimated that \$5.0 million in new debt will be issued in late 2023 to support ongoing capital improvements. Table 2-2 summarizes the current and planned debt service for the water utility.

Table 2-2
Annual Debt Service

| Item | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|-------------------|-----------|-----------|------------------|------------------|------------------|------------------|
| Current Interest | \$12,818 | \$18,964 | \$17,063 | \$15,113 | \$13,114 | \$11,018 |
| Current Principal | \$789,450 | \$90,775 | \$94,100 | \$94,250 | \$68,250 | \$71,500 |
| Planned Interest | - | - | \$225,000 | \$219,951 | \$214,675 | \$209,162 |
| Planned Principal | - | - | <u>\$112,195</u> | <u>\$117,244</u> | <u>\$122,520</u> | <u>\$128,033</u> |
| Total Debt | \$802,268 | \$109,739 | \$448,358 | \$446,558 | \$418,559 | \$419,713 |

Section 2

Projected Operating Results – Existing Rates

Based on the assumptions outlined above, the resulting projected operating results assuming continued application of the existing retail rates are summarized below in Table 2-3. A summary presentation of the historical and projected operating results is also shown in Exhibit 2-A.

Table 2-3
Projected Operating Results
Existing Rates

| Year | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|-----------------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Operating Revenues | \$1,917,471 | \$1,935,782 | \$1,955,944 | \$1,976,291 | \$1,996,965 | \$2,017,865 |
| Less Operating Expenses | (1,857,320) | (1,924,009) | (2,188,640) | (2,309,776) | (2,422,246) | (2,536,321) |
| Less Non -Operating Expenses | <u>(58,171)</u> | <u>(69,105)</u> | <u>(293,836)</u> | <u>(288,518)</u> | <u>(279,975)</u> | <u>(274,149)</u> |
| Net Income | \$1,980 | \$(57,332) | \$(526,532) | \$(622,003) | \$(705,257) | \$(792,605) |
| Net Income as Percent of Revenues | 0.1% | -3.0% | -26.9% | -31.5% | -35.3% | -39.3% |

Cash Reserves

A summary of the impact of the projected operating results on GRPUC's cash reserves for the Study Period is shown at the end of Exhibit 2-A and in Table 2-4 below.

As shown below, under existing retail rates and estimated revenue requirements over the Study Period, the cash reserves for the water utility are projected to decrease from \$1.1 million to **negative** \$3.9 million by the end of the Study Period. As a percentage of operating revenues, reserves are projected to decrease from 58% to **negative** 194% during the Study Period. The cash reserve analysis also includes the assumption of securing \$2.5 million in state grants for water capital projects.

Projected Operating Results – Existing Rates

**Table 2-3
Projected Cash Reserves-Water
Existing Rates**

| Year | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|------------------------------------|-------------|-------------|------------------|------------------|------------------|------------------|
| Beginning Balance | \$1,087,187 | \$178,992 | \$(858,321) | \$92,587 | \$(1,121,727) | \$(2,305,049) |
| Plus Net Income | 1,980 | (57,332) | (526,532) | (622,003) | (705,257) | (792,605) |
| Less Capital Improvements | (452,761) | (6,005,500) | (1,363,575) | (973,580) | (912,511) | (1,274,000) |
| Less ERP Project Costs | - | (80,833) | - | - | - | - |
| Plus Depreciation | 332,035 | 347,127 | 547,310 | 592,763 | 625,216 | 654,633 |
| Plus State Grants | - | - | 2,500,000 | - | - | - |
| Plus Available Bond Funds | - | 4,850,000 | - | - | - | - |
| Less Existing Debt Principal | (789,450) | (90,775) | (94,100) | (94,250) | (68,250) | (71,500) |
| Less New Debt Principal | - | - | <u>(112,195)</u> | <u>(117,244)</u> | <u>(122,520)</u> | <u>(128,033)</u> |
| Ending Balance | \$178,992 | \$(858,321) | \$92,587 | \$(1,121,727) | \$(2,305,049) | \$(3,916,555) |
| Reserves as % of Operating Revenue | 9.3% | -44.3% | 4.7% | -56.8% | -115.4% | -194.1% |

Grand Rapids Public Utilities Commission
Water Operating Results at Existing Rates

| | Historical | | | | | Projected | | | | | |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| OPERATING REVENUES | | | | | | | | | | | |
| Utility Revenues | | | | | | | | | | | |
| City sales | \$ 1,465,307 | \$ 1,453,122 | \$ 1,543,505 | \$ 1,531,862 | \$ 1,633,096 | \$ 1,626,338 | \$ 1,639,058 | \$ 1,653,714 | \$ 1,668,448 | \$ 1,683,400 | \$ 1,698,467 |
| Rural sales | 34,796 | 30,816 | 34,744 | 35,249 | 37,877 | 38,616 | 39,156 | 39,511 | 39,870 | 40,233 | 40,599 |
| Total Utility Revenues | \$ 1,500,103 | \$ 1,483,938 | \$ 1,578,249 | \$ 1,567,111 | \$ 1,670,973 | \$ 1,664,954 | \$ 1,678,214 | \$ 1,693,225 | \$ 1,708,318 | \$ 1,723,633 | \$ 1,739,066 |
| Other Operating Revenues | | | | | | | | | | | |
| Miscellaneous service | \$ 184,560 | \$ 219,813 | \$ 247,799 | \$ 209,774 | \$ 213,862 | \$ 252,517 | \$ 257,568 | \$ 262,719 | \$ 267,973 | \$ 273,332 | \$ 278,799 |
| Penalties | 5,307 | 5,564 | 5,492 | 1,157 | 1,676 | - | - | - | - | - | - |
| Total Operating Revenues | \$ 1,689,970 | \$ 1,709,315 | \$ 1,831,540 | \$ 1,778,042 | \$ 1,886,511 | \$ 1,917,471 | \$ 1,935,782 | \$ 1,955,944 | \$ 1,976,291 | \$ 1,996,965 | \$ 2,017,865 |
| OPERATING EXPENSES | | | | | | | | | | | |
| Production | | | | | | | | | | | |
| Operations | | | | | | | | | | | |
| Supervision and engineering | \$ - | \$ 5,468 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Operators wages | 141,248 | 144,538 | 152,676 | 158,636 | 161,855 | 182,512 | 187,987 | 197,387 | 207,256 | 217,619 | 228,500 |
| Water treatment expense | 91,516 | 96,407 | 89,041 | 111,014 | 114,019 | 101,460 | 106,533 | 109,729 | 113,021 | 116,411 | 119,904 |
| Station Supplies and Expenses | | | | | | 2,325 | 2,441 | 2,514 | 2,590 | 2,668 | 2,748 |
| Permits and Fees | | | | | | 3,900 | 4,095 | 4,218 | 4,344 | 4,475 | 4,609 |
| Miscellaneous Production Expense | | | | | | 15,000 | 15,750 | 16,223 | 16,709 | 17,210 | 17,727 |
| Power purchased | 164,487 | 167,067 | 169,964 | 168,760 | 195,190 | 166,570 | 174,899 | 180,145 | 185,550 | 191,116 | 196,850 |
| Other | 18,360 | 16,251 | 22,818 | 18,573 | 26,250 | - | - | - | - | - | - |
| Maintenance | | | | | | | | | | | |
| Supervision | 15,232 | 8,404 | 209 | - | - | - | - | - | - | - | - |
| WTP buildings and grounds | 13,609 | 7,904 | 10,565 | 6,761 | 17,906 | 18,600 | 19,530 | 20,116 | 20,719 | 21,341 | 21,981 |
| WTP HVAC System | | | | | | 1,000 | 1,050 | 1,082 | 1,114 | 1,147 | 1,182 |
| Wellhouses | | | | | | 4,500 | 4,725 | 4,867 | 5,013 | 5,163 | 5,318 |
| Wellhead protection | | | | | | 1,000 | 1,050 | 1,082 | 1,114 | 1,147 | 1,182 |
| Wells, pumps, mains | 4,150 | 3,678 | 4,577 | 6,009 | 14,353 | 2,400 | 2,520 | 2,596 | 2,673 | 2,754 | 2,836 |
| Maintenance of WTP equipment | 37,707 | 32,868 | 40,549 | 62,363 | 51,511 | 60,490 | 66,015 | 67,995 | 70,035 | 72,136 | 74,300 |
| Maintenance of SCADA System | | | | | | 8,040 | 11,442 | 8,785 | 9,049 | 9,320 | 9,600 |
| Underground Clearwell | | | | | | 5,500 | 5,775 | 5,948 | 6,127 | 6,310 | 6,500 |
| DCS | 7,154 | 7,037 | 7,922 | 6,954 | 8,183 | - | - | - | - | - | - |
| Inspections | 9,231 | 6,975 | 10,594 | 4,630 | 2,381 | 3,504 | 8,679 | 8,940 | 9,208 | 9,484 | 9,769 |
| Total Production Expenses | \$ 502,694 | \$ 496,597 | \$ 508,915 | \$ 543,700 | \$ 591,648 | \$ 576,801 | \$ 612,491 | \$ 631,625 | \$ 654,522 | \$ 678,303 | \$ 703,004 |
| Distribution | | | | | | | | | | | |
| Operations | | | | | | | | | | | |
| Supervision and engineering | \$ 17,899 | \$ 10,045 | \$ 27,437 | \$ 29,361 | \$ 43,108 | 38,593 | 39,751 | 41,738 | 43,825 | 46,016 | 48,317 |
| Records | 17,561 | 13,282 | 4,714 | 10,527 | 1,275 | 4,800 | 5,040 | 5,191 | 5,347 | 5,507 | 5,673 |
| Inspections | 1,289 | - | 619 | 6,325 | 11,359 | 9,000 | 17,950 | 18,489 | 19,043 | 19,614 | 20,203 |
| Thaw and flush hydrants, etc. | 376 | 10,005 | 18,499 | 4,932 | 8,054 | 11,700 | 12,285 | 12,654 | 13,033 | 13,424 | 13,827 |
| Locating expense | - | - | 15,686 | 21,105 | 13,630 | 21,000 | 21,630 | 22,712 | 23,847 | 25,039 | 26,291 |
| Service on customer premises | 6,195 | 8,841 | 21,008 | 7,372 | 46,238 | 21,996 | 22,656 | 23,789 | 24,978 | 26,227 | 27,538 |
| Mapping | 10,459 | 18,877 | 28,554 | 30,799 | 30,810 | 34,272 | 35,300 | 37,065 | 38,918 | 40,864 | 42,908 |
| Small tools | 2,672 | 2,440 | 1,665 | 3,412 | 3,465 | 2,400 | 6,920 | 2,728 | 2,809 | 2,894 | 2,981 |
| Safety | 3,674 | 9,408 | 5,683 | 9,000 | 14,826 | 16,500 | 16,995 | 17,845 | 18,737 | 19,674 | 20,658 |
| Seminar/training | 18,907 | 20,102 | 19,287 | 14,211 | 20,365 | 19,200 | 19,776 | 20,765 | 21,803 | 22,893 | 24,038 |
| Uniforms Expense | | | | | | 300 | 315 | 324 | 334 | 344 | 355 |
| Other | (4,253) | 139 | 79 | 57 | 378 | - | - | - | - | - | - |
| Stores | 12,323 | 12,905 | 837 | 15,074 | 24,983 | 14,255 | 14,683 | 15,417 | 16,188 | 16,997 | 17,847 |
| Maintenance | | | | | | | | | | | |
| Towers and tanks | 57,562 | 50,438 | 3,076 | 8,573 | 16,669 | 5,000 | 5,250 | 5,408 | 5,570 | 5,737 | 5,909 |
| Elevated Tank Control System | | | | | | 2,400 | 2,520 | 2,596 | 2,673 | 2,754 | 2,836 |

Grand Rapids Public Utilities Commission
Water Operating Results at Existing Rates

| | Historical | | | | | Projected | | | | | |
|------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| Booster Pump | | | | | | 2,130 | 2,237 | 2,304 | 2,373 | 2,444 | 2,517 |
| Booster station | 106 | 372 | 705 | 303 | 2,563 | 500 | 525 | 541 | 557 | 574 | 591 |
| Mains and hydrants | 128,861 | 182,080 | 108,480 | 138,680 | 93,945 | 232,000 | 200,000 | 206,000 | 212,180 | 218,545 | 225,102 |
| Services | 25,327 | 10,046 | 18,326 | 9,019 | 43,923 | 46,000 | 29,925 | 30,823 | 31,747 | 32,700 | 33,681 |
| Meters | 4,621 | 5,249 | (367) | (2,553) | 8,584 | 2,400 | 6,972 | 7,321 | 7,687 | 8,071 | 8,475 |
| Other | 10,042 | 3,060 | 472 | 147 | 5,320 | - | - | - | - | - | - |
| Total Distribution Expenses | \$ 313,621 | \$ 357,289 | \$ 274,760 | \$ 306,344 | \$ 389,495 | \$ 484,446 | \$ 460,729 | \$ 473,706 | \$ 491,650 | \$ 510,319 | \$ 529,745 |
| Other Operating Expenses | | | | | | | | | | | |
| Customer accounts expense | \$ 90,247 | \$ 92,884 | \$ 101,017 | \$ 88,418 | \$ 122,931 | \$ 91,935 | \$ 94,710 | \$ 99,428 | \$ 104,382 | \$ 109,584 | \$ 115,044 |
| Administrative and general | 322,604 | 336,698 | 330,815 | 320,734 | 335,912 | 372,103 | 408,953 | 436,570 | 466,459 | 498,825 | 533,895 |
| Depreciation - water | 272,370 | 293,004 | 305,680 | 325,827 | 331,343 | 331,035 | 346,127 | 546,310 | 591,763 | 624,216 | 654,633 |
| Depreciation - other | 16,395 | 16,519 | 15,984 | 17,288 | 17,727 | - | - | - | - | - | - |
| Amortization - intangibles | 5,948 | 5,868 | 5,457 | 4,786 | 4,852 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | - |
| Service center | 22,098 | 17,749 | 21,258 | 18,027 | 20,513 | - | - | - | - | - | - |
| Total Other Operating Expenses | \$ 729,662 | \$ 762,722 | \$ 780,211 | \$ 775,080 | \$ 833,278 | \$ 796,073 | \$ 850,789 | \$ 1,083,309 | \$ 1,163,604 | \$ 1,233,624 | \$ 1,309,572 |
| Total Operating Expenses | \$ 1,545,977 | \$ 1,616,608 | \$ 1,563,886 | \$ 1,625,124 | \$ 1,814,421 | \$ 1,857,320 | \$ 1,924,009 | \$ 2,188,640 | \$ 2,309,776 | \$ 2,422,246 | \$ 2,536,321 |
| NET OPERATING INCOME | \$ 143,993 | \$ 92,707 | \$ 267,654 | \$ 152,918 | \$ 72,090 | \$ 60,151 | \$ 11,773 | \$ (232,696) | \$ (333,485) | \$ (425,281) | \$ (518,456) |
| NON-OPERATING INCOME (EXPENSES) | | | | | | | | | | | |
| Gain (loss) on property disposition | \$ 3,000 | \$ - | \$ (105,172) | \$ 1,125 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Penalties | - | - | - | - | - | 12,085 | 11,400 | 11,400 | 11,400 | 11,400 | 11,400 |
| Bond fees | (342) | (606) | (533) | (1,132) | (992) | (500) | (500) | (500) | (500) | (500) | (500) |
| Amortization of debt premiums and discounts | (271) | (271) | (271) | (974) | (974) | - | - | - | - | - | - |
| Amortization of regulatory asset | (703) | (703) | (703) | - | (642) | - | - | - | - | - | - |
| Interest expense - customer deposits | (4,347) | (4,208) | (1,295) | - | - | (1,140) | (1,140) | (1,140) | (1,140) | (1,140) | (1,140) |
| Interest expense - existing debt | (34,300) | (32,639) | (31,242) | (28,771) | (28,643) | (12,818) | (18,964) | (17,063) | (15,113) | (13,114) | (11,018) |
| Interest expense - new debt (1) | - | - | - | - | - | - | - | (225,000) | (219,951) | (214,675) | (209,162) |
| Lease revenues combined service center | 20,927 | 2,983 | 5,845 | 4,794 | 3,265 | 5,113 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |
| CSC Building/Grounds expenses | - | - | - | - | - | (60,910) | (63,501) | (65,133) | (66,815) | (65,546) | (67,330) |
| Total Non-Operating Revenues (Expenses) | \$ (16,036) | \$ (35,444) | \$ (133,371) | \$ (24,958) | \$ (27,986) | \$ (58,171) | \$ (69,105) | \$ (293,836) | \$ (288,518) | \$ (279,975) | \$ (274,149) |
| NET INCOME | \$ 127,957 | \$ 57,263 | \$ 134,283 | \$ 127,960 | \$ 44,104 | \$ 1,980 | \$ (57,332) | \$ (526,532) | \$ (622,003) | \$ (705,257) | \$ (792,605) |
| as a percent of Operating Revenues | 7.6% | 3.4% | 7.3% | 7.2% | 2.3% | 0.1% | -3.0% | -26.9% | -31.5% | -35.3% | -39.3% |
| CASH RESERVES | | | | | | | | | | | |
| Beginning of Year | | | | | | \$ 1,087,187 | \$ 178,992 | \$ (858,321) | \$ 92,587 | \$ (1,121,727) | \$ (2,305,049) |
| Plus Net Income | | | | | | 1,980 | (57,332) | (526,532) | (622,003) | (705,257) | (792,605) |
| Less Capital Improvements | | | | | | (452,761) | (6,005,500) | (1,363,575) | (973,580) | (912,511) | (1,274,000) |
| Less ERP Project Costs | | | | | | - | (80,833) | - | - | - | - |
| Plus Depreciation | | | | | | 332,035 | 347,127 | 547,310 | 592,763 | 625,216 | 654,633 |
| Plus State Grant Funds | | | | | | - | - | 2,500,000 | - | - | - |
| Plus Available Bond Funds | | | | | | - | 4,850,000 | - | - | - | - |
| Less Debt Service Principal | | | | | | (789,450) | (90,775) | (94,100) | (94,250) | (68,250) | (71,500) |
| Less New Debt Principal (1) | | | | | | - | - | (112,195) | (117,244) | (122,520) | (128,033) |
| End of Year | | | | | \$ 1,087,187 | \$ 178,992 | \$ (858,321) | \$ 92,587 | \$ (1,121,727) | \$ (2,305,049) | \$ (3,916,555) |
| As a percent of revenue | | | | | 57.6% | 9.3% | -44.3% | 4.7% | -56.8% | -115.4% | -194.1% |
| (1) Assumes \$5.0 million bond issue in late FY 2023 | | | | | | | | | | | |

Section 3

Cost-of-Service

A cost-of-service analysis was performed to determine the allocated cost to serve each of GRPUC's customer classes within the water utility. Customer classes exist, in part, because the cost to serve different kinds of customers varies. The cost-of-service analysis for water has been performed on a 2021 'Test Year' based on budgeted 2021 financials, operations and sales. The results of the cost-of-service study give an indication of the degree of revenue recovery warranted for each class of customers. A comparison of the allocated cost to serve a class of customers and the actual revenues received from that class is taken into consideration during rate design.

Functionalization of Costs

GRPUC's Test Year water revenue requirements have been divided into four functional categories. These categories are described below.

Production – costs associated with GRPUC's source of supply, pumping and water treatment.

Distribution – distribution expenses are related to the GRPUC system for delivering water to GRPUC customers over the local pipeline system.

Customer – these costs are fixed costs associated with the service facilities utilized to deliver water directly to customers. They also include items such as meter reading, billing, collections and customer service.

Revenue – revenue related costs include certain non-operating revenues and utility margin.

Section 3

Table 3-1 below summarizes the functional water costs for the 2021 Test Year. The detailed cost functions are shown in Exhibit 3-A.

Table 3-1
Functional Water Costs
2021 Test Year

| Component | Revenue Requirement |
|------------------|----------------------------|
| Production | \$851,304 |
| Distribution | 720,585 |
| Customer | 197,470 |
| Revenue | <u>(29,186)</u> |
| Total | <u>\$1,740,172</u> |

Classification of Costs

GRPUC's Test Year revenue requirements have been divided into distinct cost classifications. The water cost classifications are described below.

Demand Related – demand related costs are costs required to meet the overall maximum demand on the system. Demand related costs are predominately associated with facility fixed costs.

Commodity Related – commodity costs tend to vary with the annual quantity of water produced.

Customer Related – costs related to serving, metering and billing of individual customers.

Revenue Related – revenue related costs vary by the amount of revenue received by the utility or are associated with other operating and non-operating revenues.

Exhibits 3-B through 3-D show the detailed classification of revenue requirements within the production, distribution and customer functions.

Allocation of Costs

Based on an analysis of customer class service characteristics, the classified costs summarized above were allocated to the major GRPUC customer classes. Allocation of costs was performed on a fully-distributed, embedded cost allocation basis. Specific allocation factors were utilized in each of the cost classification categories as described below. Exhibit 3-E contains a summary of the development of the various allocation factors.

Demand Allocations

Allocation of water production demand costs are based on each class' contribution to the utility's system peak day usage. The allocation of the distribution demand costs is based on the peak hour usage of each individual class.

Commodity Allocations

Each class' share of test year commodity requirements was used to allocate commodity related costs.

Customer Facilities Allocations

The customer facilities allocator was used to allocate costs associated with the physical facilities required to serve individual customers. For the customer facility allocators, weighted customer allocation factor was developed based on the average equivalent meter size for the customers in each class. Weighting factors are developed to represent the difference in service configurations between customer classifications. For instance, a larger customer facility is required for a single industrial demand customer than for a single residential customer.

Section 3

Customer Service Allocations

The customer service allocator is for allocation of costs associated with customer service – meter reading, billing, collections and customer inquiries. As with the customer facilities allocators, weighted customer service allocators are developed to represent the different levels of customer service required by different size customers.

Revenue Allocations

Revenue related costs were allocated based on each class' share of total demand, commodity, customer facility and customer service costs.

Cost of Service Results

Based on the classifications and allocations described above, the estimated cost to serve each major class of customers for the 2021 Test Year was determined. Exhibit 3-F presents this analysis in detail. Table 3-2 below summarizes the total allocated costs for each class compared to the total revenues received from the class during 2021.

Table 3-2
Water Cost of Service Results
Comparison of Cost and Revenues
2021 Test Year

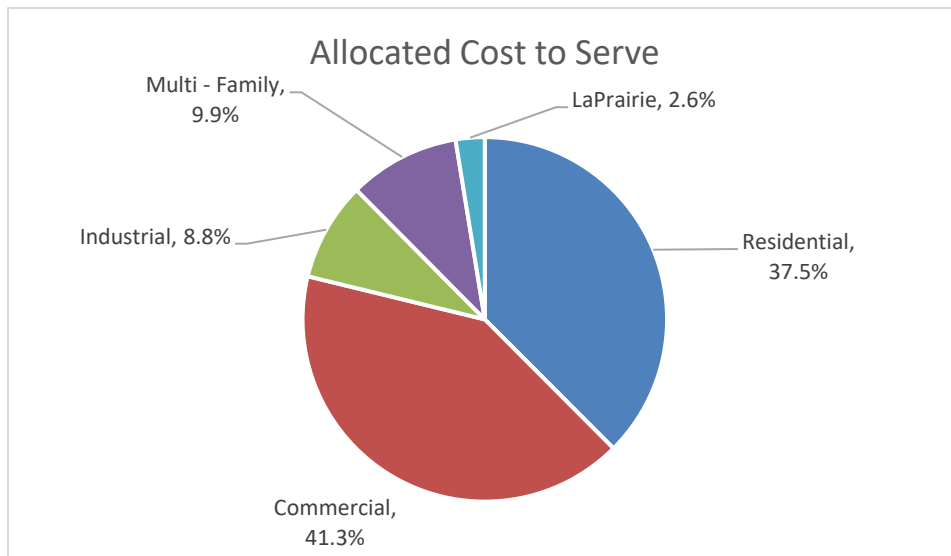
| Customer Classification | Allocated Cost to Serve | Revenues |
|--------------------------------|--------------------------------|-----------------|
| Residential | \$652,911 | \$666,661 |
| Commercial | \$718,359 | \$605,610 |
| Industrial | \$152,648 | \$176,054 |
| Multi - Family | \$171,470 | \$249,974 |
| LaPrairie | <u>\$44,785</u> | <u>\$41,873</u> |
| Total | \$1,740,172 | \$1,740,172 |

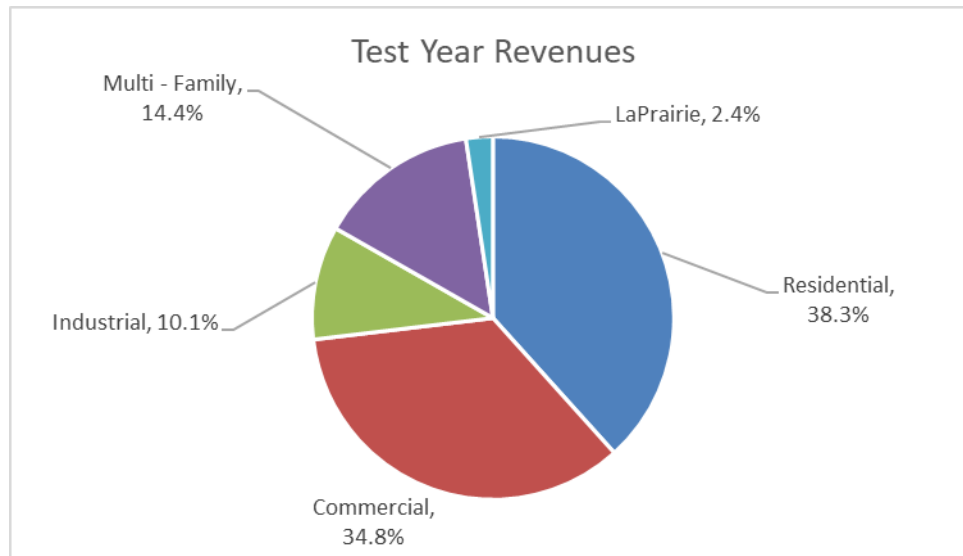
The revenue requirements and revenues as allocated to each class and summarized above are shown on a total dollar basis. Table 3-3 below makes the comparison based on percentages of total cost to serve and total revenues. The charts following Table 3-3 show a graphical comparison between allocated cost to serve and revenues as a percentage of the totals. The percentage increase/(decrease) in each class' revenue shown below is the adjustment necessary to produce revenues from each class in accordance with the allocated cost to serve. The percentage adjustments do not represent the recommended change in each class' rates. The cost-of-service results are one item for consideration in rate design. It is important to note also that the adjustments shown in the table below would not change the total revenue received by the utility and are not indicative of overall revenue needs of the utility going forward. Recommendations regarding rate design are included in Section 4 of this report.

Section 3

**Table 3-3
Water Cost of Service Results
Comparison of % Cost and Revenues
2021 Test Year**

| Customer Classification | Allocated Cost to Serve | Revenues | Increase/ (Decrease) |
|--------------------------------|--------------------------------|-----------------|-----------------------------|
| Residential | 37.5% | 38.3% | -2.1% |
| Commercial | 41.3% | 34.8% | 18.6% |
| Industrial | 8.8% | 10.1% | -13.3% |
| Multi - Family | 9.9% | 14.4% | -31.4% |
| LaPrairie | <u>2.6%</u> | <u>2.4%</u> | <u>7.0%</u> |
| Total | 100.0% | 100.0% | 0.0% |





As indicated above, GRPUC's existing class revenues do not exactly match the allocated cost to serve each class. Cost based rates are one of several goals in establishing rates. The relationship between allocated costs and revenues for each class should be considered, in addition to other rate related goals, in developing recommended rates.

Grand Rapids Public Utilities Commission
Functionalization of 2021 Test Year Revenue Requirements

| REVENUE REQUIREMENT | 2021 | Production | Distribution | Customer | Revenue | Classification Basis |
|---------------------------------------|----------------|----------------|----------------|----------|----------|----------------------|
| | Test Year | | | | | |
| OPERATING EXPENSES | | | | | | |
| Production Operation | | | | | | |
| WTP Operators Wages | 127,657 | 127,657 | - | - | - | 100% production |
| WTP Operators Wages - OT | 34,198 | 34,198 | - | - | - | 100% production |
| Other Operating Wages | - | - | - | - | - | 100% production |
| Water Treatment Expense | 114,018 | 114,018 | - | - | - | 100% production |
| Heating Fuel | - | - | - | - | - | 100% production |
| Station Supplies and Expenses | 4,031 | 4,031 | - | - | - | 100% production |
| Permits and Fees | 3,893 | 3,893 | - | - | - | 100% production |
| Miscellaneous Production Expense | 18,326 | 18,326 | - | - | - | 100% production |
| Power Purchased | 195,190 | 195,190 | - | - | - | 100% production |
| Total Operation | 497,314 | 497,314 | - | - | - | |
| Production Maintenance | | | | | | |
| WTP Buildings and Grounds | 17,851 | 17,851 | - | - | - | 100% production |
| WTP HVAC System | 54 | 54 | - | - | - | 100% production |
| Wellhouses | 6,272 | 6,272 | - | - | - | 100% production |
| Wellhead Protection | - | - | - | - | - | 100% production |
| Wells, Pumps and Mains | 8,081 | 8,081 | - | - | - | 100% production |
| Maintenance of WTP Equipment | 51,510 | 51,510 | - | - | - | 100% production |
| Maintenance of SCADA System - WTP | 8,183 | 8,183 | - | - | - | 100% production |
| Underground Clearwell | - | - | - | - | - | 100% production |
| Maintenance Inspections - WTP | 2,381 | 2,381 | - | - | - | 100% production |
| Total Maintenance | 94,333 | 94,333 | - | - | - | |
| Distribution Operation | | | | | | |
| Supervision and Engineering | 43,108 | - | 43,108 | - | - | 100% distribution |
| Records (Mapping-Meters-Valves) | 1,275 | - | 1,275 | - | - | 100% distribution |
| Maintenance Inspections | 11,359 | - | 11,359 | - | - | 100% distribution |
| Thaw/Flush Hydrants, Mains, Services | 8,054 | - | 8,054 | - | - | 100% distribution |
| Locating Expense | 13,630 | - | 13,630 | - | - | 100% distribution |
| Service on Customer Premises | 46,238 | - | 46,238 | - | - | 100% distribution |
| Mapping Expense | 30,810 | - | 30,810 | - | - | 100% distribution |
| Small Tools Expense | 3,465 | - | 3,465 | - | - | 100% distribution |
| Safety Expense | 14,826 | - | 14,826 | - | - | 100% distribution |
| Seminar/Training Expense | 20,365 | - | 20,365 | - | - | 100% distribution |
| Uniforms Expense | 378 | - | 378 | - | - | 100% distribution |
| Miscellaneous Meetings | - | - | - | - | - | NA |
| Rentals | 2 | - | 2 | - | - | 100% distribution |
| Stores Expense (Labor) | 24,981 | - | 24,981 | - | - | 100% distribution |
| Total Distribution Operation | 218,492 | - | 218,492 | - | - | |
| Distribution Maintenance | | | | | | |
| Towers and Tanks | 16,298 | - | 16,298 | - | - | 100% distribution |
| Elevated Tank Control System | 371 | - | 371 | - | - | 100% distribution |
| Booster Pump (21st St SW) | 2,538 | - | 2,538 | - | - | 100% distribution |
| Booster Station | 25 | - | 25 | - | - | 100% distribution |
| Mains and Hydrants | 93,944 | - | 93,944 | - | - | 100% distribution |
| Services | 43,923 | - | 43,923 | - | - | 100% distribution |
| Meters and Meter Installations | 6,396 | - | 6,396 | - | - | 100% distribution |
| Miscellaneous Distribution Expense | 5,320 | - | 5,320 | - | - | 100% distribution |
| Total Distribution Maintenance | 168,816 | - | 168,816 | - | - | |
| Other | | | | | | |
| Truck Expense - Operation | (2,658) | - | (2,658) | - | - | 100% distribution |
| Total Other | (2,658) | - | (2,658) | - | - | |
| Customer Accounting | | | | | | |
| Supervision | 26,434 | - | - | 26,434 | - | 100% customer |
| Meter Reading | 2,426 | - | - | 2,426 | - | 100% customer |
| Customer Billing and Accounting | 95,918 | - | - | 95,918 | - | 100% customer |
| Collecting Expense | - | - | - | - | - | NA |

Grand Rapids Public Utilities Commission
Functionalization of 2021 Test Year Revenue Requirements

| REVENUE REQUIREMENT | 2021 | <u>Production</u> | <u>Distribution</u> | <u>Customer</u> | <u>Revenue</u> | <u>Classification Basis</u> |
|--------------------------------------------|------------------|-------------------|---------------------|-----------------|----------------|-----------------------------|
| | <u>Test Year</u> | | | | | |
| Miscellaneous Expense | (1,847) | - | - | (1,847) | - | 100% customer |
| Miscellaneous Customer Information | - | - | - | - | - | NA |
| Total Customer Accounting | 122,931 | - | - | 122,931 | - | |
| Administrative and General Expenses | | | | | | |
| Administrative & General Salaries | 57,101 | 28,196 | 15,790 | 13,115 | - | labor |
| Commissioner Salaries | 2,680 | 1,324 | 741 | 616 | - | labor |
| City Treasurer Salary | 165 | 81 | 46 | 38 | - | labor |
| General Office Supplies and Phone | 8,407 | 4,151 | 2,325 | 1,931 | - | labor |
| Accounting Outside Service | 6,594 | 3,256 | 1,823 | 1,514 | - | labor |
| Data Processing Outside Service | 24,036 | 11,869 | 6,647 | 5,521 | - | labor |
| Legal Outside Service | 3,741 | 1,847 | 1,035 | 859 | - | labor |
| Engineering Outside Service | 3,400 | 1,679 | 940 | 781 | - | labor |
| Other Outside Service | 229 | 113 | 63 | 52 | - | labor |
| Fiber Optic Outside Service | - | - | - | - | - | NA |
| Insurance - Fire | 6,166 | 1,668 | 4,498 | - | - | plant in service |
| Insurance - Liability | 4,096 | 1,108 | 2,988 | - | - | plant in service |
| Insurance - Worker's Compensation | 11,369 | 5,614 | 3,144 | 2,611 | - | labor |
| Insurance - Worker's Comp Deductible | - | - | - | - | - | NA |
| Insurance - Auto | 572 | 155 | 417 | - | - | plant in service |
| Insurance - Miscellaneous | 539 | 146 | 393 | - | - | plant in service |
| Insurance Claims - Injuries & Damages | 9,980 | 4,928 | 2,760 | 2,292 | - | labor |
| Insurance - Group Health | 114,281 | 56,430 | 31,603 | 26,248 | - | labor |
| Insurance - Group Health Co-insurance | - | - | - | - | - | NA |
| Insurance - Group Health HSA funding | 27,980 | 13,816 | 7,737 | 6,426 | - | labor |
| Insurance - Group Life | 1,009 | 498 | 279 | 232 | - | labor |
| Employee Assistance Programs | - | - | - | - | - | NA |
| Insurance - Group Dental | 5,888 | 2,907 | 1,628 | 1,352 | - | labor |
| Insurance - Third Party Admin Costs | 276 | 136 | 76 | 63 | - | labor |
| FICA | - | - | - | - | - | NA |
| PERA | (45,566) | (22,500) | (12,601) | (10,466) | - | labor |
| Paid Time Off | 80,058 | 39,531 | 22,139 | 18,388 | - | labor |
| Extended Illness Benefit | 8,287 | 4,092 | 2,292 | 1,903 | - | labor |
| Short-Term Disability Payments | - | - | - | - | - | NA |
| Disability Insurance | 2,871 | 1,418 | 794 | 659 | - | labor |
| Unemployment Compensation | - | - | - | - | - | NA |
| Lump Sum Payments | - | - | - | - | - | NA |
| Miscellaneous General Expense | (1,170) | (578) | (324) | (269) | - | labor |
| Maintenance of General Plant | 2,922 | 1,443 | 808 | 671 | - | labor |
| Total Administrative and General | 335,909 | 163,327 | 98,043 | 74,539 | - | |
| Depreciation | 331,343 | 89,624 | 241,718 | - | - | plant in service |
| Amortization | 974 | 263 | 710 | - | - | plant in service |
| Total Operating Expenses | 1,767,453 | 844,861 | 725,122 | 197,470 | - | |

Grand Rapids Public Utilities Commission
Functionalization of 2021 Test Year Revenue Requirements

| REVENUE REQUIREMENT | 2021 | <u>Production</u> | <u>Distribution</u> | <u>Customer</u> | <u>Revenue</u> | <u>Classification Basis</u> |
|-----------------------------------------|------------------|-------------------|---------------------|-----------------|----------------|-----------------------------|
| | <u>Test Year</u> | | | | | |
| Non Operating Revenues (Expenses) | | | | | | |
| Interest expense | (22,826) | (6,174) | (16,652) | - | - | plant in service |
| Bond fees - long term debt | (992) | (268) | (724) | - | - | plant in service |
| Total Non-Operating Revenues (Expenses) | (23,819) | (6,443) | (17,376) | - | - | |
| Other Operating Revenues (Expenses) | | | | | | |
| Service Connections | 20,953 | - | 20,953 | - | - | 100% distribution |
| Permit Fees | 1,680 | - | - | - | 1,680 | 100% revenue |
| Thawing Service | 960 | - | 960 | - | - | 100% distribution |
| Water Shutoff Fees | - | - | - | - | - | NA |
| Merchandising and Jobbing (Net) | 1,285 | - | - | - | 1,285 | 100% revenue |
| City of Grand Rapids Jobbing (Net) | - | - | - | - | - | NA |
| City of LaPrairie Jobbing (Net) | 2,437 | - | - | - | 2,437 | 100% revenue |
| Equipment Rental Revenue | - | - | - | - | - | NA |
| Service Center | (20,513) | - | - | - | (20,513) | 100% revenue |
| Lease revenues combined service center | 3,265 | - | - | - | 3,265 | 100% revenue |
| Antenna Rental Revenue | 194,341 | - | - | - | 194,341 | 100% revenue |
| Miscellaneous Income | 11,988 | - | - | - | 11,988 | 100% revenue |
| Total Other Operating Revenues | 216,395 | - | 21,913 | - | 194,482 | |
| Margin | 165,296 | - | - | - | 165,296 | 100% revenue |
| Total Revenue Requirement | \$ 1,740,172 | \$ 851,304 | \$ 720,585 | \$ 197,470 | \$ (29,186) | |

Grand Rapids Public Utilities Commission
2021 Test Year Water Production Classification

| | 2021 | | | |
|--------------------------------------|------------------|----------------|------------------|-----------------------------|
| REVENUE REQUIREMENT | <u>Test Year</u> | <u>Demand</u> | <u>Commodity</u> | <u>Classification Basis</u> |
| OPERATING EXPENSES | | | | |
| Production Operation | | | | |
| WTP Operators Wages | 127,657 | 127,657 | - | 100% demand |
| WTP Operators Wages - OT | 34,198 | 34,198 | - | 100% demand |
| Other Operating Wages | - | - | - | 100% demand |
| Water Treatment Expense | 114,018 | - | 114,018 | 100% commodity |
| Heating Fuel | - | - | - | NA |
| Station Supplies and Expenses | 4,031 | 4,031 | - | 100% demand |
| Permits and Fees | 3,893 | 3,893 | - | 100% demand |
| Miscellaneous Production Expense | 18,326 | 18,326 | - | 100% demand |
| Power Purchased | 195,190 | - | 195,190 | 100% commodity |
| Total Operation | 497,314 | 188,106 | 309,208 | |
| Production Maintenance | | | | |
| WTP Buildings and Grounds | 17,851 | 17,851 | - | 100% demand |
| WTP HVAC System | 54 | 54 | - | 100% demand |
| Wellhouses | 6,272 | 6,272 | - | 100% demand |
| Wellhead Protection | - | - | - | 100% demand |
| Wells, Pumps and Mains | 8,081 | 8,081 | - | 100% demand |
| Maintenance of WTP Equipment | 51,510 | - | 51,510 | 100% commodity |
| Maintenance of SCADA System - WTP | 8,183 | 8,183 | - | 100% demand |
| Underground Clearwell | - | - | - | NA |
| Maintenance Inspections - WTP | 2,381 | 2,381 | - | 100% demand |
| Total Maintenance | 94,333 | 42,822 | 51,510 | |
| Distribution Operation | | | | |
| Supervision and Engineering | - | - | - | NA |
| Records (Mapping-Meters-Valves) | - | - | - | NA |
| Maintenance Inspections | - | - | - | NA |
| Thaw/Flush Hydrants, Mains, Services | - | - | - | NA |
| Locating Expense | - | - | - | NA |
| Service on Customer Premises | - | - | - | NA |
| Mapping Expense | - | - | - | NA |
| Small Tools Expense | - | - | - | NA |
| Safety Expense | - | - | - | NA |
| Seminar/Training Expense | - | - | - | NA |
| Uniforms Expense | - | - | - | NA |
| Miscellaneous Meetings | - | - | - | NA |
| Rentals | - | - | - | NA |
| Stores Expense (Labor) | - | - | - | NA |
| Total Distribution Operation | - | - | - | |
| Distribution Maintenance | | | | |
| Towers and Tanks | - | - | - | NA |
| Elevated Tank Control System | - | - | - | NA |
| Booster Pump (21st St SW) | - | - | - | NA |
| Booster Station | - | - | - | NA |
| Mains and Hydrants | - | - | - | NA |

Grand Rapids Public Utilities Commission
2021 Test Year Water Production Classification

| REVENUE REQUIREMENT | 2021 | | | Classification Basis |
|---------------------------------------|------------------|---------------|------------------|----------------------|
| | <u>Test Year</u> | <u>Demand</u> | <u>Commodity</u> | |
| Services | - | - | - | NA |
| Meters and Meter Installations | - | - | - | NA |
| Miscellaneous Distribution Expense | - | - | - | NA |
| Total Distribution Maintenance | - | - | - | |
| Other | | | | |
| Truck Expense - Operation | - | - | - | NA |
| Total Other | - | - | - | |
| Customer Accounting | | | | |
| Supervision | - | - | - | NA |
| Meter Reading | - | - | - | NA |
| Customer Billing and Accounting | - | - | - | NA |
| Collecting Expense | - | - | - | NA |
| Miscellaneous Expense | - | - | - | NA |
| Miscellaneous Customer Information | - | - | - | NA |
| Total Customer Accounting | - | - | - | |
| Administrative and General Expenses | | | | |
| Administrative & General Salaries | 28,196 | 28,196 | - | 100% demand |
| Commissioner Salaries | 1,324 | 1,324 | - | 100% demand |
| City Treasurer Salary | 81 | 81 | - | 100% demand |
| General Office Supplies and Phone | 4,151 | 4,151 | - | 100% demand |
| Accounting Outside Service | 3,256 | 3,256 | - | 100% demand |
| Data Processing Outside Service | 11,869 | 11,869 | - | 100% demand |
| Legal Outside Service | 1,847 | 1,847 | - | 100% demand |
| Engineering Outside Service | 1,679 | 1,679 | - | 100% demand |
| Other Outside Service | 113 | 113 | - | 100% demand |
| Fiber Optic Outside Service | - | - | - | NA |
| Insurance - Fire | 1,668 | 1,668 | - | 100% demand |
| Insurance - Liability | 1,108 | 1,108 | - | 100% demand |
| Insurance - Worker's Compensation | 5,614 | 5,614 | - | 100% demand |
| Insurance - Worker's Comp Deductible | - | - | - | NA |
| Insurance - Auto | 155 | 155 | - | 100% demand |
| Insurance - Miscellaneous | 146 | 146 | - | 100% demand |
| Insurance Claims - Injuries & Damages | 4,928 | 4,928 | - | 100% demand |
| Insurance - Group Health | 56,430 | 56,430 | - | 100% demand |
| Insurance - Group Health Co-insurance | - | - | - | NA |
| Insurance - Group Health HSA funding | 13,816 | 13,816 | - | 100% demand |
| Insurance - Group Life | 498 | 498 | - | 100% demand |
| Employee Assistance Programs | - | - | - | NA |
| Insurance - Group Dental | 2,907 | 2,907 | - | 100% demand |
| Insurance - Third Party Admin Costs | 136 | 136 | - | 100% demand |
| FICA | - | - | - | NA |
| PERA | (22,500) | (22,500) | - | 100% demand |
| Paid Time Off | 39,531 | 39,531 | - | 100% demand |
| Extended Illness Benefit | 4,092 | 4,092 | - | 100% demand |
| Short-Term Disability Payments | - | - | - | NA |

Grand Rapids Public Utilities Commission
2021 Test Year Water Production Classification

| | 2021 | | | |
|-----------------------------------------|------------------|---------------|------------------|-----------------------------|
| REVENUE REQUIREMENT | <u>Test Year</u> | <u>Demand</u> | <u>Commodity</u> | <u>Classification Basis</u> |
| Disability Insurance | 1,418 | 1,418 | - | 100% demand |
| Unemployment Compensation | - | - | - | NA |
| Lump Sum Payments | - | - | - | NA |
| Miscellaneous General Expense | (578) | (578) | - | 100% demand |
| Maintenance of General Plant | 1,443 | 1,443 | - | 100% demand |
| Total Administrative and General | 163,327 | 163,327 | - | |
| Depreciation | 89,624 | 89,624 | - | 100% demand |
| Amortization | 263 | 263 | - | 100% demand |
| Total Operating Expenses | 844,861 | 484,143 | 360,719 | |
| Non Operating Revenues (Expenses) | | | | |
| Interest expense | (6,174) | (6,174) | - | 100% demand |
| Bond fees - long term debt | (268) | (268) | - | 100% demand |
| Total Non-Operating Revenues (Expenses) | (6,443) | (6,443) | - | |
| Other Operating Revenues (Expenses) | | | | |
| Service Connections | - | - | - | NA |
| Permit Fees | - | - | - | NA |
| Thawing Service | - | - | - | NA |
| Water Shutoff Fees | - | - | - | NA |
| Merchandising and Jobbing (Net) | - | - | - | NA |
| City of Grand Rapids Jobbing (Net) | - | - | - | NA |
| City of LaPrairie Jobbing (Net) | - | - | - | NA |
| Equipment Rental Revenue | - | - | - | NA |
| Service Center | - | - | - | NA |
| Lease revenues combined service center | - | - | - | NA |
| Antenna Rental Revenue | - | - | - | NA |
| Miscellaneous Income | - | - | - | NA |
| Total Other Operating Revenues | - | - | - | |
| Margin | - | - | - | NA |
| Total Revenue Requirement | \$ 851,304 | \$ 490,586 | \$ 360,719 | |

Grand Rapids Public Utilities Commission
2021 Test Year Distribution Classification

| REVENUE REQUIREMENT | 2021 <u>Test Year</u> | <u>Demand</u> | <u>Customer Facilities</u> | <u>Classification Basis</u> |
|--------------------------------------|--------------------------|----------------|--------------------------------|-----------------------------|
| OPERATING EXPENSES | | | | |
| Production Operation | | | | |
| WTP Operators Wages | - | - | - | NA |
| WTP Operators Wages - OT | - | - | - | NA |
| Other Operating Wages | - | - | - | NA |
| Water Treatment Expense | - | - | - | NA |
| Heating Fuel | - | - | - | NA |
| Station Supplies and Expenses | - | - | - | NA |
| Permits and Fees | - | - | - | NA |
| Miscellaneous Production Expense | - | - | - | NA |
| Power Purchased | - | - | - | NA |
| Total Operation | - | - | - | |
| Production Maintenance | | | | |
| WTP Buildings and Grounds | - | - | - | NA |
| WTP HVAC System | - | - | - | NA |
| Wellhouses | - | - | - | NA |
| Wellhead Protection | - | - | - | NA |
| Wells, Pumps and Mains | - | - | - | NA |
| Maintenance of WTP Equipment | - | - | - | NA |
| Maintenance of SCADA System - WTP | - | - | - | NA |
| Underground Clearwell | - | - | - | NA |
| Maintenance Inspections - WTP | - | - | - | NA |
| Total Maintenance | - | - | - | |
| Distribution Operation | | | | |
| Supervision and Engineering | 43,108 | 43,108 | - | 100% Dist demand |
| Records (Mapping-Meters-Valves) | 1,275 | 1,275 | - | 100% Dist demand |
| Maintenance Inspections | 11,359 | 11,359 | - | 100% Dist demand |
| Thaw/Flush Hydrants, Mains, Services | 8,054 | 5,674 | 2,380 | Dist/Cust split |
| Locating Expense | 13,630 | - | 13,630 | 100% Cust facilities |
| Service on Customer Premises | 46,238 | - | 46,238 | 100% Cust facilities |
| Mapping Expense | 30,810 | 30,810 | - | 100% Dist demand |
| Small Tools Expense | 3,465 | 3,465 | - | 100% Dist demand |
| Safety Expense | 14,826 | 14,826 | - | 100% Dist demand |
| Seminar/Training Expense | 20,365 | 20,365 | - | 100% Dist demand |
| Uniforms Expense | 378 | 378 | - | 100% Dist demand |
| Miscellaneous Meetings | - | - | - | NA |
| Rentals | 2 | 2 | - | 100% Dist demand |
| Stores Expense (Labor) | 24,981 | 24,981 | - | 100% Dist demand |
| Total Distribution Operation | 218,492 | 156,244 | 62,248 | |
| Distribution Maintenance | | | | |
| Towers and Tanks | 16,298 | 16,298 | - | 100% Dist demand |
| Elevated Tank Control System | 371 | 371 | - | 100% Dist demand |
| Booster Pump (21st St SW) | 2,538 | 2,538 | - | 100% Dist demand |
| Booster Station | 25 | 25 | - | 100% Dist demand |
| Mains and Hydrants | 93,944 | 66,179 | 27,766 | Dist/Cust split |
| Services | 43,923 | - | 43,923 | 100% Cust facilities |

Grand Rapids Public Utilities Commission
2021 Test Year Distribution Classification

| | 2021 <u>Test Year</u> | <u>Demand</u> | Customer <u>Facilities</u> | <u>Classification Basis</u> |
|---------------------------------------|--------------------------|---------------|-------------------------------|-----------------------------|
| REVENUE REQUIREMENT | | | | |
| Meters and Meter Installations | 6,396 | - | 6,396 | 100% Cust facilities |
| Miscellaneous Distribution Expense | 5,320 | 5,320 | - | 100% Dist demand |
| Total Distribution Maintenance | 168,816 | 90,731 | 78,085 | |
| Other | | | | |
| Truck Expense - Operation | (2,658) | (1,872) | (786) | Dist/Cust split |
| Total Other | (2,658) | (1,872) | (786) | |
| Customer Accounting | | | | |
| Supervision | - | - | - | NA |
| Meter Reading | - | - | - | NA |
| Customer Billing and Accounting | - | - | - | NA |
| Collecting Expense | - | - | - | NA |
| Miscellaneous Expense | - | - | - | NA |
| Miscellaneous Customer Information | - | - | - | NA |
| Total Customer Accounting | - | - | - | |
| Administrative and General Expenses | | | | |
| Administrative & General Salaries | 15,790 | 11,610 | 4,180 | labor |
| Commissioner Salaries | 741 | 545 | 196 | labor |
| City Treasurer Salary | 46 | 34 | 12 | labor |
| General Office Supplies and Phone | 2,325 | 1,709 | 615 | labor |
| Accounting Outside Service | 1,823 | 1,285 | 539 | Dist/Cust split |
| Data Processing Outside Service | 6,647 | 4,682 | 1,964 | Dist/Cust split |
| Legal Outside Service | 1,035 | 729 | 306 | Dist/Cust split |
| Engineering Outside Service | 940 | 662 | 278 | Dist/Cust split |
| Other Outside Service | 63 | 45 | 19 | Dist/Cust split |
| Fiber Optic Outside Service | - | - | - | NA |
| Insurance - Fire | 4,498 | 3,169 | 1,329 | Dist/Cust split |
| Insurance - Liability | 2,988 | 2,105 | 883 | Dist/Cust split |
| Insurance - Worker's Compensation | 3,144 | 2,312 | 832 | labor |
| Insurance - Worker's Comp Deductible | - | - | - | labor |
| Insurance - Auto | 417 | 307 | 111 | labor |
| Insurance - Miscellaneous | 393 | 289 | 104 | labor |
| Insurance Claims - Injuries & Damages | 2,760 | 2,029 | 731 | labor |
| Insurance - Group Health | 31,603 | 23,236 | 8,366 | labor |
| Insurance - Group Health Co-insurance | - | - | - | labor |
| Insurance - Group Health HSA funding | 7,737 | 5,689 | 2,048 | labor |
| Insurance - Group Life | 279 | 205 | 74 | labor |
| Employee Assistance Programs | - | - | - | labor |
| Insurance - Group Dental | 1,628 | 1,197 | 431 | labor |
| Insurance - Third Party Admin Costs | 76 | 56 | 20 | labor |
| FICA | - | - | - | NA |
| PERA | (12,601) | (9,265) | (3,336) | labor |
| Paid Time Off | 22,139 | 16,278 | 5,861 | labor |
| Extended Illness Benefit | 2,292 | 1,685 | 607 | labor |
| Short-Term Disability Payments | - | - | - | NA |
| Disability Insurance | 794 | 584 | 210 | labor |
| Unemployment Compensation | - | - | - | NA |

Grand Rapids Public Utilities Commission
2021 Test Year Distribution Classification

| | 2021 <u>Test Year</u> | <u>Demand</u> | <u>Customer Facilities</u> | <u>Classification Basis</u> |
|-----------------------------------------|--------------------------|---------------|--------------------------------|-----------------------------|
| REVENUE REQUIREMENT | | | | |
| Lump Sum Payments | - | - | - | NA |
| Miscellaneous General Expense | (324) | (228) | (96) | Dist/Cust split |
| Maintenance of General Plant | 808 | 569 | 239 | Dist/Cust split |
| Total Administrative and General | 98,043 | 71,518 | 26,525 | |
| Depreciation | 241,718 | 170,278 | 71,441 | Dist/Cust split |
| Amortization | 710 | 500 | 210 | Dist/Cust split |
| Total Operating Expenses | 725,122 | 487,398 | 237,723 | |
| Non Operating Revenues (Expenses) | | | | |
| Interest expense | (16,652) | (11,731) | (4,922) | Dist/Cust split |
| Bond fees - long term debt | (724) | (510) | (214) | Dist/Cust split |
| Total Non-Operating Revenues (Expenses) | (17,376) | (12,240) | (5,136) | |
| Other Operating Revenues (Expenses) | | | | |
| Service Connections | 20,953 | - | 20,953 | 100% Cust facilities |
| Permit Fees | - | - | - | NA |
| Thawing Service | 960 | - | 960 | 100% Cust facilities |
| Water Shutoff Fees | - | - | - | NA |
| Merchandising and Jobbing (Net) | - | - | - | NA |
| City of Grand Rapids Jobbing (Net) | - | - | - | NA |
| City of LaPrairie Jobbing (Net) | - | - | - | NA |
| Equipment Rental Revenue | - | - | - | NA |
| Service Center | - | - | - | NA |
| Lease revenues combined service center | - | - | - | NA |
| Antenna Rental Revenue | - | - | - | NA |
| Miscellaneous Income | - | - | - | NA |
| Total Other Operating Revenues | 21,913 | - | 21,913 | |
| Margin | - | - | - | NA |
| Total Revenue Requirement | \$ 720,585 | \$ 499,639 | \$ 220,946 | |

Grand Rapids Public Utilities Commission
2021 Test Year Customer Classification

| REVENUE REQUIREMENT | 2021 | | |
|--------------------------------------|------------------|-----------------|-----------------------------|
| | <u>Test Year</u> | <u>Customer</u> | <u>Classification Basis</u> |
| OPERATING EXPENSES | | | |
| Production Operation | | | |
| WTP Operators Wages | - | - | 100% Customer |
| WTP Operators Wages - OT | - | - | 100% Customer |
| Other Operating Wages | - | - | 100% Customer |
| Water Treatment Expense | - | - | 100% Customer |
| Heating Fuel | - | - | 100% Customer |
| Station Supplies and Expenses | - | - | 100% Customer |
| Permits and Fees | - | - | 100% Customer |
| Miscellaneous Production Expense | - | - | 100% Customer |
| Power Purchased | - | - | 100% Customer |
| Total Operation | - | - | |
| Production Maintenance | | | |
| WTP Buildings and Grounds | - | - | 100% Customer |
| WTP HVAC System | - | - | 100% Customer |
| Wellhouses | - | - | 100% Customer |
| Wellhead Protection | - | - | 100% Customer |
| Wells, Pumps and Mains | - | - | 100% Customer |
| Maintenance of WTP Equipment | - | - | 100% Customer |
| Maintenance of SCADA System - WTP | - | - | 100% Customer |
| Underground Clearwell | - | - | 100% Customer |
| Maintenance Inspections - WTP | - | - | 100% Customer |
| Total Maintenance | - | - | |
| Distribution Operation | | | |
| Supervision and Engineering | - | - | 100% Customer |
| Records (Mapping-Meters-Valves) | - | - | 100% Customer |
| Maintenance Inspections | - | - | 100% Customer |
| Thaw/Flush Hydrants, Mains, Services | - | - | 100% Customer |
| Locating Expense | - | - | 100% Customer |
| Service on Customer Premises | - | - | 100% Customer |
| Mapping Expense | - | - | 100% Customer |
| Small Tools Expense | - | - | 100% Customer |
| Safety Expense | - | - | 100% Customer |
| Seminar/Training Expense | - | - | 100% Customer |
| Uniforms Expense | - | - | 100% Customer |
| Miscellaneous Meetings | - | - | 100% Customer |
| Rentals | - | - | 100% Customer |
| Stores Expense (Labor) | - | - | 100% Customer |
| Total Distribution Operation | - | - | |
| Distribution Maintenance | | | |
| Towers and Tanks | - | - | 100% Customer |
| Elevated Tank Control System | - | - | 100% Customer |

Grand Rapids Public Utilities Commission
2021 Test Year Customer Classification

| REVENUE REQUIREMENT | 2021 <u>Test Year</u> | <u>Customer</u> | <u>Classification Basis</u> |
|--------------------------------------------|--------------------------|-----------------|-----------------------------|
| Booster Pump (21st St SW) | - | - | 100% Customer |
| Booster Station | - | - | 100% Customer |
| Mains and Hydrants | - | - | 100% Customer |
| Services | - | - | 100% Customer |
| Meters and Meter Installations | - | - | 100% Customer |
| Miscellaneous Distribution Expense | - | - | 100% Customer |
| Total Distribution Maintenance | - | - | |
| Other | | | |
| Truck Expense - Operation | - | - | 100% Customer |
| Total Other | - | - | |
| Customer Accounting | | | |
| Supervision | 26,434 | 26,434 | 100% Customer |
| Meter Reading | 2,426 | 2,426 | 100% Customer |
| Customer Billing and Accounting | 95,918 | 95,918 | 100% Customer |
| Collecting Expense | - | - | 100% Customer |
| Miscellaneous Expense | (1,847) | (1,847) | 100% Customer |
| Miscellaneous Customer Information | - | - | 100% Customer |
| Total Customer Accounting | 122,931 | 122,931 | |
| Administrative and General Expenses | | | |
| Administrative & General Salaries | 13,115 | 13,115 | 100% Customer |
| Commissioner Salaries | 616 | 616 | 100% Customer |
| City Treasurer Salary | 38 | 38 | 100% Customer |
| General Office Supplies and Phone | 1,931 | 1,931 | 100% Customer |
| Accounting Outside Service | 1,514 | 1,514 | 100% Customer |
| Data Processing Outside Service | 5,521 | 5,521 | 100% Customer |
| Legal Outside Service | 859 | 859 | 100% Customer |
| Engineering Outside Service | 781 | 781 | 100% Customer |
| Other Outside Service | 52 | 52 | 100% Customer |
| Fiber Optic Outside Service | - | - | 100% Customer |
| Insurance - Fire | - | - | 100% Customer |
| Insurance - Liability | - | - | 100% Customer |
| Insurance - Worker's Compensation | 2,611 | 2,611 | 100% Customer |
| Insurance - Worker's Comp Deductible | - | - | 100% Customer |
| Insurance - Auto | - | - | 100% Customer |
| Insurance - Miscellaneous | - | - | 100% Customer |
| Insurance Claims - Injuries & Damages | 2,292 | 2,292 | 100% Customer |
| Insurance - Group Health | 26,248 | 26,248 | 100% Customer |
| Insurance - Group Health Co-insurance | - | - | 100% Customer |
| Insurance - Group Health HSA funding | 6,426 | 6,426 | 100% Customer |
| Insurance - Group Life | 232 | 232 | 100% Customer |
| Employee Assistance Programs | - | - | 100% Customer |
| Insurance - Group Dental | 1,352 | 1,352 | 100% Customer |

Grand Rapids Public Utilities Commission
2021 Test Year Customer Classification

| | 2021 | | |
|-----------------------------------------|------------------|-----------------|-----------------------------|
| REVENUE REQUIREMENT | <u>Test Year</u> | <u>Customer</u> | <u>Classification Basis</u> |
| Insurance - Third Party Admin Costs | 63 | 63 | 100% Customer |
| FICA | - | - | 100% Customer |
| PERA | (10,466) | (10,466) | 100% Customer |
| Paid Time Off | 18,388 | 18,388 | 100% Customer |
| Extended Illness Benefit | 1,903 | 1,903 | 100% Customer |
| Short-Term Disability Payments | - | - | 100% Customer |
| Disability Insurance | 659 | 659 | 100% Customer |
| Unemployment Compensation | - | - | 100% Customer |
| Lump Sum Payments | - | - | 100% Customer |
| Miscellaneous General Expense | (269) | (269) | 100% Customer |
| Maintenance of General Plant | 671 | 671 | 100% Customer |
| Total Administrative and General | <u>74,539</u> | <u>74,539</u> | |
| Depreciation | - | - | 100% Customer |
| Amortization | - | - | 100% Customer |
| Total Operating Expenses | 197,470 | 197,470 | |
| Non Operating Revenues (Expenses) | | | |
| Interest expense | - | - | 100% Customer |
| Bond fees - long term debt | - | - | 100% Customer |
| Total Non-Operating Revenues (Expenses) | <u>-</u> | <u>-</u> | |
| Other Operating Revenues (Expenses) | | | |
| Service Connections | - | - | 100% Customer |
| Permit Fees | - | - | 100% Customer |
| Thawing Service | - | - | 100% Customer |
| Water Shutoff Fees | - | - | 100% Customer |
| Merchandising and Jobbing (Net) | - | - | 100% Customer |
| City of Grand Rapids Jobbing (Net) | - | - | 100% Customer |
| City of LaPrairie Jobbing (Net) | - | - | 100% Customer |
| Equipment Rental Revenue | - | - | 100% Customer |
| Service Center | - | - | 100% Customer |
| Lease revenues combined service center | - | - | 100% Customer |
| Antenna Rental Revenue | - | - | 100% Customer |
| Miscellaneous Income | - | - | 100% Customer |
| Total Other Operating Revenues | <u>-</u> | <u>-</u> | |
| Margin | - | - | 100% Customer |
| Total Revenue Requirement | \$ 197,470 | \$ 197,470 | |

Grand Rapids Public Utilities Commission
2021 Test Year Allocation Factors

| | <u>Total</u> | <u>Residential</u> | <u>Commercial</u> | <u>Industrial</u> | <u>Multi - Family</u> | <u>LaPrairie</u> |
|-------------------------------------------|--------------|--------------------|-------------------|-------------------|-----------------------|------------------|
| Demand Allocation Factors | | | | | | |
| System Peak Day - gallons | 1,533 | 449 | 731 | 146 | 167 | 40 |
| SPD | 100.0% | 29.3% | 47.7% | 9.5% | 10.9% | 2.6% |
| Class Peak Day - gallons | 1,884 | 573 | 731 | 332 | 167 | 83 |
| CPD | 100.0% | 30.4% | 38.8% | 17.6% | 8.8% | 4.4% |
| Class Peak Hour - gallons | 131 | 50 | 53 | 10 | 14 | 4 |
| CPH | 100.0% | 37.9% | 40.4% | 7.7% | 10.9% | 3.1% |
| Energy Allocation Factors | | | | | | |
| Commodity - gallons | 324,695 | 100,617 | 128,988 | 44,479 | 40,187 | 10,424 |
| C | 100.0% | 31.0% | 39.7% | 13.7% | 12.4% | 3.2% |
| Customers | | | | | | |
| Number of Customers | 3,287 | 2,581 | 582 | 6 | 116 | 2 |
| Equivalent Meter Weight | | 1.005 | 4.338 | 29.667 | 2.500 | 46.3 |
| Customer Service Weight | | 1.0 | 2.0 | 50.0 | 2.0 | 20.0 |
| Equivalent Meters | | | | | | |
| Weighted Number of Cust | 5,680 | 2,595 | 2,525 | 178 | 290 | 93 |
| EM | 100.0% | 45.7% | 44.5% | 3.1% | 5.1% | 1.6% |
| Customer Service Allocation Factor | | | | | | |
| Weighted Number of Cust | 4,317 | 2,581 | 1,164 | 300 | 232 | 40 |
| CS | 100.0% | 59.8% | 27.0% | 6.9% | 5.4% | 0.9% |
| Revenue Allocator | | | | | | |
| Sum of Other Rev Reqs | 1,769,358 | 663,861 | 730,408 | 155,208 | 174,346 | 45,536 |
| R | 100.0% | 37.5% | 41.3% | 8.8% | 9.9% | 2.6% |

Grand Rapids Public Utilities Commission
2021 Test Year Allocation of Revenue Requirements

| | <u>Total</u> | <u>Residential</u> | <u>Commercial</u> | <u>Industrial</u> | <u>Multi - Family</u> | <u>LaPrairie</u> | <u>Allocation Factor</u> |
|------------------------------|--------------|--------------------|-------------------|-------------------|-----------------------|------------------|------------------------------|
| <u>Plant</u> | | | | | | | |
| Demand | 490,586 | 143,741 | 233,956 | 46,751 | 53,295 | 12,842 | SPD |
| Commodity | 360,719 | 111,780 | 143,299 | 49,414 | 44,646 | 11,580 | C |
| Total Power Supply | 851,304 | 255,521 | 377,255 | 96,165 | 97,941 | 24,423 | |
| <u>Distribution</u> | | | | | | | |
| Demand | 499,639 | 189,353 | 201,692 | 38,396 | 54,512 | 15,685 | CPH |
| Customer Facilities | 220,946 | 100,926 | 98,216 | 6,924 | 11,281 | 3,598 | EM |
| Total Distribution | 720,585 | 290,279 | 299,909 | 45,320 | 65,793 | 19,284 | |
| <u>Customer</u> | | | | | | | |
| Customer Service | 197,470 | 118,061 | 53,244 | 13,723 | 10,612 | 1,830 | CS |
| Total Customer Facility | 197,470 | 118,061 | 53,244 | 13,723 | 10,612 | 1,830 | |
| <u>Revenue</u> | | | | | | | |
| Other Operating Revenue | (194,482) | (72,970) | (80,284) | (17,060) | (19,164) | (5,005) | R |
| Margin | 165,296 | 62,019 | 68,236 | 14,500 | 16,288 | 4,254 | R |
| Total Revenue | (29,186) | (10,951) | (12,048) | (2,560) | (2,876) | (751) | |
| Total Revenue Requirements | 1,740,172 | 652,911 | 718,359 | 152,648 | 171,470 | 44,785 | |
| Total Revenues | 1,740,172 | 666,661 | 605,610 | 176,054 | 249,974 | 41,873 | |
| Percent Revenue Requirements | 100.0% | 37.5% | 41.3% | 8.8% | 9.9% | 2.6% | |
| Percent Revenues | 100.0% | 38.3% | 34.8% | 10.1% | 14.4% | 2.4% | |
| Percent Change | 0.0% | -2.1% | 18.6% | -13.3% | -31.4% | 7.0% | |
| Revenue Req/unit | 5.359 | 6.489 | 5.569 | 3.432 | 4.267 | 4.296 | |
| Revenue/unit | 5.359 | 6.626 | 4.695 | 3.958 | 6.220 | 4.017 | |

Section 4

Proposed Rates

Changes to rates are generally based on the overall need for revenues and results of the cost-of-service analyses. The projected operating results at existing rates as presented in Section 2 of this report outline the overall revenue needs of the water utility. Section 3 summarizes the cost-of-service results. These factors have been considered in developing the proposed rates summarized in this section of the report.

Proposed Rates

Revenue Needs

In Section 2, it shows that GRPUC's projected annual change in water net income, assuming continuation of the existing retail rates, decreases from 0.1% in 2022 to **negative** 39.3% in 2027. GRPUC's projected cash reserves decline from \$1.1 million to **negative** \$3.9 million by the end of the Study Period. For the water utility, a series of annual 10% rate increases are recommended for 2023 through 2027.

Cost of Service Considerations

The results of the water cost-of-service analysis in Section 3 indicate that there are subsidies from Multi-Family and Industrial customers to Commercial customers and the City LaPrairie. Rate increases for different groups of customers vary based on the cost-of-service results. Table 4-1 shows the average rate increases by customer class and for the total system through the Study Period.

Section 4

Table 4-1
Average Annual Rate Increases

| Customer Class | Avg Increase |
|-----------------------|---------------------|
| Residential | 10.0% |
| Commercial | 12.5% |
| Industrial | 8.1% |
| Multi-Family | 4.7% |
| LaPrairie | 10.4% |
| Total System | 10.0% |

Recommended Rates

Exhibit 4-A shows the existing and recommended water rates by customer class for each year from 2023-2027.

Projected Operating Results – Proposed Rates

Based on the proposed rates outlined above, the resulting projected operating results are summarized below in Table 4-2. A summary presentation of the operating results is shown in Exhibit 4-B.

**Table 4-2
Projected Operating Results
Proposed Rates**

| Year | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|-----------------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Operating Revenues | \$1,917,471 | \$2,104,403 | \$2,314,504 | \$2,548,847 | \$2,810,666 | \$3,103,141 |
| Less Operating Expenses | (1,857,320) | (1,924,009) | (2,188,640) | (2,309,776) | (2,422,246) | (2,536,321) |
| Less Non -Operating Expenses | <u>(58,171)</u> | <u>(69,105)</u> | <u>(293,836)</u> | <u>(288,518)</u> | <u>(279,975)</u> | <u>(274,149)</u> |
| Net Income | \$1,980 | \$111,289 | \$(167,972) | \$(49,447) | \$108,444 | \$292,670 |
| Net Income as Percent of Revenues | 0.1% | 5.3% | -7.3% | -1.9% | 3.9% | 9.4% |

Cash Reserves

A summary of the impact of the projected operating results with the proposed rate adjustments on GRPUC's cash reserves for the Study Period is shown at the end of Exhibit 4-B and in Table 4-3 below. As shown below, with the recommended increases, the reserve levels in 2027 increase from **negative** 194% of operating revenue to **negative** 14% of operating revenue. This represents an increase of \$3.5 million.

Section 4

Table 4-3
Projected Cash Reserves
Proposed Rates

| Year | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|------------------------------------|-------------|-------------|------------------|------------------|------------------|------------------|
| Beginning Balance | \$1,087,187 | \$178,992 | \$(689,700) | \$619,768 | \$(21,990) | \$(391,611) |
| Plus Net Income | 1,980 | 111,289 | (167,972) | (49,447) | 108,444 | 292,670 |
| Less Capital Improvements | (452,761) | (6,005,500) | (1,363,575) | (973,580) | (912,511) | (1,274,000) |
| Less ERP Project Costs | - | (80,833) | - | - | - | - |
| Plus Depreciation | 332,035 | 347,127 | 547,310 | 592,763 | 625,216 | 654,633 |
| Plus State Grants | - | - | 2,500,000 | - | - | - |
| Plus Available Bond Funds | - | 4,850,000 | - | - | - | - |
| Less Existing Debt Principal | (789,450) | (90,775) | (94,100) | (94,250) | (68,250) | (71,500) |
| Less New Debt Principal | - | - | <u>(112,195)</u> | <u>(117,244)</u> | <u>(122,520)</u> | <u>(128,033)</u> |
| Ending Balance | \$178,992 | \$(689,700) | \$619,768 | \$(21,990) | \$(391,611) | \$(917,842) |
| Reserves as % of Operating Revenue | 9.3% | -32.8% | 26.8% | -0.9% | -13.9% | -29.6% |

Residential Bill Impact

Table 4-4 below summarizes the impact on monthly bills for different size residential customers. An average GRPUC residential customer consumes approximately 3000 gallons per month. For that average size customer, the first year bill increase is \$2.01 per month. For all customer usages shown, the annual increases are 10% through 2027.

Table 4-4
Monthly Water Bill Comparisons

| Residential Usage (gallons) | 2,000 | 3,000 | 6,000 |
|----------------------------------------|--------------|--------------|--------------|
| Current Rate | \$16.25 | \$20.04 | \$33.39 |
| 2023 Proposed | 17.88 | 22.05 | 36.74 |
| 2024 Proposed | 19.67 | 24.26 | 40.43 |
| 2025 Proposed | 21.64 | 26.69 | 44.48 |
| 2026 Proposed | 23.81 | 29.37 | 48.95 |
| 2027 Proposed | 26.20 | 32.32 | 53.86 |

Grand Rapids Public Utilities Commission
Existing and Proposed Rates

Exhibit 4-A

| Class | Current Rate | 2023 Proposed Rate | 2024 Proposed Rate | 2025 Proposed Rate | 2026 Proposed Rate | 2027 Proposed Rate |
|------------------------------------------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Customer Charges | | | | | | |
| Residential/Commercial/Industrial | | | | | | |
| 5/8-3/4 inch | 8.67 | 9.54 | 10.49 | 11.54 | 12.69 | 13.96 |
| 1 inch | 12.08 | 13.29 | 14.62 | 16.08 | 17.69 | 19.46 |
| 1 1/4 inch | 13.87 | 15.26 | 16.79 | 18.47 | 20.32 | 22.35 |
| 1 1/2 inch | 15.54 | 17.10 | 18.81 | 20.69 | 22.76 | 25.04 |
| 2 inch | 25.12 | 27.63 | 30.39 | 33.43 | 36.77 | 40.45 |
| 3 inch | 95.13 | 104.64 | 115.10 | 126.61 | 139.27 | 153.20 |
| 4 inch | 121.01 | 133.11 | 146.42 | 161.06 | 177.17 | 194.89 |
| 6 inch | 181.58 | 199.74 | 219.71 | 241.68 | 265.85 | 292.44 |
| Multi-Family | | | | | | |
| Unit Charge | 5.20 | 5.46 | 5.73 | 6.02 | 6.32 | 6.64 |
| Customer charge | 3.47 | 3.82 | 4.20 | 4.62 | 5.08 | 5.59 |
| Commodity Charges | | | | | | |
| Residential | | | | | | |
| 0-4,000 | 3.79 | 4.17 | 4.59 | 5.05 | 5.56 | 6.12 |
| 4,000-8,000 | 4.78 | 5.26 | 5.79 | 6.37 | 7.01 | 7.71 |
| 8,000-30,000 | 5.99 | 6.59 | 7.25 | 7.98 | 8.78 | 9.66 |
| over 30,000 | 9.57 | 10.53 | 11.58 | 12.74 | 14.01 | 15.41 |
| Commercial | | | | | | |
| 0-40,000 | 3.33 | 3.77 | 4.27 | 4.84 | 5.48 | 6.21 |
| 40,000-400,000 | 4.11 | 4.66 | 5.28 | 5.98 | 6.78 | 7.68 |
| over 400,000 | 5.25 | 5.95 | 6.74 | 7.64 | 8.66 | 9.81 |
| Industrial | | | | | | |
| 0-400,000 | 3.33 | 3.60 | 3.89 | 4.20 | 4.54 | 4.90 |
| over 400,000 | 4.11 | 4.44 | 4.80 | 5.18 | 5.59 | 6.04 |
| Multi-Family | | | | | | |
| 0-4,000 per unit | 3.79 | 3.98 | 4.18 | 4.39 | 4.61 | 4.84 |
| 4,000-8,000 per unit | 4.78 | 5.02 | 5.27 | 5.53 | 5.81 | 6.10 |
| 8,000-30,000 per unit | 5.99 | 6.29 | 6.60 | 6.93 | 7.28 | 7.64 |
| over 30,000 per unit | 9.57 | 10.05 | 10.55 | 11.08 | 11.63 | 12.21 |
| Rural Industrial (LaPrairie) | | | | | | |
| 0-400,000 | 3.33 | 3.68 | 4.07 | 4.50 | 4.97 | 5.49 |
| over 400,000 | 4.11 | 4.54 | 5.02 | 5.55 | 6.13 | 6.77 |

Grand Rapids Public Utilities Commission
Water Operating Results at Proposed Rates

| | Historical | | | | | Projected | | | | | |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| OPERATING REVENUES | | | | | | | | | | | |
| Utility Revenues | | | | | | | | | | | |
| City sales | \$ 1,465,307 | \$ 1,453,122 | \$ 1,543,505 | \$ 1,531,862 | \$ 1,633,096 | \$ 1,626,338 | \$ 1,803,592 | \$ 2,003,554 | \$ 2,227,090 | \$ 2,477,411 | \$ 2,757,578 |
| Rural sales | 34,796 | 30,816 | 34,744 | 35,249 | 37,877 | 38,616 | 43,243 | 48,231 | 53,784 | 59,923 | 66,764 |
| Total Utility Revenues | \$ 1,500,103 | \$ 1,483,938 | \$ 1,578,249 | \$ 1,567,111 | \$ 1,670,973 | \$ 1,664,954 | \$ 1,846,835 | \$ 2,051,785 | \$ 2,280,874 | \$ 2,537,334 | \$ 2,824,342 |
| Other Operating Revenues | | | | | | | | | | | |
| Miscellaneous service | \$ 184,560 | \$ 219,813 | \$ 247,799 | \$ 209,774 | \$ 213,862 | \$ 252,517 | \$ 257,568 | \$ 262,719 | \$ 267,973 | \$ 273,332 | \$ 278,799 |
| Penalties | 5,307 | 5,564 | 5,492 | 1,157 | 1,676 | - | - | - | - | - | - |
| Total Operating Revenues | \$ 1,689,970 | \$ 1,709,315 | \$ 1,831,540 | \$ 1,778,042 | \$ 1,886,511 | \$ 1,917,471 | \$ 2,104,403 | \$ 2,314,504 | \$ 2,548,847 | \$ 2,810,666 | \$ 3,103,141 |
| OPERATING EXPENSES | | | | | | | | | | | |
| Production | | | | | | | | | | | |
| Operations | | | | | | | | | | | |
| Supervision and engineering | \$ - | \$ 5,468 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Operators wages | 141,248 | 144,538 | 152,676 | 158,636 | 161,855 | 182,512 | 187,987 | 197,387 | 207,256 | 217,619 | 228,500 |
| Water treatment expense | 91,516 | 96,407 | 89,041 | 111,014 | 114,019 | 101,460 | 106,533 | 109,729 | 113,021 | 116,411 | 119,904 |
| Station Supplies and Expenses | | | | | | 2,325 | 2,441 | 2,514 | 2,590 | 2,668 | 2,748 |
| Permits and Fees | | | | | | 3,900 | 4,095 | 4,218 | 4,344 | 4,475 | 4,609 |
| Miscellaneous Production Expense | | | | | | 15,000 | 15,750 | 16,223 | 16,709 | 17,210 | 17,727 |
| Power purchased | 164,487 | 167,067 | 169,964 | 168,760 | 195,190 | 166,570 | 174,899 | 180,145 | 185,550 | 191,116 | 196,850 |
| Other | 18,360 | 16,251 | 22,818 | 18,573 | 26,250 | - | - | - | - | - | - |
| Maintenance | | | | | | | | | | | |
| Supervision | 15,232 | 8,404 | 209 | - | - | - | - | - | - | - | - |
| WTP buildings and grounds | 13,609 | 7,904 | 10,565 | 6,761 | 17,906 | 18,600 | 19,530 | 20,116 | 20,719 | 21,341 | 21,981 |
| WTP HVAC System | | | | | | 1,000 | 1,050 | 1,082 | 1,114 | 1,147 | 1,182 |
| Wellhouses | | | | | | 4,500 | 4,725 | 4,867 | 5,013 | 5,163 | 5,318 |
| Wellhead protection | | | | | | 1,000 | 1,050 | 1,082 | 1,114 | 1,147 | 1,182 |
| Wells, pumps, mains | 4,150 | 3,678 | 4,577 | 6,009 | 14,353 | 2,400 | 2,520 | 2,596 | 2,673 | 2,754 | 2,836 |
| Maintenance of WTP equipment | 37,707 | 32,868 | 40,549 | 62,363 | 51,511 | 60,490 | 66,015 | 67,995 | 70,035 | 72,136 | 74,300 |
| Maintenance of SCADA System | | | | | | 8,040 | 11,442 | 8,785 | 9,049 | 9,320 | 9,600 |
| Underground Clearwell | | | | | | 5,500 | 5,775 | 5,948 | 6,127 | 6,310 | 6,500 |
| DCS | 7,154 | 7,037 | 7,922 | 6,954 | 8,183 | - | - | - | - | - | - |
| Inspections | 9,231 | 6,975 | 10,594 | 4,630 | 2,381 | 3,504 | 8,679 | 8,940 | 9,208 | 9,484 | 9,769 |
| Total Production Expenses | \$ 502,694 | \$ 496,597 | \$ 508,915 | \$ 543,700 | \$ 591,648 | \$ 576,801 | \$ 612,491 | \$ 631,625 | \$ 654,522 | \$ 678,303 | \$ 703,004 |
| Distribution | | | | | | | | | | | |
| Operations | | | | | | | | | | | |
| Supervision and engineering | \$ 17,899 | \$ 10,045 | \$ 27,437 | \$ 29,361 | \$ 43,108 | 38,593 | 39,751 | 41,738 | 43,825 | 46,016 | 48,317 |
| Records | 17,561 | 13,282 | 4,714 | 10,527 | 1,275 | 4,800 | 5,040 | 5,191 | 5,347 | 5,507 | 5,673 |
| Inspections | 1,289 | - | 619 | 6,325 | 11,359 | 9,000 | 17,950 | 18,489 | 19,043 | 19,614 | 20,203 |
| Thaw and flush hydrants, etc. | 376 | 10,005 | 18,499 | 4,932 | 8,054 | 11,700 | 12,285 | 12,654 | 13,033 | 13,424 | 13,827 |
| Locating expense | - | - | 15,686 | 21,105 | 13,630 | 21,000 | 21,630 | 22,712 | 23,847 | 25,039 | 26,291 |
| Service on customer premises | 6,195 | 8,841 | 21,008 | 7,372 | 46,238 | 21,996 | 22,656 | 23,789 | 24,978 | 26,227 | 27,538 |
| Mapping | 10,459 | 18,877 | 28,554 | 30,799 | 30,810 | 34,272 | 35,300 | 37,065 | 38,918 | 40,864 | 42,908 |
| Small tools | 2,672 | 2,440 | 1,665 | 3,412 | 3,465 | 2,400 | 6,920 | 2,728 | 2,809 | 2,894 | 2,981 |
| Safety | 3,674 | 9,408 | 5,683 | 9,000 | 14,826 | 16,500 | 16,995 | 17,845 | 18,737 | 19,674 | 20,658 |
| Seminar/training | 18,907 | 20,102 | 19,287 | 14,211 | 20,365 | 19,200 | 19,776 | 20,765 | 21,803 | 22,893 | 24,038 |
| Uniforms Expense | | | | | | 300 | 315 | 324 | 334 | 344 | 355 |
| Other | (4,253) | 139 | 79 | 57 | 378 | - | - | - | - | - | - |
| Stores | 12,323 | 12,905 | 837 | 15,074 | 24,983 | 14,255 | 14,683 | 15,417 | 16,188 | 16,997 | 17,847 |
| Maintenance | | | | | | | | | | | |
| Towers and tanks | 57,562 | 50,438 | 3,076 | 8,573 | 16,669 | 5,000 | 5,250 | 5,408 | 5,570 | 5,737 | 5,909 |
| Elevated Tank Control System | | | | | | 2,400 | 2,520 | 2,596 | 2,673 | 2,754 | 2,836 |

Grand Rapids Public Utilities Commission
Water Operating Results at Proposed Rates

| | Historical | | | | | Projected | | | | | |
|---------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| Booster Pump | | | | | | 2,130 | 2,237 | 2,304 | 2,373 | 2,444 | 2,517 |
| Booster station | 106 | 372 | 705 | 303 | 2,563 | 500 | 525 | 541 | 557 | 574 | 591 |
| Mains and hydrants | 128,861 | 182,080 | 108,480 | 138,680 | 93,945 | 232,000 | 200,000 | 206,000 | 212,180 | 218,545 | 225,102 |
| Services | 25,327 | 10,046 | 18,326 | 9,019 | 43,923 | 46,000 | 29,925 | 30,823 | 31,747 | 32,700 | 33,681 |
| Meters | 4,621 | 5,249 | (367) | (2,553) | 8,584 | 2,400 | 6,972 | 7,321 | 7,687 | 8,071 | 8,475 |
| Other | 10,042 | 3,060 | 472 | 147 | 5,320 | - | - | - | - | - | - |
| Total Distribution Expenses | \$ 313,621 | \$ 357,289 | \$ 274,760 | \$ 306,344 | \$ 389,495 | \$ 484,446 | \$ 460,729 | \$ 473,706 | \$ 491,650 | \$ 510,319 | \$ 529,745 |
| Other Operating Expenses | | | | | | | | | | | |
| Customer accounts expense | \$ 90,247 | \$ 92,884 | \$ 101,017 | \$ 88,418 | \$ 122,931 | \$ 91,935 | \$ 94,710 | \$ 99,428 | \$ 104,382 | \$ 109,584 | \$ 115,044 |
| Administrative and general | 322,604 | 336,698 | 330,815 | 320,734 | 335,912 | 372,103 | 408,953 | 436,570 | 466,459 | 498,825 | 533,895 |
| Depreciation - water | 272,370 | 293,004 | 305,680 | 325,827 | 331,343 | 331,035 | 346,127 | 546,310 | 591,763 | 624,216 | 654,633 |
| Depreciation - other | 16,395 | 16,519 | 15,984 | 17,288 | 17,727 | - | - | - | - | - | - |
| Amortization - intangibles | 5,948 | 5,868 | 5,457 | 4,786 | 4,852 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | - |
| Service center | 22,098 | 17,749 | 21,258 | 18,027 | 20,513 | - | - | - | - | - | - |
| Total Other Operating Expenses | \$ 729,662 | \$ 762,722 | \$ 780,211 | \$ 775,080 | \$ 833,278 | \$ 796,073 | \$ 850,789 | \$ 1,083,309 | \$ 1,163,604 | \$ 1,233,624 | \$ 1,309,572 |
| Total Operating Expenses | \$ 1,545,977 | \$ 1,616,608 | \$ 1,563,886 | \$ 1,625,124 | \$ 1,814,421 | \$ 1,857,320 | \$ 1,924,009 | \$ 2,188,640 | \$ 2,309,776 | \$ 2,422,246 | \$ 2,536,321 |
| NET OPERATING INCOME | \$ 143,993 | \$ 92,707 | \$ 267,654 | \$ 152,918 | \$ 72,090 | \$ 60,151 | \$ 180,394 | \$ 125,864 | \$ 239,071 | \$ 388,420 | \$ 566,820 |
| NON-OPERATING INCOME (EXPENSES) | | | | | | | | | | | |
| Gain (loss) on property disposition | \$ 3,000 | \$ - | \$ (105,172) | \$ 1,125 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Penalties | - | - | - | - | - | 12,085 | 11,400 | 11,400 | 11,400 | 11,400 | 11,400 |
| Bond fees | (342) | (606) | (533) | (1,132) | (992) | (500) | (500) | (500) | (500) | (500) | (500) |
| Amortization of debt premiums and discounts | (271) | (271) | (271) | (974) | (974) | - | - | - | - | - | - |
| Amortization of regulatory asset | (703) | (703) | (703) | - | (642) | - | - | - | - | - | - |
| Interest expense - customer deposits | (4,347) | (4,208) | (1,295) | - | - | (1,140) | (1,140) | (1,140) | (1,140) | (1,140) | (1,140) |
| Interest expense - existing debt | (34,300) | (32,639) | (31,242) | (28,771) | (28,643) | (12,818) | (18,964) | (17,063) | (15,113) | (13,114) | (11,018) |
| Interest expense - new debt (1) | - | - | - | - | - | - | - | (225,000) | (219,951) | (214,675) | (209,162) |
| Lease revenues combined service center | 20,927 | 2,983 | 5,845 | 4,794 | 3,265 | 5,113 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |
| CSC Building/Grounds expenses | - | - | - | - | - | (60,910) | (63,501) | (65,133) | (66,815) | (65,546) | (67,330) |
| Total Non-Operating Revenues (Expenses) | \$ (16,036) | \$ (35,444) | \$ (133,371) | \$ (24,958) | \$ (27,986) | \$ (58,171) | \$ (69,105) | \$ (293,836) | \$ (288,518) | \$ (279,975) | \$ (274,149) |
| NET INCOME | \$ 127,957 | \$ 57,263 | \$ 134,283 | \$ 127,960 | \$ 44,104 | \$ 1,980 | \$ 111,289 | \$ (167,972) | \$ (49,447) | \$ 108,444 | \$ 292,670 |
| as a percent of Operating Revenues | 7.6% | 3.4% | 7.3% | 7.2% | 2.3% | 0.1% | 5.3% | -7.3% | -1.9% | 3.9% | 9.4% |
| CASH RESERVES | | | | | | | | | | | |
| Beginning of Year | | | | | | \$ 1,087,187 | \$ 178,992 | \$ (689,700) | \$ 619,768 | \$ (21,990) | \$ (391,611) |
| Plus Net Income | | | | | | 1,980 | 111,289 | (167,972) | (49,447) | 108,444 | 292,670 |
| Less Capital Improvements | | | | | | (452,761) | (6,005,500) | (1,363,575) | (973,580) | (912,511) | (1,274,000) |
| Less ERP Project Costs | | | | | | - | (80,833) | - | - | - | - |
| Plus Depreciation | | | | | | 332,035 | 347,127 | 547,310 | 592,763 | 625,216 | 654,633 |
| Plus State Grant Funds | | | | | | - | - | 2,500,000 | - | - | - |
| Plus Available Bond Funds | | | | | | - | 4,850,000 | - | - | - | - |
| Less Debt Service Principal | | | | | | (789,450) | (90,775) | (94,100) | (94,250) | (68,250) | (71,500) |
| Less New Debt Principal (1) | | | | | | - | - | (112,195) | (117,244) | (122,520) | (128,033) |
| End of Year | | | | | \$ 1,087,187 | \$ 178,992 | \$ (689,700) | \$ 619,768 | \$ (21,990) | \$ (391,611) | \$ (917,842) |
| As a percent of revenue | | | | | 57.6% | 9.3% | -32.8% | 26.8% | -0.9% | -13.9% | -29.6% |

(1) Assumes \$5.0 million bond issue in late FY 2023