

La Plata West Water Authority

Water Rate Analysis

April 2020

Prepared by:



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Summary

Water Demand Study

In order to project the revenues La Plata West Water Authority (LPWWA) would collect through monthly billing, the water demand study estimates how much water each of its customers will use for each month of the year. Because LPWWA is a new water system and does not have historic water use and billing records, the water demand analysis relies on data about regional and/or comparable domestic water providers. The water demand analysis finds that 3,000 gallons per month is a reasonable estimate of water for essential residential household use. An estimated one-third of residential customers will increase their water use during summer months, mostly due to irrigation. The estimated average monthly water use is 3,700 gallons per subscriber per month.

Cost Analysis and Projections

The cost analysis is focused on cost items that will recur each year including operations and maintenance, water supply costs, debt payments and required transfers into reserve funds. The consulting team worked closely with LPWWA to create an adjusted 2020 budget of just under \$242k that accounts for several factors that are unique to the first year. Beginning in 2021 LPWWA the one-time variances that occurred during 2020 will no longer apply. Inflation factors and increasing volumes of purchased treated water will increase costs from about \$367k in 2021 to over \$386k in 2024.

Recommended Water Rate

The recommended water rate consists of a base monthly rate, to be charged to and paid by all subscribers each month of the year. The Water Demand Analysis concluded that 3,000 gallons per month is a reasonable estimate of water for essential household use. Three thousand (3,000) gallons of water per month per account is included for all customers as a benefit of paying the base rate. All subscribers will be required to pay the base rate, even if they do not use water or use less than 3,000 gallons. The recommended overage charge is \$25 per month for each additional increment of 1,000 gallons over 3,000 gallons. Each 1,000 gallons over 3,000 gallons is a discrete increment for billing purposes and is charged in full. For example, an account using 3,300 gallons during one monthly billing period will be charged the base rate (\$195/mo) plus overage for an additional 1,000 gallons (\$25).

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$195	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

Cashflow projections show that 2020 will result in a deficit of about \$53k, but beginning in 2021, the organization is projected to realize positive net income of over \$20k per year through the five-year budget horizon. Unrestricted cash reserves would be approximately \$100k by year end 2024. The \$50k operating reserve target is projected to be met by the revenues generated by the Recommended Rate by year end 2022 at which point the



positive net income may be directed into the capital replacement reserve fund. By 2024, 14% of the \$342k needed for capital replacement reserve fund will be met.

Minimal Rate

The minimal water rate emphasizes short-term cost savings to subscribers by setting a minimum base rate that covers the baseline recurring costs by a very narrow margin that does not effectively build operating and capital outlay cash reserves.

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$185	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

The cashflow projections show that 2020 will result in a deficit of about \$62k. Beginning in 2021, the organization is projected to realize minimal positive net income through the five-year budget horizon. The \$50k operating reserve target will be about half funded by year end 2024 given the minimal rate (see Appendix E–Minimal Rate Reserve Fund Analysis). None of the \$342k in capital replacement reserve fund needs will have been met by the end of the five-year budget horizon if the minimal rate is implemented. The minimal rate is not recommended by RPI Consulting because the fiscal/budgetary consequences of reducing base rate by \$10/month per subscriber are severe and the margins are very thin. There would not be enough cash reserves to buffer minor cost overruns, and not nearly enough cash on hand to cover a moderate or major unforeseen expense.



Estimated Water Demand

Because LPWWA is a new water system and does not have historic water use and billing records, this water demand analysis relies on data about regional and/or comparable domestic water providers. The analysis maintains a focus on estimating indoor household water use. This indoor use baseline is important because many of the LPWWA account holders have a groundwater well that they can continue to use for irrigation. Many households have hauled their domestic water and have not likely irrigated with domestic water in the past. While maintaining this focus on baseline indoor household use, this study builds in an assumption that some households will use LPWWA water for yard irrigation.

Data covering indoor water use is scarce because most domestic water systems also provide water for yard irrigation. The Town of Ignacio has a raw water irrigation system, so its average of 4,000 gallons per month per household is almost entirely attributable to indoor use. Wastewater flows are a close equivalent to indoor water use. City of Durango's 2019 wastewater rate study cited residential wastewater flows translating to 2,900 gallons per month per single family unit.

Water systems that are used by customers indoors and for yard irrigation are more common. La Plata Archuleta Water District 2019 monthly billing summary shows an average of 4,100 gallons per month per residential account. Lake Durango's individual (vs. bulk) customers throughout various subdivisions use 2,700 gallons per account per month on average. The Colorado Conservation Board 2018 survey of water providers found that Town of Paonia, which also serves yard irrigation, uses an average of 32 gallons per capita/day, or 2,100 gallons per household per month. The EPA conducted a study in 2016 that found that households who deliberately conserved water used about half the national average at about 2,600 gallons per month per household.

Figure 1 – Residential Water Demand per Unit Comparisons

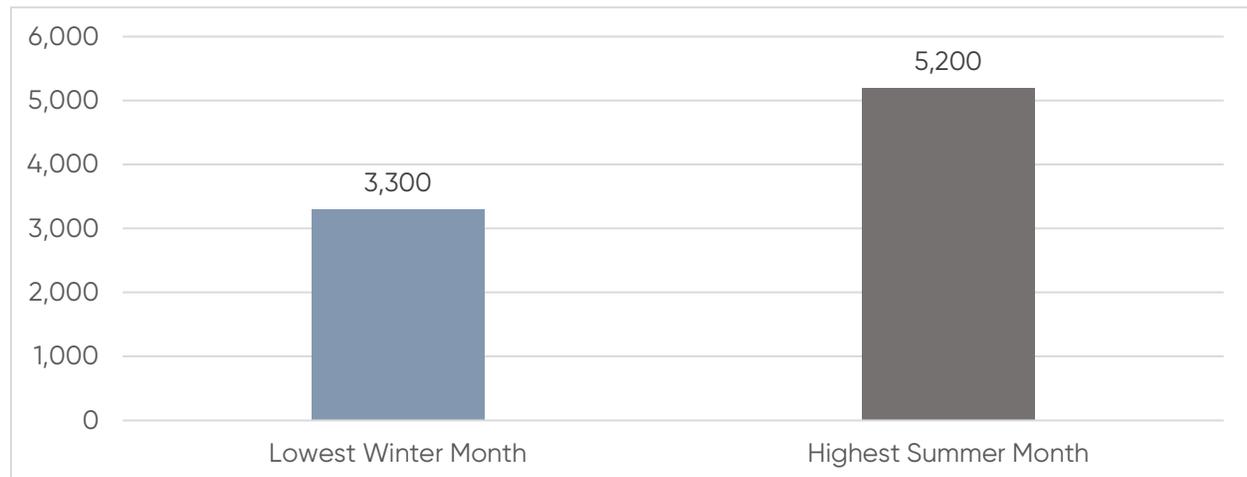
	Average Monthly Water Use Per Household	Average Gallons per Day Per Capita
Town of Ignacio Indoor Water Use (RPI Rate Study 2018)	4,000	52
City of Durango Indoor (Water and Wastewater Rate and Fee Study 2019)	2,900	39
La Plata Archuleta Water Dist. Indoor/Outdoor (District Manager, Jan-Sept 2019)	4,100	57
Lake Durango Water Authority Indoor/Outdoor (Retail Customers, Water Demand Study 2008)	2,700	38
Town of Paonia Indoor/Outdoor (Colorado Water Conservation Board 2018)	2,100	32
Conservation Indoor Water Use (EPA Best Practices 2016)	2,600	36.5



Water demand data provided by the La Plata Archuleta Water District (LPAWD) are especially relevant for estimating water demand for La Plata West Water Authority (LPWWA) because both are new providers and have a similar scale and geography. As of September 2019, LPAWD had 121 active service connections, 119 of which were residential, LPWWA currently has 154 subscribers, 152 of which are residential. Customers of LPAWD may use their groundwater wells for non-household use, including irrigation and the same will be true for LPWWA customers. Many residents in both areas have hauled water for household use.

While the year-round monthly averages presented in Figure 1 are a useful frame of reference, water demand must be analyzed on a seasonal basis. LPAWD residential customers use an average of 3,300 gallons during the lowest water use month (February) when nearly all of the water use is indoors and very little is used for irrigation. During the height of summer (July), when more water is used for irrigation, the average monthly use for LPAWD customers is 5,200 gallons per month.

Figure 2 – Average Gals/Month per Residential Customer – La Plata Archuleta Water District 2019

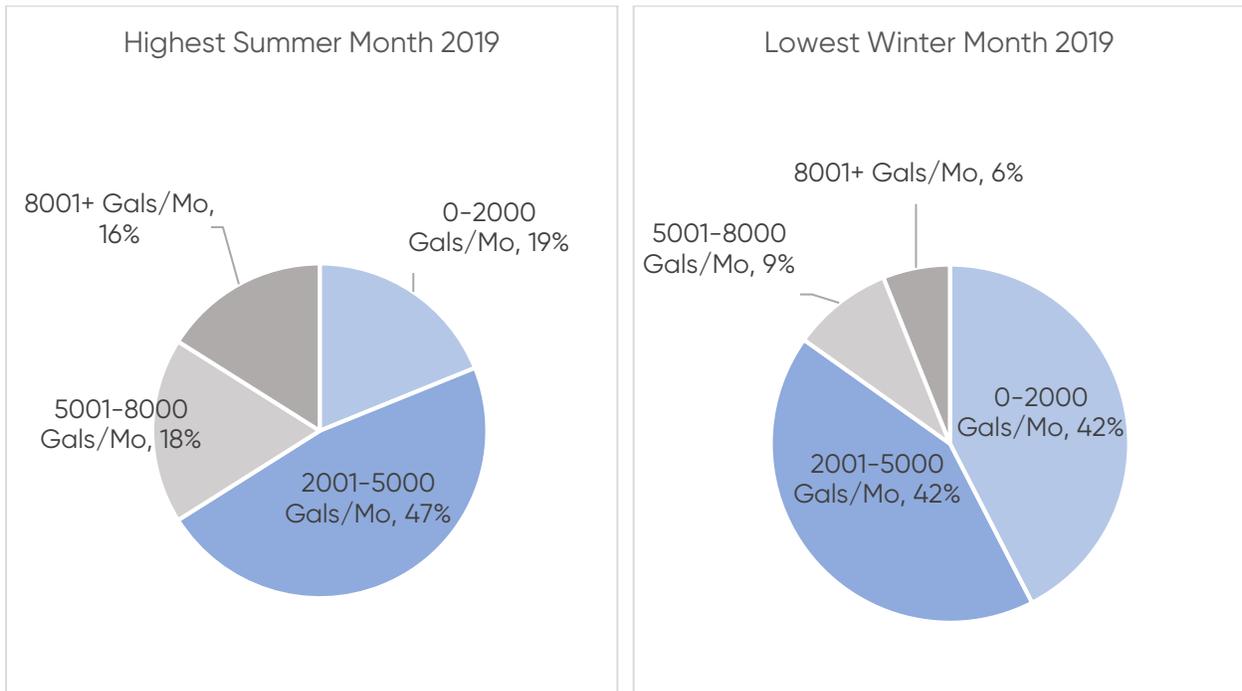


Source: La Plata Archuleta Water District

This water demand study goes further than estimating monthly average use by season. In order to project the revenues LPWWA would collect through monthly billing, the study must estimate how much water each of its customers will use. LPAWD tracks the number of accounts that fall into each tier of water use by month (see Figures 3 & 4). During the lowest winter month of 2019, 42% of LPAWD residential customers used 2,000 gallons of water or less and 42% used between 2,001 and 5,000 gallons. During the highest summer month, one-third of LPAWD customers use over 5,000 gallons per month.



Figures 3 & 4 – Household Tiers – % of Customers by Gallons per Month – La Plata Archuleta Water District 2019



Source: La Plata Archuleta Water District 2019

The monthly profile of accounts by usage tier in La Plata Archuleta Water District is a key input for estimating water use by La Plata West Water Authority customers. Two observations will inform LPWWA water usage estimates: 1) even during winter, a small percentage of accounts fall into the higher usage tiers; 2) even though residents of La Plata Archuleta Water District have been allowed to continue using their groundwater wells for outdoor irrigation, the percentage of accounts in the higher usage tiers increases during the warmer season showing that many customers are using treated water for irrigation.

Figure 5 – % of Residential Accounts by Water Usage Tier, La Plata Archuleta Water District

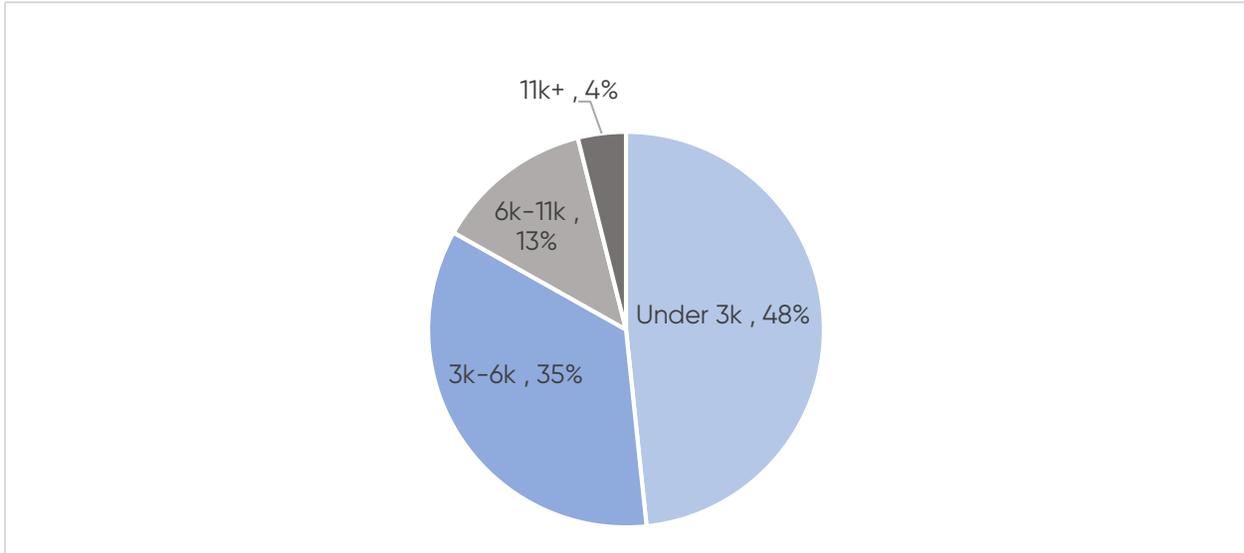
Mo-Yr	0-2000 Gals/Mo	2001-5000 Gals/Mo	5001-8000 Gals/Mo	8001+ Gals/Mo
Jan-19	34%	48%	12%	5%
Feb-19	42%	42%	9%	6%
Mar-19	38%	43%	13%	6%
Apr-19	34%	46%	17%	3%
May-19	33%	48%	14%	5%
Jun-19	25%	42%	16%	17%
Jul-19	19%	47%	18%	16%
Aug-19	24%	52%	14%	11%
Sep-19	25%	49%	17%	9%

Source: La Plata Archuleta Water District 2019



Town of Ignacio also tracks the number of accounts in each tier of monthly water use. Town of Ignacio has a separate raw water system for outdoor irrigation, so its municipal water use is comparable to LPAWD winter use when very little water is used for irrigation. About half of Ignacio water customers use less than 3,000 gallons per month and 17% use over 6,000 gallons per month.

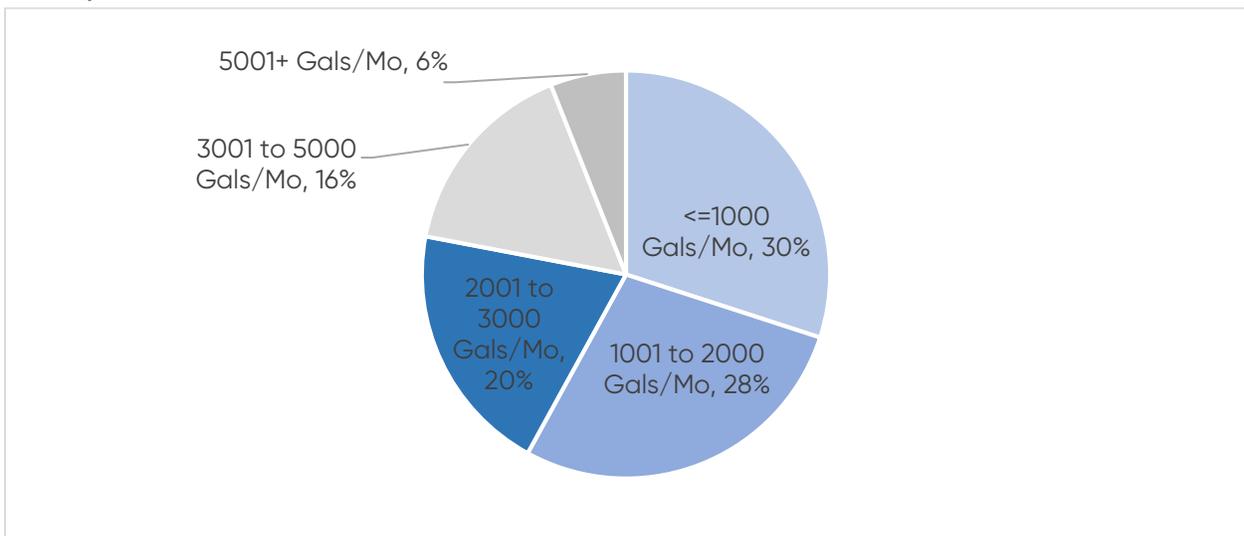
Figure 6 – % of Customers by Gallons per Month (Average Month 2018) Town of Ignacio – Irrigation is a Separate System



Source: Town of Ignacio, 2018

LPWWA conducted a survey of property owners in the service area that asked if they hauled water and how much they haul per month. Of those that haul water, 78% hauled 3,000 or less gallons per month. Over half of those who haul water in LPWWA’s service area used 2,000 gallons or less.

Figure 7 – Water Hauled per Month per Household 2019 LPWWA Property Owner Survey



Source: LPWWA Property Owner Survey



Key findings from the water demand study:

- During winter and when water use is confined almost entirely to indoor use, around half of residential water customers use 3,000 gallons per month or less. LPAWD customers use on average 3,300 gallons per month during the lowest use winter month and 42% use 2,000 gallons or less. Just under half of Town of Ignacio residential water customers use less than 3,000 gallons per month for indoor use. Lake Durango Water Authority individual customers accounts (non-bulk accounts) use on average 2,700 gallons per month.
- The majority (78%) of LPWWA service area property owners who haul treated water use 3,000 gallons or less.
- During the warmest months (June–August), LPAWD water use statistics show more customers with higher water use than in winter, most likely as a result of outdoor irrigation. About one-third use more than 5,000 gallons per month during the warmest months.
- The shoulder seasons of May, September and October are transitional with more use than the middle of winter but less than during high summer.

LPWWA estimated water demand:

Based on the water demand analysis, consultants prepared a water demand matrix to be used during the first year or two years of operations at LPWWA. The water demand analysis demonstrates that 3,000 gallons per month is a reasonable estimate of water for essential household use. Use is estimated to increase for about 30% of residential customers during summer months, mostly due to irrigation.

During the irrigation season, the percentage of customers using more than 3,000 gallons increases, but an estimated 40% of customers will continue to use 3,000 gallons or less even.

Figure 8 – Estimated LPWWA % of Accounts by Monthly Water Use

	3000 gal or less	3001-5000 gal	5001-7000 gal	7001+ gal
January	65%	20%	15%	
February	65%	20%	15%	
March	65%	20%	15%	
April	65%	20%	15%	
May	50%	30%	10%	10%
June	40%	30%	20%	10%
July	40%	30%	20%	10%
August	40%	30%	20%	10%
September	50%	30%	20%	
October	50%	30%	20%	
November	65%	20%	15%	
December	65%	20%	15%	

Source: RPI Consulting Estimate



Recommendations for tracking water demand:

LPWWA is a new water system that is equipped with meters and software for tracking each account's water use by billing period. Once the system has been operational for a full year, account level monthly data will provide the basis for projecting overall water use and billing throughout the following year. Consultants recommend revisiting the water demand component of this rate study after one complete year of operations to update the estimates contained in this report with actual recorded water use by account.



Cost Analysis and Projections

The cost analysis is focused on cost items that will recur each year including operations and maintenance, water supply costs, debt payments and required transfers into reserve funds. The cost analysis and projections are based on information provided by LPWWA including its board adopted 2020 Annual Budget. The consulting team worked closely with LPWWA to create an adjusted 2020 budget that accounts for several factors that are unique to the first year. For example, utility costs in the adopted 2020 budget were reduced to account for the reduction from ten months of operations to six months of operations. See Appendix A–2020 Budget Adjustment Notes for a description of each line item adjustment.

Beginning in 2021 LPWWA will operate for the entire year and the one-time variances that occurred during 2020 will no longer apply. Some line items are fixed from year to year, for example debt service payments are set by contractual repayment schedules. Required reserve fund contributions are also static from year to year. Most line items for services, utilities and supplies were escalated by a 2.4% annual inflation factor (2008–2017 average inflation for Colorado goods, US Bureau of Labor Statistics). The treated water costs are based on treated water purchased from Lake Durango Water Authority (see Appendix B).

Figure 9– LPWWA Cost Projections 2020–2024

	2020	2021	2022	2023	2024
<u>Operations and Maintenance Expenses</u>					
Insurance	\$18,000	\$18,432	\$18,874	\$19,327	\$19,791
Professional Services	\$50,100	\$30,822	\$31,562	\$32,320	\$33,095
Personnel		\$25,600	\$26,214	\$26,844	\$27,488
Administrative	\$11,500	\$11,776	\$12,059	\$12,348	\$12,644
LPWWA Office Utilities	\$1,115	\$3,461	\$3,544	\$3,629	\$3,716
Regulatory Compliance	\$2,000	\$2,048	\$2,097	\$2,147	\$2,199
LPWWA System Operations and Maintenance	\$25,300	\$25,907	\$26,529	\$27,166	\$27,818
811 Location Services	\$500	\$512	\$524	\$537	\$550
<u>Water Supply Expenses</u>					
OM&R Intake & Booster	\$25,000	\$25,600	\$26,214	\$26,844	\$27,488
LPWWA Share of ALP OM&R	\$2,000	\$2,048	\$2,097	\$2,147	\$2,199
Intake & Booster - Share of LDWA Utilities	\$5,025	\$10,292	\$10,539	\$10,792	\$11,051
LDWA Fixed Annual Charge	\$27,231	\$54,463	\$54,463	\$54,463	\$54,463
Treated Water Charges (LDWA)	\$4,743	\$19,697	\$25,579	\$27,666	\$27,666
<u>Debt Service</u>					
CWR&PDA Loan Payments	\$3,705	\$3,705	\$3,705	\$3,705	\$3,705
USDA Loan Payment	\$64,332	\$112,080	\$112,080	\$112,080	\$112,080
<u>Required Reserve Funds</u>					
Lake Durango Water Authority Reserve Fund		\$7,500	\$7,500	\$7,500	\$7,500
Debt Service Reserve Fund	\$934	\$11,208	\$11,208	\$11,208	\$11,208
Short-Lived Asset Reserve Fund	\$151	\$1,815	\$1,815	\$1,815	\$1,815
Total	\$241,638	\$366,966	\$376,604	\$382,538	\$386,476



Recommended Water Rate

The recommended water rate was developed with these guiding principles:

- Monthly water rate collections are the only sustainable revenue source for LPWWA and must be sufficient to cover the annual costs in the short and long term.
- The initial rate structure must minimize the effects of uncertainty on LPWWA's cashflow.
- Operating and capital outlay cash reserves are critical components of LPWWA's fiscal sustainability. Contributions to cash reserves should be treated like any other required expenditure.

The recommended water rate consists of a base monthly rate, to be charged to and paid by all account holders (subscribers) each month of the year regardless of how much water they use. The Water Demand Analysis concluded that 3,000 gallons per month is a reasonable estimate of water for essential household use. 3,000 gallons of water per month per account is included for all customers as a benefit of paying the base rate. All subscribers will be required to pay the base rate, even if they do not use water or use less than 3,000 gallons.

Figure 10 – Recommended Rate Structure

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$195	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

The recommended overage charge is \$25 per month for each additional increment of 1,000 gallons over 3,000 gallons. Each 1,000 gallons beyond 3000 gallons is a discrete increment for billing purposes and is charged in full. For example, an account using 3,300 gallons during one monthly billing period will be charged the base rate (\$195/mo) plus overage for an additional 1,000 gallons (\$25).

Figure 11 –Recommended Rate Monthly Charge Examples

Gallons per Monthly Billing Period per Account	Monthly Charge
0-3,000 gallons	Monthly base rate charge = \$195
3,001 – 4,000 gallons	Monthly base rate \$195+overage \$25 = \$220
4,001 – 5,000 gallons	Monthly base rate \$195+ overage (\$25 × 2) = \$245
5,001 – 6,000 gallons	Monthly base rate \$195+ overage (\$25 × 3) = \$270
6,001 – 7,000 gallons	Monthly base rate \$195+ overage (\$25 × 4) = \$295
7,001 – 8,000 gallons	Monthly base rate \$195+ overage (\$25 × 5) = \$320
8,001 – 9,000 gallons	Monthly base rate \$195+ overage (\$25 × 6) = \$345
9,001 – 10,000 gallons	Monthly base rate \$195+ overage (\$25 × 7) = \$370
10,001 – 11,000 gallons	Monthly base rate \$195+ overage (\$25 × 8) = \$395

The cashflow projections are dependent on key variables and assumptions which were established during meetings with the LPWWA Board of Directors:

- 154 LPWWA subscribers (source: LPWWA customer list, Jan. 2020)



- LPWWA plans to be operational and delivering water in July 2020
- Subscribers water use patterns will occur as described in Figure 8 – Estimated LPWWA % of Accounts by Monthly Water Use
- An estimated 33 subscribers are ready to use water during the first month when LPWWA is operational and delivering water.
- An estimated additional 88 subscribers will begin using water over 13 months, with 6 to 7 subscribers starting to use water each month.
- The remaining 33 subscribers will begin using water over the next 17 months, with 2 subscribers starting to use water each month.
- All 154 subscribers will be fully connected and using water beginning in Jan. of 2023.
- Fort Lewis Mesa Elementary School is projected to use 16,000 gallons of water per month, on average (source: School District 9r)

For a full tabulation of monthly water use and rate revenues by month see Appendix B – Recommended Water Rate Revenue Projections.

The Recommended Rate cashflow projections show that 2020 will result in a deficit of about \$53k, and LPWWA leadership is working diligently to find funding to fill this temporary gap. Beginning in 2021, the organization is projected to realize positive net income of over \$20k per year through the five-year budget horizon. Cash reserves would be approximately \$100k by year end 2024. The operating reserve target is projected to be met by year end 2022 at which point the positive net income may be directed into the capital replacement reserve fund. By 2024, 14% of the needed capital replacement reserve fund will be met (see Appendix C –Recommended Rate Reserve Fund Analysis).

Figure 12 – Recommended Rate Cashflow Projections 2020–2024

	2020	2021	2022	2023	2024
Expenses					
Operations and Maintenance Expenses	\$108,515	\$118,559	\$121,404	\$124,318	\$127,301
Water Supply Expenses	\$64,000	\$112,099	\$118,892	\$121,912	\$122,867
Debt Service	\$68,037	\$115,785	\$115,785	\$115,785	\$115,785
Required Reserve Funds	\$1,085	\$20,523	\$20,523	\$20,523	\$20,523
Total Operating Expenses	\$241,638	\$366,966	\$376,604	\$382,538	\$386,476
Income					
Base Rate Revenue	\$180,180	\$360,360	\$360,360	\$360,360	\$360,360
Overage Charge Revenue	\$8,874	\$34,138	\$43,048	\$46,250	\$46,250
Total Subscriber Rate Revenue	\$189,054	\$394,498	\$403,408	\$406,610	\$406,610
Balance					
Net Income	-\$52,584	\$27,532	\$26,803	\$24,072	\$20,134
Year-End Reserve Fund Balances					
Lake Durango Water Authority Reserve	\$0	\$7,500	\$15,000	\$22,500	\$30,000
Debt Service Reserve Fund	\$934	\$12,142	\$23,350	\$34,558	\$45,766
Short-Lived Asset Reserve Fund	\$151	\$1,966	\$3,781	\$5,596	\$7,411
LPWWA Unrestricted Reserves		\$27,532	\$54,335	\$78,407	\$98,541



Minimal Water Rate

The minimal water rate emphasizes short-term cost savings to subscribers by setting a minimum base rate that covers the baseline recurring costs by a very narrow margin. The recommended water rate consists of a base monthly rate, to be charged to and paid by all account holders (subscribers) each month of the year regardless of how much water they use. The Water Demand Analysis concluded that 3,000 gallons per month is a reasonable estimate of water for essential household use. 3,000 gallons of water per month per account (subscriber) is included for all customers as a benefit of paying the base rate. All subscribers will be required to pay the base rate, even if they do not use water or use less than 3,000 gallons.

Figure 13 – Minimal Rate Structure

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$185	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

The overage charge is \$25 per month for each additional increment of 1,000 gallons over 3,000 gallons. Each 1,000 gallons beyond 3,000 gallons is considered a discrete increment for billing purposes and is charged in full. For example, an account using 3,300 gallons during one monthly billing period will be charged the base rate (\$185/mo) plus overage for an additional 1,000 gallons (\$25).

Figure 14 –Monthly Charge Examples

Gallons per Monthly Billing Period per Account	Monthly Charge
0-3,000 gallons	Monthly base rate charge = \$185
3,001 – 4,000 gallons	Monthly base rate \$185+overage \$25 = \$210
4,001 – 5,000 gallons	Monthly base rate \$185+ overage (\$25 × 2) = \$235
5,001 – 6,000 gallons	Monthly base rate \$185+ overage (\$25 × 3) = \$260
6,001 – 7,000 gallons	Monthly base rate \$185+ overage (\$25 × 4) = \$285
7,001 – 8,000 gallons	Monthly base rate \$185+ overage (\$25 × 5) = \$310
8,001 – 9,000 gallons	Monthly base rate \$185+ overage (\$25 × 6) = \$335
9,001 – 10,000 gallons	Monthly base rate \$185+ overage (\$25 × 7) = \$360
10,001 – 11,000 gallons	Monthly base rate \$185+ overage (\$25 × 8) = \$385

The cashflow projections are dependent on key variables and assumptions which were established during meetings with the LPWWA Board of Directors:

- 154 LPWWA subscribers (source: LPWWA customer list, Jan. 2020)
- LPWWA plans to be operational and delivering water in July 2020
- Subscribers water use patterns will occur as described in Figure 8 – Estimated LPWWA % of Accounts by Monthly Water Use
- An estimated 33 subscribers are ready to use water during the first month when LPWWA is operational and delivering water.



- An estimated additional 88 subscribers will begin using water over 13 months, with 6 to 7 subscribers starting to use water each month.
- The remaining 33 subscribers will begin using water over the next 17 months, with 2 subscribers starting to use water each month.
- All 154 subscribers will be fully connected and using water beginning in Jan. of 2023.
- Fort Lewis Mesa Elementary School is projected to use 16,000 gallons of water per month, on average (source: School District 9r)

For a full tabulation of monthly water use and rate revenues by month see Appendix D – Minimal Water Rate Revenue Projections.

The cashflow projections show that 2020 will result in a deficit of about \$62k, and LPWWA leadership is working diligently to find funding to fill this temporary gap. Beginning in 2021, the organization is projected to realize minimal positive net income through the five-year budget horizon. The operating reserve target will be about half funded by year end 2024 given the minimal rate (see Appendix E – Minimal Rate Reserve Fund Analysis). None of the \$342k in capital replacement reserve fund needs will have been met by the end of the five-year budget horizon if the minimal rate is implemented.

Figure 15 – Minimal Rate Cashflow Projections 2020–2024

	2020	2021	2022	2023	2024
Expenses					
Operations and Maintenance Expenses	\$108,515	\$118,559	\$121,404	\$124,318	\$127,301
Water Supply Expenses	\$64,000	\$112,099	\$118,892	\$121,912	\$122,867
Debt Service	\$68,037	\$115,785	\$115,785	\$115,785	\$115,785
Required Reserve Funds	\$1,085	\$20,523	\$20,523	\$20,523	\$20,523
Total Operating Expenses	\$241,638	\$366,966	\$376,604	\$382,538	\$386,476
Income					
Base Rate Revenue	\$170,940	\$341,880	\$341,880	\$341,880	\$341,880
Overage Charge Revenue	\$8,874	\$34,138	\$43,048	\$46,250	\$46,250
Total Subscriber Rate Revenue	\$179,814	\$376,018	\$384,928	\$388,130	\$388,130
Balance					
Net Income	-\$61,824	\$9,052	\$8,323	\$5,592	\$1,654
Year-End Reserve Fund Balances					
Lake Durango Water Authority Reserve	\$0	\$7,500	\$15,000	\$22,500	\$30,000
Debt Service Reserve Fund	\$934	\$12,142	\$23,350	\$34,558	\$45,766
Short-Lived Asset Reserve Fund	\$151	\$1,966	\$3,781	\$5,596	\$7,411
LPWWA Unrestricted Reserves		\$9,052	\$17,375	\$22,967	\$24,621

The minimal rate is not recommended by RPI Consulting because the fiscal/budgetary consequences of reducing base rate by \$10/month per subscriber are severe and the margins are very thin. There would not be enough cash reserves to buffer minor cost overruns, and not nearly enough cash on hand to cover a moderate or major unforeseen expense.



Appendix A – 2020 Budget Adjustment Notes

	2020 Adopted Budget	2020 Adjusted Budget	Adjustment Notes
<u>Operations and Maintenance Expenses</u>			
Insurance	\$18,000	\$18,000	
Professional Services	\$66,100	\$50,100	Omitted \$16k one-time legal fees
Personnel	\$25,000	\$0	Pending grant from ALP for 2020 to cover personnel
Administrative	\$11,500	\$11,500	
LPWWA Office Utilities	\$3,380	\$1,115	Assumes office will be in place in August, 1/3 of a year
Regulatory Compliance	\$2,000	\$2,000	
LPWWA System Operations and Maintenance	\$25,300	\$25,300	
811 Location Services	\$500	\$500	
Water Supply Expenses			
OM&R Intake & Booster	\$25,000	\$25,000	
LPWWA Share of ALP OM&R	\$2,000	\$2,000	
Intake & Booster - Share of LDWA Utilities	\$16,751	\$5,025	\$1675/month * 50% * 6 months
LDWA Fixed Annual Charge	\$45,386	\$27,231	Adjusted to 6 months, budget was based on 10 months
LDWA Waterline Testing	\$7,560		Not included b/c this is a Phase 1 capital expenditure
Treated Water Charges (LDWA)	\$8,000	\$4,743	Re-calculated based on water use estimates
<u>Debt Service</u>			
CWR&PDA Loan Payments	\$3,705	\$3,705	
USDA Loan Payment	\$66,000	\$64,332	Corrected per USDA
<u>Required Reserve Funds</u>			
Lake Durango Water Authority Reserve Fund	\$7,500	\$0	Assumes that LDWA will grant a waiver for 2020
Debt Service Reserve Fund	\$9,340	\$934	Assumes only one monthly payment for 2020
Short-Lived Asset Reserve Fund	\$1,815	\$151	Assumes only one monthly payment for 2020
<u>Total</u>	\$344,837	\$241,638	Rate Budget Reduced by \$75,377



Appendix B – Recommended Water Rate Monthly Revenue Projections

Recommended Rate Structure

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$195	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

Monthly Revenues from Recommended Rate Structure

	% of Accounts by Monthly Water Use			
	3000 gal or less	3001-5000 gal	5001-7000 gal	7001+ gal
January	65%	20%	15%	
February	65%	20%	15%	
March	65%	20%	15%	
April	65%	20%	15%	
May	50%	30%	10%	10%
June	40%	30%	20%	10%
July	40%	30%	20%	10%
August	40%	30%	20%	10%
September	50%	30%	20%	
October	50%	30%	20%	
November	65%	20%	15%	
December	65%	20%	15%	

Year 2020	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January		\$0	\$0	\$0	0
February		\$0	\$0	\$0	0
March		\$0	\$0	\$0	0
April		\$0	\$0	\$0	0
May		\$0	\$0	\$0	0
June		\$0	\$0	\$0	0
July	33	\$30,030	\$1,480	\$31,510	153
August	40	\$30,030	\$1,725	\$31,755	183
September	47	\$30,030	\$1,383	\$31,413	185
October	54	\$30,030	\$1,540	\$31,570	210
November	61	\$30,030	\$1,316	\$31,346	216
December	68	\$30,030	\$1,430	\$31,460	239
Total		\$180,180	\$8,874	\$189,054	1,186

Year 2021	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	75	\$30,030	\$1,544	\$31,574	262
February	82	\$30,030	\$1,658	\$31,688	286
March	90	\$30,030	\$1,788	\$31,818	312
April	97	\$30,030	\$1,901	\$31,931	336
May	103	\$30,030	\$3,158	\$33,188	415
June	109	\$30,030	\$4,140	\$34,170	476
July	115	\$30,030	\$4,350	\$34,380	502
August	121	\$30,030	\$4,560	\$34,590	527
September	123	\$30,030	\$3,093	\$33,123	462
October	125	\$30,030	\$3,138	\$33,168	469
November	127	\$30,030	\$2,389	\$32,419	435
December	129	\$30,030	\$2,421	\$32,451	442
Total		\$360,360	\$34,138	\$394,498	4924

Year 2022	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	131	\$30,030	\$2,454	\$32,484	449
February	133	\$30,030	\$2,486	\$32,516	455
March	135	\$30,030	\$2,519	\$32,549	462
April	137	\$30,030	\$2,551	\$32,581	469
May	139	\$30,030	\$4,148	\$34,178	555
June	141	\$30,030	\$5,260	\$35,290	612
July	143	\$30,030	\$5,330	\$35,360	621
August	145	\$30,030	\$5,400	\$35,430	629
September	147	\$30,030	\$3,633	\$33,663	550
October	149	\$30,030	\$3,678	\$33,708	557
November	151	\$30,030	\$2,779	\$32,809	515
December	153	\$30,030	\$2,811	\$32,841	522
Total		\$360,360	\$43,048	\$403,408	6395

Year 2023	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	154	\$30,030	\$2,828	\$32,858	525
February	154	\$30,030	\$2,828	\$32,858	525
March	154	\$30,030	\$2,828	\$32,858	525
April	154	\$30,030	\$2,828	\$32,858	525
May	154	\$30,030	\$4,560	\$34,590	614
June	154	\$30,030	\$5,715	\$35,745	668
July	154	\$30,030	\$5,715	\$35,745	668
August	154	\$30,030	\$5,715	\$35,745	668
September	154	\$30,030	\$3,790	\$33,820	575
October	154	\$30,030	\$3,790	\$33,820	575
November	154	\$30,030	\$2,828	\$32,858	525
December	154	\$30,030	\$2,828	\$32,858	525
Total		\$360,360	\$46,250	\$406,610	6917

Year 2024	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	154	\$30,030	\$2,828	\$32,858	525
February	154	\$30,030	\$2,828	\$32,858	525
March	154	\$30,030	\$2,828	\$32,858	525
April	154	\$30,030	\$2,828	\$32,858	525
May	154	\$30,030	\$4,560	\$34,590	614
June	154	\$30,030	\$5,715	\$35,745	668
July	154	\$30,030	\$5,715	\$35,745	668
August	154	\$30,030	\$5,715	\$35,745	668
September	154	\$30,030	\$3,790	\$33,820	575
October	154	\$30,030	\$3,790	\$33,820	575
November	154	\$30,030	\$2,828	\$32,858	525
December	154	\$30,030	\$2,828	\$32,858	525
Total		\$360,360	\$46,250	\$406,610	6917



Appendix C – Recommended Rate Reserve Fund Analysis

Reserve funds are most often set by policy of the board of directors. This is an analysis of the cash reserves that the Recommended Rate will build in comparison to best practices. At minimum, sufficient operating reserves should be set aside to cover 20% of annual operations and maintenance costs, covering approximately two months of operations costs (\$50,034). Capital replacement reserves need to be set aside in anticipation of incrementally replacing the entirety of LPWWA's capital assets over the lifetime of those assets (60 years is considered the maximum economic life of water and sewer infrastructure). Given the value of LPWWA's system at \$5,126,000, and that the system depreciates at 1.67% per year, the annual contribution to the capital replacement reserve fund must be \$85,604/yr to prepare for incremental replacement of the system.

The operating reserve target is projected met by the Recommended Rate by year end 2022 at which point the positive net income may be directed into the capital replacement reserve fund. By 2024, 14% of the needed capital replacement reserve fund will be met, but will still be deficient by about \$294k.

Recommended Rate Reserve Fund Needs Analysis

Operating Reserve = 20% of O & M Annual Cost

\$50,034

Total Asset Value	\$5,126,000
Annual Depreciation (60 yr lifespan or 1.67% yr)	\$85,604

	2020	2021	2022	2023	2024
Capital Replacement Reserve Balance Needed	\$0	\$85,604	\$171,208	\$256,813	\$342,417
Operations Reserves Needed	<u>\$50,034</u>	<u>\$50,034</u>	<u>\$50,034</u>	<u>\$50,034</u>	<u>\$50,034</u>
Total Reserves Needed	\$50,034	\$135,638	\$221,242	\$306,846	\$392,450
Projected Reserve Balance	<u>\$0</u>	<u>\$27,532</u>	<u>\$54,335</u>	<u>\$78,407</u>	<u>\$98,541</u>
Projected Reserve Balance Minus Total Needed	-\$50,034	-\$108,106	-\$166,907	-\$228,439	-\$293,910
% Capital Replacement Reserve Needs Met	0%	0%	3%	11%	14%
% of Operations Reserves Needs Met	0%	55%	100%	100%	100%



Appendix D – Minimal Water Rate Monthly Revenue Projections

Minimal Rate Structure

	Monthly Charge	Gallons per Account per Month
Base Rate Charge	\$185	Includes up to 3,000 gallons/month
Overage Charge	\$25	For each 1,000 additional gallon increment over 3,000

Monthly Revenues from Minimal Rate Structure

	% of Accounts by Monthly Water Use			
	3000 gal or less	3001-5000 gal	5001-7000 gal	7001+ gal
January	65%	20%	15%	
February	65%	20%	15%	
March	65%	20%	15%	
April	65%	20%	15%	
May	50%	30%	10%	10%
June	40%	30%	20%	10%
July	40%	30%	20%	10%
August	40%	30%	20%	10%
September	50%	30%	20%	
October	50%	30%	20%	
November	65%	20%	15%	
December	65%	20%	15%	

Year 2020	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January		\$0	\$0	\$0	0
February		\$0	\$0	\$0	0
March		\$0	\$0	\$0	0
April		\$0	\$0	\$0	0
May		\$0	\$0	\$0	0
June		\$0	\$0	\$0	0
July	33	\$28,490	\$1,480	\$29,970	153
August	40	\$28,490	\$1,725	\$30,215	183
September	47	\$28,490	\$1,383	\$29,873	185
October	54	\$28,490	\$1,540	\$30,030	210
November	61	\$28,490	\$1,316	\$29,806	216
December	68	\$28,490	\$1,430	\$29,920	239
Total		\$170,940	\$8,874	\$179,814	1,186

Year 2021	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	75	\$28,490	\$1,544	\$30,034	262
February	82	\$28,490	\$1,658	\$30,148	286
March	90	\$28,490	\$1,788	\$30,278	312
April	97	\$28,490	\$1,901	\$30,391	336
May	103	\$28,490	\$3,158	\$31,648	415
June	109	\$28,490	\$4,140	\$32,630	476
July	115	\$28,490	\$4,350	\$32,840	502
August	121	\$28,490	\$4,560	\$33,050	527
September	123	\$28,490	\$3,093	\$31,583	462
October	125	\$28,490	\$3,138	\$31,628	469
November	127	\$28,490	\$2,389	\$30,879	435
December	129	\$28,490	\$2,421	\$30,911	442
Total		\$341,880	\$34,138	\$376,018	4924

Year 2022	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	131	\$28,490	\$2,454	\$30,944	449
February	133	\$28,490	\$2,486	\$30,976	455
March	135	\$28,490	\$2,519	\$31,009	462
April	137	\$28,490	\$2,551	\$31,041	469
May	139	\$28,490	\$4,148	\$32,638	555
June	141	\$28,490	\$5,260	\$33,750	612
July	143	\$28,490	\$5,330	\$33,820	621
August	145	\$28,490	\$5,400	\$33,890	629
September	147	\$28,490	\$3,633	\$32,123	550
October	149	\$28,490	\$3,678	\$32,168	557
November	151	\$28,490	\$2,779	\$31,269	515
December	153	\$28,490	\$2,811	\$31,301	522
Total		\$341,880	\$43,048	\$384,928	6395

Year 2023	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	154	\$28,490	\$2,828	\$31,318	525
February	154	\$28,490	\$2,828	\$31,318	525
March	154	\$28,490	\$2,828	\$31,318	525
April	154	\$28,490	\$2,828	\$31,318	525
May	154	\$28,490	\$4,560	\$33,050	614
June	154	\$28,490	\$5,715	\$34,205	668
July	154	\$28,490	\$5,715	\$34,205	668
August	154	\$28,490	\$5,715	\$34,205	668
September	154	\$28,490	\$3,790	\$32,280	575
October	154	\$28,490	\$3,790	\$32,280	575
November	154	\$28,490	\$2,828	\$31,318	525
December	154	\$28,490	\$2,828	\$31,318	525
Total		\$341,880	\$46,250	\$388,130	6917

Year 2024	Accounts Connected	Base Rate Revenue	Overage Revenue	Total Revenue	Water Demand (Kgals)
January	154	\$28,490	\$2,828	\$31,318	525
February	154	\$28,490	\$2,828	\$31,318	525
March	154	\$28,490	\$2,828	\$31,318	525
April	154	\$28,490	\$2,828	\$31,318	525
May	154	\$28,490	\$4,560	\$33,050	614
June	154	\$28,490	\$5,715	\$34,205	668
July	154	\$28,490	\$5,715	\$34,205	668
August	154	\$28,490	\$5,715	\$34,205	668
September	154	\$28,490	\$3,790	\$32,280	575
October	154	\$28,490	\$3,790	\$32,280	575
November	154	\$28,490	\$2,828	\$31,318	525
December	154	\$28,490	\$2,828	\$31,318	525
Total		\$341,880	\$46,250	\$388,130	6917



Appendix E – Minimal Rate Reserve Fund Analysis

Reserve funds are most often set by policy of the board of directors. This is an analysis of the cash reserves Minimal Rate will build in comparison to best practices. At minimum, sufficient operating reserves should be set aside to cover 20% of annual operations and maintenance costs, covering approximately two months of operations costs (\$50,034). Capital replacement reserves need to be set aside in anticipation of incrementally replacing the entirety of LPWWA’s capital assets over the lifetime of those assets (60 years is considered the maximum economic life of water and sewer infrastructure). Given the value of LPWWA’s system at \$5,126,000, and that the system depreciates at 1.67% per year, the annual contribution to the capital replacement reserve fund must be \$85,604/yr to prepare for incremental replacement of the system.

The operating reserve target will be about half funded by year end 2024 given the Minimal Rate. None of the \$342k in capital replacement reserve fund needs will have been met by the end of the five-year budget horizon if the Minimal Rate is implemented.

Minimal Rate Reserve Fund Needs Analysis

Operating Reserve = 20% of O & M Annual Cost

\$50,034

Total Asset Value	<table border="1"><tr><td>\$5,126,000</td></tr></table>	\$5,126,000
\$5,126,000		
Annual Depreciation (60 yr lifespan or 1.67% yr)	<table border="1"><tr><td>\$85,604</td></tr></table>	\$85,604
\$85,604		

	2020	2021	2022	2023	2024
Capital Replacement Reserve Balance Needed	\$0	\$85,604	\$171,208	\$256,813	\$342,417
Operations Reserves Needed	\$50,034	\$50,034	\$50,034	\$50,034	\$50,034
Total Reserves Needed	\$50,034	\$135,638	\$221,242	\$306,846	\$392,450
Projected Reserve Balance	\$0	\$9,052	\$17,375	\$22,967	\$24,621
Projected Reserve Balance Minus Total Needed	-\$50,034	-\$126,586	-\$203,867	-\$283,879	-\$367,830

% Capital Replacement Reserve Needs Met	0%	0%	0%	0%	0%
% of Operations Reserves Needs Met	0%	18%	35%	46%	49%

