



Horseshoe Bend, ID Drinking Water Financial Capacity Analysis

**Rural Community
Assistance Corporation**



Prepared for the
City of Horseshoe Bend, ID
with funding provided by
U.S. Department of Health
and Human Services Grant

June 2020



June 17, 2020

Mayor Pat Goff
Horseshoe Bend City
112 Ada Street
Horseshoe Bend, ID 83629

Subject: City of Horseshoe Bend, ID, Drinking Water Financial Capacity Analysis

Dear Mayor,

Enclosed please find the final report for the City of Horseshoe Bend, Drinking Water Financial Capacity Analysis. If you have any questions, feel free to contact Jeremy Peirsol at (986) 200-1597.

Sincerely,

Ari Neumann

Ari Neumann
RCAC, Director
Community & Environmental Services

Enclosure: City of Horseshoe Bend, Drinking Water Financial Capacity Analysis

Preliminary Results Letter to Community

Horseshoe Bend DW Enterprise Rate Alternatives

Overview of Alternatives

As I started developing the final report for the drinking water rate study, I noticed that Horseshoe Bend was meeting and exceeding reserve contribution targets. Because of this, I started looking into ways to reduce impacts on customers while keeping the rate structure we developed in the rate workshop the same. This document was created to help Horseshoe Bend analyze a few different scenarios within the framework that was developed in the rate workshop. The tables below describe the rate structure and tier breaks that are the same in all scenarios described in this document. Use rates and growth in rates were the only variables that were changed between scenarios. Corresponding tables have been included within each scenario to highlight the impacts of these changes on customer bills (in general) and reserve contributions.

Base rates by Customer Class and Diameter of Meter (Used in all Scenarios)

Meter Diameter	In District ON	In District OFF	Out of District ON	Out of District Off
¾"	\$42.15	\$21.08	\$63.23	\$31.62
1"	\$70.26	\$35.13	\$105.38	\$52.69
1 ½"	\$140.51	\$70.26	\$210.77	\$105.38
2"	\$224.82	\$112.41	\$337.23	\$168.62
3"	\$590.35	\$295.18	\$885.53	\$442.76

Tier Breaks	Notes
0-5,000 gallons	This amount included in the base rate for all customers in all scenarios.
5,001-20,000 gallons	Use rate varies by scenario
20,001-50,000 gallons	Use rate varies by scenario
50,001-75,000 gallons	Use rate varies by scenario
75,001 gallons→	Use rate varies by scenario

Overview of Reserve Drawdowns

This is the scenario derived through the rate workshop. The objectives achieved with this rate scenario is to make needed upgrades to the surface water treatment plant (SWTP) without having to use external financing for the upgrades. The three projects discussed with the engineer were:

1. Connect the well and bring online in 2021 for \$75,000
2. Raw water to SCADA in 2021 for \$40,000
3. Address chlorine contact time in 2022 for \$75,000

Additionally, year five shows significant drawdowns to reserves in all scenarios totaling \$269,414 in year five. This is due to aging infrastructure that is past its normal lifespan. With so many critical components

showing a need for replacement, you'll see large drawdowns of reserves to address all of these issues. It is likely that some but not all will be actually replaced. These upgrades should be more closely examined and discussed with the engineer to determine the best approach. The SWTP is estimated to have been constructed in the mid-1970s.

Alternative 1: Rate Workshop Scenario

This rate structure was developed to address capital improvement needs for the aging SWTP discussed above. With larger drawdowns expected in years one and two, use rates were increased on high end users for the new tiers to minimize the magnitude of drawdowns. Annual growth in rates is 3 percent for both base and use rates. The total five-year contribution to reserves is \$487,523 but the rate of growth of contribution to reserves is growing faster than may be needed. Future growth in rates could be slowed to below inflation as was attempted in Alternative 2.

Tier Breaks	Proposed Usage Rate
0-5,000 gallons	This amount included in the base rate for all customers in all scenarios.
5,001-20,000 gallons	\$2.00/1,000 gallons
20,001-50,000 gallons	\$2.50/1,000 gallons
50,001-75,000 gallons	\$3.00/1,000 gallons
75,001 gallons →	\$3.50/1,000 gallons

Figure 1 New use rates are instituted with increasing use rates with increased water usage.

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
	Base	3.00%	3.00%	3.00%	3.00%		
	Usage	3.00%	3.00%	3.00%	3.00%		
Results of the new rates		2021	2022	2023	2024	2025	5 Years
TOTAL EXPENSES		\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
TOTAL REVENUE		\$347,589	\$360,773	\$374,440	\$388,609	\$403,297	\$1,874,707
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$112,164	\$8,427	\$51,688	\$59,087	\$65,632	\$72,670
NET CASH FLOW (Contribution to Reserves)		\$85,784	\$91,375	\$97,229	\$103,359	\$109,775	\$487,523
Affordability assuming MHI of \$35667 for residential meters.		2.07%	2.15%	2.23%	2.31%	2.40%	

Figure 2 Note the annual increases in base rates and excess contributions to reserves from Years 2-5.

Average Bill Every M by Meter Size for the In District ON Class									
Meter Size	Count	Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5	
0.500	0	1/2"							
0.625	0	5/8"							
0.750	305	3/4"	\$50.86	\$60.38	\$62.63	\$64.96	\$67.37	\$69.88	
1.000	10	1"	\$112.33	\$158.94	\$165.84	\$173.01	\$180.48	\$188.24	
1.500	5	1.5"	\$200.19	\$244.89	\$254.77	\$265.02	\$275.67	\$286.72	
2.000	1	2"	\$326.43	\$365.27	\$379.64	\$394.55	\$410.01	\$426.05	

Figure 3 With new revenue coming from use rate increases, customer bills with more usage are affected more. This is most prominent with larger connection sizes.

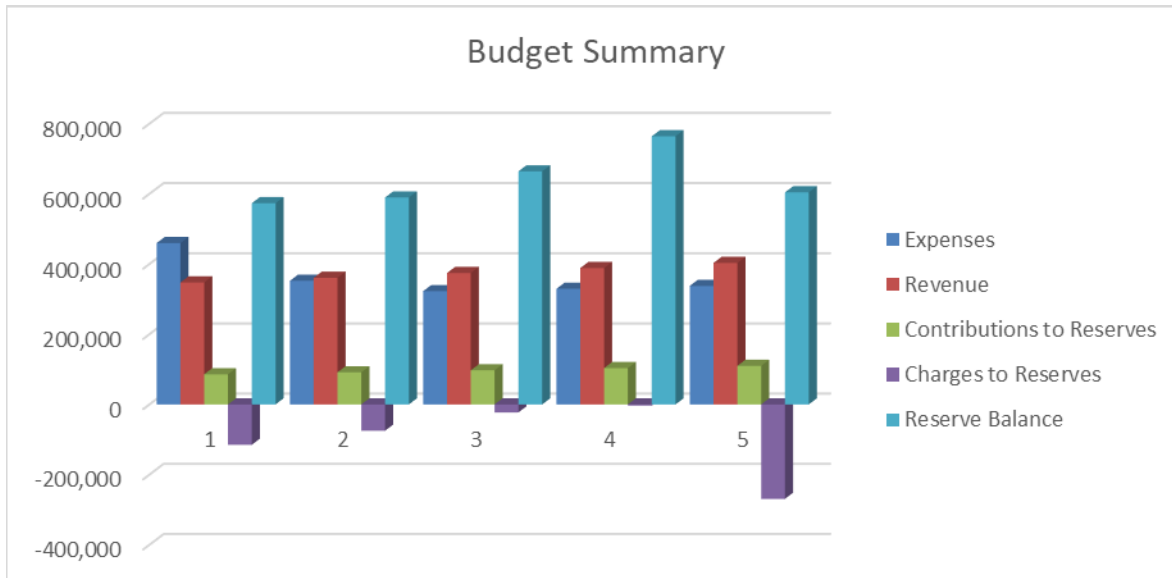


Figure 4 Purple indicates the anticipated drawdowns to reserves. The light blue still shows very healthy reserve levels despite drawdowns.

Alternative 2: Adjusting Base and Use Increases Down in Years two – five

In this scenario, the only changes made in relation to the first alternative is to decrease the annual growth in rate increases to below projected inflationary levels in years two and three after recommended rates have been implemented. Use rates remain the same in this scenario as is highlighted in Figure 1. Additionally, usage rates are halted after the first year implementation to slow revenue growth. Reserve contributions slow somewhat but still exceed the annual contributions called for in the rate model to replace SWTP components.

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
	Base	1.00%	2.00%	3.00%	3.00%		
	Usage	0.00%	0.00%	0.00%	0.00%		
Results of the new rates		2021	2022	2023	2024	2025	5 Years
TOTAL EXPENSES		\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
TOTAL REVENUE		\$347,589	\$352,919	\$360,450	\$370,291	\$380,351	\$1,811,602
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$112,164	\$574	\$37,699	\$40,770	\$42,686	\$9,564
NET CASH FLOW (Contribution to Reserves)		\$85,784	\$83,522	\$83,240	\$85,042	\$86,830	\$424,417
Affordability assuming MHI of \$35667 for residential meters.		2.07%	2.10%	2.14%	2.20%	2.26%	

Figure 5 Reserve contributions remain in excess of what is needed after 2022. 5 year contributions decrease by over \$60,000 versus Alternative 1. Year 5 affordability is 2.26% vs 2.4% in Alternative 1.

Average Bill Every M by Meter Size for the In District ON Class									
Meter Size	Count	Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5	
0.500	0	1/2"							
0.625	0	5/8"							
0.750	305	3/4"	\$50.86	\$60.38	\$61.22	\$62.50	\$64.23	\$66.00	
1.000	10	1"	\$112.33	\$158.94	\$161.71	\$165.20	\$169.46	\$173.78	
1.500	5	1.5"	\$200.19	\$244.89	\$248.75	\$254.05	\$260.86	\$267.80	
2.000	1	2"	\$326.43	\$365.27	\$370.83	\$378.69	\$388.96	\$399.43	

Figure 6 The reduced effect on customer bills is more notable in later years following the first year increase.

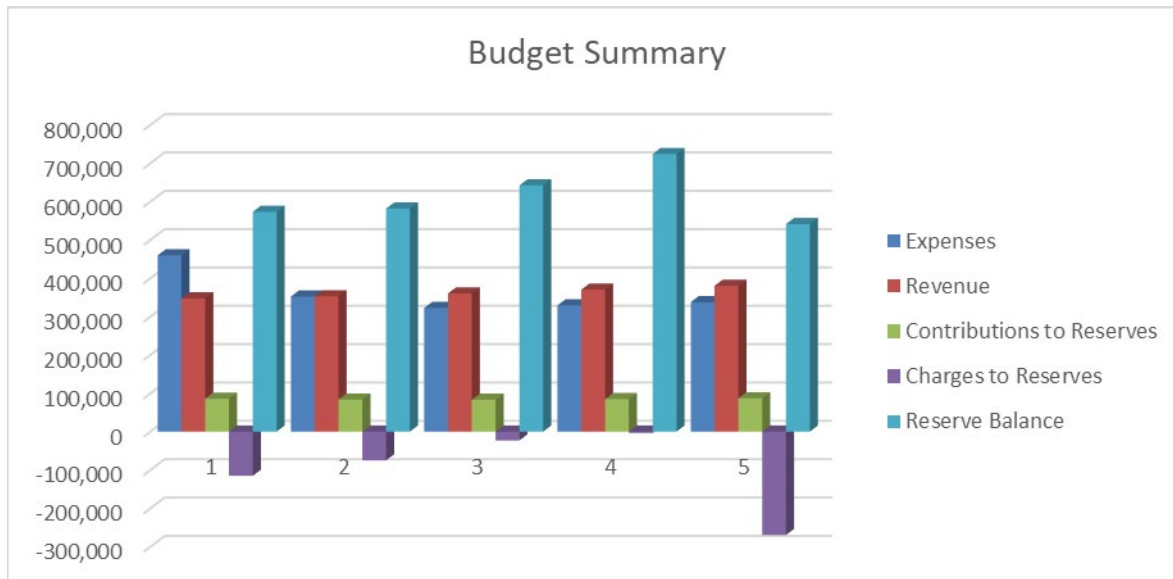


Figure 7 Reserve levels remain robust despite capital projects.

Alternative 3: Reducing Growth in Proposed Use Rates

This rate scenario keeps rate structures and tiers in place as discussed in the rate workshop; however, this scenario provides a reduced usage rate for each tier and reduces the rate of growth in use rates to an annual 1 percent growth rate. Recommended tier breaks are still implemented in this scenario; however, the use rates have been reduced by \$.50/1,000 gallons for each tier as compared to Alternative 1.

Tier Breaks	Proposed Usage Rate
0-5,000 gallons	This amount included in the base rate for all customers in all scenarios.
5,001-20,000 gallons	\$1.50/1,000 gallons
20,001-50,000 gallons	\$2.00/1,000 gallons
50,001-75,000 gallons	\$2.50/1,000 gallons
75,001 gallons →	\$3.00/1,000 gallons

Figure 8 Usage rates are set to levels \$.50 less per 1,000 gallons vs Alt. 1

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
	Base	3.00%	3.00%	3.00%	3.00%		
	Usage	1.00%	1.00%	1.00%	1.00%		
Results of the new rates		2021	2022	2023	2024	2025	5 Years
TOTAL EXPENSES		\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
TOTAL REVENUE		\$325,307	\$335,415	\$345,789	\$356,437	\$367,367	\$1,730,315
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$134,446	-\$16,931	\$23,037	\$26,916	\$29,702	-\$71,722
NET CASH FLOW (Contribution to Reserves)		\$63,502	\$66,017	\$68,578	\$71,188	\$73,845	\$343,131
Affordability assuming MHI of \$35667 for residential meters.		1.94%	2.00%	2.06%	2.12%	2.19%	

Figure 9 Use rates only increase 1% annually; however, 5 year reserve contributions decrease by \$140,000 over 5 years. Reserve targets are still met by year 3 and affordability improves in year 1 to below 2%.

Average Bill Every M by Meter Size for the In District ON Class								
Meter Size	Count	Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5
0.500	0	1/2"						
0.625	0	5/8"						
0.750	305	3/4"	\$50.86	\$56.60	\$58.36	\$60.17	\$62.03	\$63.93
1.000	10	1"	\$112.33	\$143.39	\$148.00	\$152.71	\$157.54	\$162.48
1.500	5	1.5"	\$200.19	\$226.70	\$233.87	\$241.23	\$248.77	\$256.51
2.000	1	2"	\$326.43	\$341.11	\$351.86	\$362.88	\$374.18	\$385.76

Figure 10 Year 1 bills decrease on average for all customers in year 1 vs Alt 1. Savings are more pronounced for larger use customers as well.

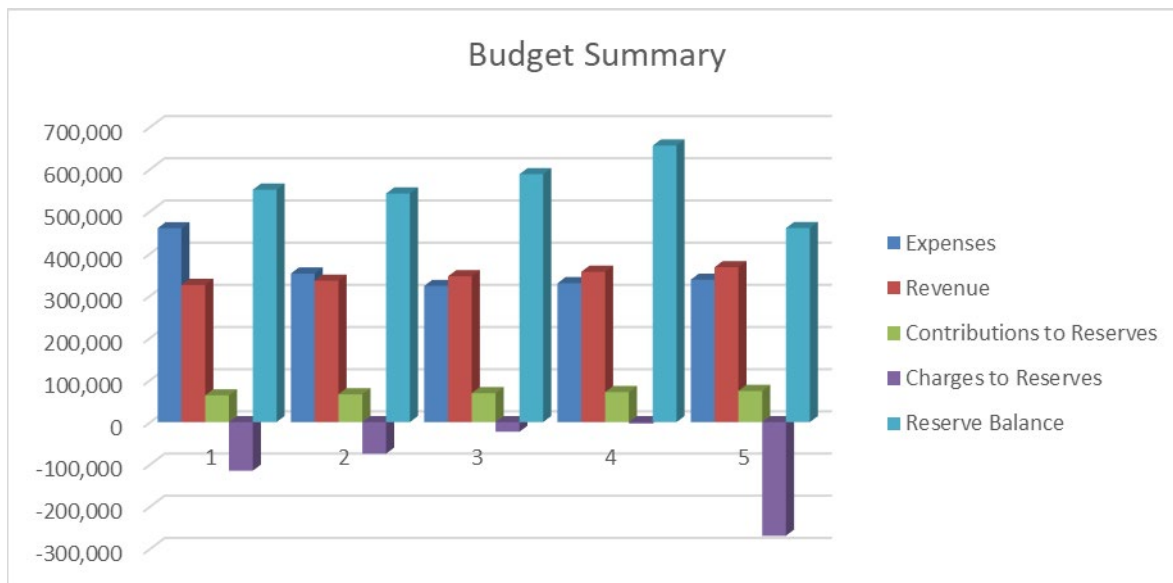


Figure 11 Despite drawdowns, reserve levels remain above \$400,000 through Year 5.

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Executive Summary

After undertaking a rate analysis to fund an emergency sewer project, the city of Horseshoe Bend requested that RCAC perform a rate analysis of its drinking water enterprise. The reason for the request was to evaluate the department's financial readiness to undertake needed upgrades to its surface water treatment plant.

Horseshoe Bend's SWTP was constructed in the mid-1970s and many of its key operating components are nearing the end of expected useful life. Additionally, river flows can fluctuate bringing in varying amounts of impurities to have to treat. The city has already undertaken a well-drilling project to alleviate future treatment costs, but the need for further upgrades persists. In conducting this rate study, RCAC collaborated with city officials and city engineers to evaluate prioritized needs with the idea of financing needed projects in house through pre-planning.

The rate study results provide city officials with three main alternatives and focuses on one alternative to provide the city with a rate structure focused on deriving additional revenues mainly through usage rate increases. Anticipated additions to reserves will then be allocated to various upgrades sequenced in over three of the next five years. Over the course of the next five years, adoption of the recommended rates from this analysis will be used to finish connecting the new well to the SWTP, upgrade the SCADA system to raw water intakes, and to address compliance issues with contact time for treated water.

1 Introduction

1.1 Introduction

Rural Community Assistance Corporation (RCAC)

Founded in 1978, RCAC provides training, technical and financial resources and advocacy so rural communities can achieve their goals. Since 1978, our dedicated staff and active board, coupled with our key values: leadership, collaboration, commitment, quality and integrity, have helped effect positive change in rural communities across the West.

RCAC's work includes environmental infrastructure (water, wastewater and solid waste facilities); affordable housing development; economic and leadership development; and community development finance. These services are available to communities with populations of fewer than 50,000, other nonprofit groups, Tribal organizations, farmworkers, colonias and other specific populations. Headquartered in West Sacramento, California, RCAC's employees serve rural communities in 13 western states and the Pacific islands.

Purpose of financial capacity analysis

This drinking water rate study was conducted on behalf of the city of Horseshoe Bend by RCAC to build upon a previous rate study conducted for the wastewater system to look at the drinking water enterprise. A comprehensive look into the drinking water enterprise's revenues, expenses and assets was undertaken to holistically evaluate the city's current rates for sustainability, fairness and equity to its customer base. Once accomplished, the city then evaluated future needs, funding options, and strategies to meet operational needs, both in the present and in the near future.

Board Responsibilities

All findings and conclusions of this rate study are the professional assessment of RCAC and is not a directive for action to the community. Whereas RCAC strongly recommends its findings to the community, the city council must act in accordance with city code and applicable state laws to enact RCAC recommendations in whole or in part.

Guiding principles in a rate study

Sustainability

Rates should cover the costs of the system and allow it to provide drinking water services for the foreseeable future.

Fairness

Rates should be fair to all rate payers. The city should not charge more for collections than the cost to provide the service. However, the costs should include: operations, repairs, interest, loan principal and all other costs related to the collection, treatment and distribution of treated water now and in the foreseeable future.

Justifiability

Rates must be based on actual needs of the enterprise system. Revenue generated from drinking water rates should only be used to pay the costs of pumping, treating and distribution the treated water within its service area, plus any administrative costs.

Disclaimer

The findings, recommendations, and conclusions contained in this financial analysis are based on financial information provided to RCAC by Horseshoe Bend. Although reasonable care was made to ensure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein. Any action taken on the basis of such findings, recommendations, or conclusions is undertaken at the discretion of Horseshoe Bend. In no event will RCAC or its partners, employees, or agents, be liable for any decision made or action taken in reliance on the information contained in this analysis.

2 System Basic Statistics

2.1 Community

Location & maps



History

Horseshoe Bend was originally settled in the mid-1800s as part of the gold rush in Idaho Territory. The city is known for its namesake bend in the Payette River in the valley where the town resides. Over the years, Horseshoe Bend has evolved into a community built around ranching and logging and serves as the gateway to the central mountains for travelers from the south.

Legal entity

Horseshoe Bend is incorporated as a municipality in the state of Idaho.

Governing body/staff

Horseshoe Bend is governed by a strong mayor with a four-member city council. The mayor serves as the tie-breaking vote on any contested issues. City staff are all appointed.

Median Household Income (MHI)

The median household income used for this rate analysis of Horseshoe Bend is \$35,667. This number is based on the American Community Survey (2006-09).

2.2 System Description

Service area

The service area for the Horseshoe Bend drinking water delivery system is the city boundaries. However, some properties have been allowed to connect to the distribution system and are required to pay an out

of district rate in accordance with the city’s rate structure. At the time of this rate study, 384 total connections were reported with 44 out-of-district connections.

System history

Horseshoe Bend is served by a surface water treatment plant located on the north bank of the Payette River as it runs through town. The treatment plant was built in the mid-1970s and has undergone a series of smaller upgrades over the year. The city is in the process of drilling a new groundwater well on the treatment plant site to provide for efficiencies in the water treatment process that are gained via the groundwater well. The distribution system for the city is mostly comprised of asbestos cement piping with newer sections having been upgraded to C-900 PVC piping.

2.3 Customer base description

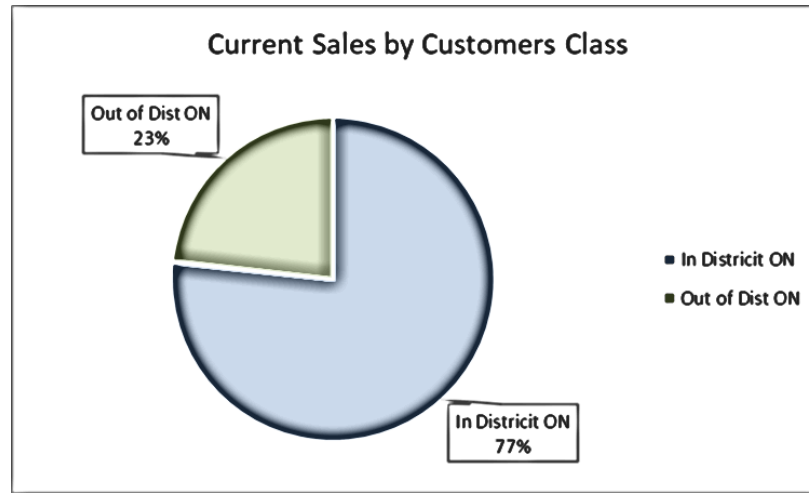
Types of accounts including number of accounts of each type

Horseshoe Bend drinking water system serves a total of 388 accounts. Of those 388 accounts, 343 are classified as residential and 45 are nonresidential.

Meter Size	Meter Size	In Dist ON	In Dist OFF	Out Dist ON	Out Dist OFF
0.500	1/2"	0	0	0	0
0.625	5/8"	0	0	0	0
0.750	3/4"	305	22	36	6
1.000	1"	10	1	0	0
1.500	1.5"	5	0	1	0
2.000	2"	1	0	1	0
3.000	3"	0	0	0	0
Residential		284	17	36	6
NonResidential		37	6	2	0

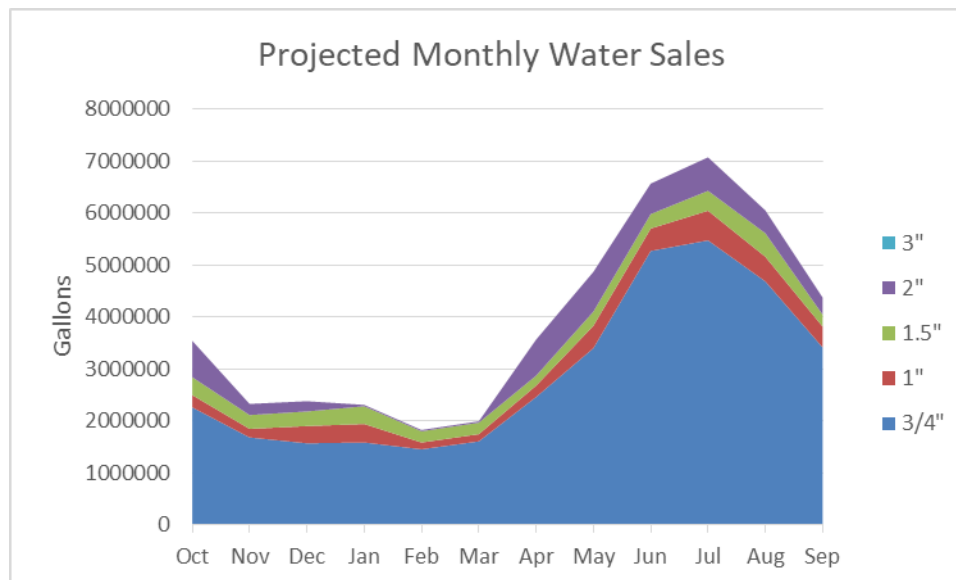
2.4 Customer water/wastewater use statistics

In District Use vs Out-of-District Water Use



This chart shows the proportion of water delivered by the system to in-district customers vs out-of-district customers.

Seasonal water use statistics



The table above projects seasonal cumulative water use by water meter size for the first year. These projections are based on reported water meter data provided by the city.

2.5 Current water/wastewater rates structure

Identification of type(s) of rate structures the system uses

Horseshoe Bend employs four different rate classes for its drinking water enterprise. The rate classes are defined as either "In-District" or "Out-of-District". A further distinction is made between these two

classes as to whether the customer account is active or inactive. The rate classes are listed in the table in the subsection below.

Rate schedule

Horseshoe Bend City Base Rate Charge by Customer Class and Meter Size				
Meter Size (")	In Dist ON	In Dist OFF	Out Dist ON	Out Dist OFF
0.75	\$40.57	\$20.29	\$60.86	\$30.43
1.00	\$69.91	\$34.96	\$104.87	\$52.44
1.50	\$150.53	\$75.27	\$225.80	\$112.90
2.00	\$260.49	\$130.25	\$390.74	\$195.37
3.00	\$590.35	\$295.18	\$885.53	\$442.77

All customers are currently charged \$1.31/1000 gallons after a base allowance of 3,000 gallons as depicted below.

Usage Tiers	Current Use Rate
0-3,000 gal	\$0
3,001+ gal	\$1.31/1000gal

2.6 Future population and usage projections

Conservation factor and community growth

Growth of Consumption over Base year		Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor		5.0%	4.0%	3.0%	2.0%	1.0%
Community Growth Factor		1.0%	2.0%	3.0%	4.0%	5.0%
Total Consumption Adjustment		6.0%	6.0%	6.0%	6.0%	6.0%

Community growth was projected to grow at a 1 percent annual rate for the purposes of this study. With proposed increases to the usage rates that are reflected in later sections, the conservation factor was raised to 5 percent the first year after enactment with the conservation factor diminishing by 1 percent annually thereafter.

3 Current Financial Condition and Analysis

3.1 Current rate schedule/structure

Rate Description

Horseshoe Bend currently employs a meter-based tiered-block rate structure. There are four defined customer classes with out-of-district customers being billed a surcharge of 50 percent over the in-district customer class. Additional customer classes exist for in- and out-of-district customer classes for inactive accounts. These customers are billed a rate ½ of the class’s active rate. A single use rate is applied to all customer classes after the base usage allotment has been used up.

Horseshoe Bend City Base Rate Charge by Customer Class and Meter Size				
Meter Size ("	In Dist ON	In Dist OFF	Out Dist ON	Out Dist OFF
0.75	\$40.57	\$20.29	\$60.86	\$30.43
1.00	\$69.91	\$34.96	\$104.87	\$52.44
1.50	\$150.53	\$75.27	\$225.80	\$112.90
2.00	\$260.49	\$130.25	\$390.74	\$195.37
3.00	\$590.35	\$295.18	\$885.53	\$442.77

The tier breaks and use rates are listed below for all current Horseshoe Bend drinking water rate payers.

Usage Tiers	Current Use Rate
0-3,000 gal	\$0
3,001+ gal	\$1.31/1000gal

Miscellaneous non-user fees

Horseshoe Bend has historically reported a small amount of miscellaneous revenue. For FY2020, however, no such income was reported and therefore no miscellaneous income was reported in calculating future rate recommendations.

Non-user fees that are used in revenue calculations

Horseshoe Bend reported annual interest income varying between \$1,000 and \$1,500. This is income derived from investments and has been pretty stable. These revenues were used as an ongoing revenue in the rate study.

Analysis of current rate structure

The current rate structure is simple and straightforward for customers to understand. Revenues generated have been stable and sufficient to meet regular operations and maintenance needs. The central issue facing the city is its aging surface water treatment plant (SWTP) that was constructed in the 1970s. The city chose to do this rate study to view the possibility of strategically addressing the needs of the aging SWTP while seeking to minimize its reliance on long-term loans.

3.2 Current budget

Historical revenue and expenses

EXPENSES AND SOURCES OF FUNDS		2019	2020
OPERATIONS & MAINTENANCE EXPENSES			
	Wages	\$ 82,527	\$ 89,860
	Employee Benefits	\$ 35,317	\$ 40,396
	Dues	\$ 2,557	\$ 2,831
	Utilities	\$ 29,221	\$ 24,790
	Treatment, Chemicals, and Testing	\$ 31,700	\$ 32,666
	Repairs and Maintenance	\$ 32,324	\$ 30,029
	Supplies	\$ 17,711	\$ 10,374
	Contract Services	\$ 1,685	\$ 285
	Billing and Operation	\$ 21,696	\$ 18,804
	Insurance	\$ 4,370	\$ 4,154
	Training	\$ 280	\$ 238
	Total Refurbishing and Rebuilding Cost		
	Contracted Work	\$ 110,000	\$ 185,000
	Total Operation and Maintenance Expenses:	\$ 369,388	\$ 439,427
GENERAL & ADMINISTRATIVE EXPENSES			
		2019	2020
	Capital Improvement (Backhoe)	\$ 20,000	\$ 20,000
	Total General and Administrative Expenses:	\$ 20,000	\$ 20,000
	TOTAL EXPENSES	\$ 389,388	\$ 459,427
SOURCE OF FUNDS / REVENUES RECEIVED			
	Sales Revenue (Base + Usage)	\$ 299,136	\$ 260,000
	New connections	\$ 6,180	\$ 15,540
	Interest income	\$ 1,691	\$ 1,200
	Uncollectable Receivables		
	Reconnect/Admin		
	Fees Late/NSF		
	Bulk Sales		
	Other	\$ 10,461	
	Reimbursements	\$ 110,000	\$ 165,000
	TOTAL REVENUE	\$ 427,468	\$ 441,740
	NET LOSS OR GAIN:	\$ 38,080	\$ (17,687)
	NET CASH FLOW (Contribution to Reserves)	\$ 38,080	\$ (17,687)

Current budget as approved by the board

The current budget as approved by the board was referenced for this rate study but was not fully utilized in the interest of rate payers. Significant variation exists between the audit and the budget, which led the working group to discern between the two values. The city noted that budgets are generally passed with extra funds available in the budget as a type of contingency for unforeseen needs. Actual expended totals are more reflective in the audit, so these values were used. In areas of discrepancy or where things were unclear, city staff was consulted for actual values. The above table reflects the culmination of these discussions.

Uncollectable accounts

	Year 1	Year 2	Year 3	Year 4	Year 5
Receivable write off (% of Billing)	1.00%	1.00%	1.00%	1.00%	1.00%

Figure 12 Horseshoe Bend noted a higher than average receivable write offs. As such 1% was used for this study instead of the typical .2%.

3.3 Current dedicated reserves

Existing Reserves	Amount
Debt Reserve	\$0
Operating Reserve	\$165,000
Emergency Reserve	\$237,600
Capital Reserve	\$200,000
Total	\$602,600

Transferring annual carryover into reserve funds

Enterprise systems should transfer annual carryover funds to reserves. Priority should be given to an operating reserve and then to more restricted reserves after liquidity is sufficient. Enterprise funds are dedicated funds and should be used only for the purposes for which fees were paid.

Analysis of current dedicated reserves

Reserve Targets	Amount	Make Up Period	First Year Reserve Addition	Transfer Excess funds to CIP
Debt Reserve	\$0	NA	\$0	\$0
Operating Reserve	\$32,726		\$0	\$132,274
Emergency Reserve	\$250,000	5	\$50,000	\$0
Available for Capital Reserve	\$332,274			

Horseshoe Bend maintains a more than sufficient amount of liquid cash in an operating reserve as is noted in the city's budgeting approach. If funds are not going to be used in the short-term, excess funds

can be transferred to higher interest bearing capital reserve accounts. This is reflected in the table above. The city has largely met its reserve targets and only a small amount is required to fulfill emergency reserve targets. The city did not report any long-term debt obligations; however, the aging SWTP must be a consideration when the city sets its reserve targets in the future.

3.4 Analysis of current financial condition

Revenue sufficiency associated with current rates

Results of the new rates	2021	2022	2023	2024	2025	5 Years
TOTAL EXPENSES	\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
TOTAL REVENUE	\$284,186	\$293,947	\$304,038	\$314,470	\$325,254	\$1,521,895
NET LOSS OR GAIN: (Short/Over to Reserves)	-\$175,567	-\$58,399	-\$18,714	-\$15,051	-\$12,411	-\$280,142
NET CASH FLOW (Contribution to Reserves)	\$22,381	\$24,549	\$26,828	\$29,221	\$31,733	\$134,711
Affordability assuming MHI of \$35667 for residential meters.	2.64%	2.73%	2.82%	2.92%	3.02%	

The above table shows a projection of the city’s drinking water revenue forecast if rates were left alone with the exception of annual 3 percent increases to both the base rate and the use rate. The reserve drawdowns in years one and two still show most significantly, while contributions to reserves remain insufficient to replenish reserves at a pace reflective of the system’s continued needs. In fact, the table above predicts a much smaller reserve for the city after five years. This underlies the fact that the SWTP is already nearing 50 years old and likely to continue to need to be upgraded. Current conditions will not be sustainable long-term for the system and Horseshoe Bend will need to look toward external funding sources to complete needed upgrades.

Late/unpaid accounts impact

Late and unpaid accounts will impact system revenues under any rate scenario. This has been an ongoing issue with city collections and the 1 percent uncollected receivable rate was used in this scenario as it was with all other scenarios referred to in this document. It should be further noted that impacts from COVID-19 on collections may be felt on revenue collections as local unemployment rates increase. City leaders should observe collections monthly to see how revenues are impacted in real time.

Rate affordability criteria of current rates

Rate affordability is elevated under current conditions and will only decrease with elevated rates. Under current conditions with annual 3 percent increases, affordability for Horseshoe Bend will be above 2.5 percent. Idaho State Revolving Fund and U.S. Department of Agriculture Rural Development use a 1.5 percent metric as a benchmark for affordability when determining interest rates for loans. Horseshoe Bend, like other communities of similar size, experience less than ideal rate affordability.

4 Future Financial Condition and Analysis

4.1 Capital projects planned

Description

The purpose of this rate study centers around Horseshoe Bend's aging surface water treatment plant (SWTP) and either approaching the needs in a strategic series of upgrades or waiting to construct a new treatment plant. The city, in consultation with its engineers, has opted to address needed upgrades in order to maintain the city's financial independence and spare rate payers future large increases by being proactive.

Currently, the city has three capital projects planned in the next five years in addition to bringing its newly drilled well fully online. These planned upgrades are designed to help with compliance, system efficiency, and overall effectiveness in delivering safe drinking water to its customers.

Schedule and status

As mentioned previously, the city's new groundwater well has been drilled and city officials are working to bring the well fully online by 2021. Other capital projects planned are also listed below along with the estimated date of construction.

Planned Upgrade	Est. Year of Completion	Est. Future Cost
Connect Well to System	2021	\$75,000
Upgrade SCADA to raw water	2021	\$40,000
Address Chlorine Contact Time	2022	\$75,000

The above tables address a series of smaller projects aimed at increasing system capacity and efficiency for Horseshoe Bend. Connecting the well to the SWTP will provide for cleaner raw water at intake, which can reduce treatment costs. Other upgrades to the monitoring and moving from ozonation to chlorination as a primary source of chemical treatment can help with compliance issues with contact times and also provide more energy efficiency by converting the ozone generators to a backup process.

Funding status

The above projects are planned to be funded by strategically using and replacing existing city reserves. The system wants to maintain its financial independence and approach needs in advance to shield rate payers from sudden large rate increases.

5 Suggested Asset Management Plan/CIP/CRP etc.

Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	% Belonging to Water	Estimated Historic Cost (Water only)	Normal Estimated Life	Current Age	Estimated Current Cost	Planned Remaining Life	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
Replacement of Existing Capital Assets																
2006 Ford Ranger (20%WW, 20%DW)	2006	20,000	c	20%	\$2,888	15	14	4,000	1	3	4,358	100%	0%	0%	2,571	588
2019 Ford Extended Cab (40%WW, 40%DW)	2019	40,000	c	40%	\$15,632	15	1	16,000	14	14	23,875	50%	50%	0%	5,143	458
1978 Case 580C Loader (20%WW, 20%DW)	1985	13,000	h	20%	\$2,600	20	35	5,763	-15	7	4,606	100%	0%	0%	3,704	119
Dump Truck (20%WW, 20%DW)	2000	16,000	c	20%	\$2,009	20	20	3,200	0	7	3,909	100%	0%	0%	2,057	256
				100%								0%	0%	100%	0	0
Buildings				100%								0%	0%	100%	0	0
Intake Bldg	1975	75,000	c	100%	\$26,322	60	45	75,000	15	15	115,157	10%	75%	15%	4,821	420
Operations Bldg	1975	75,000	c	100%	\$26,322	60	45	75,000	15	15	115,157	10%	75%	15%	4,821	420
Ozone Bldg	1990	50,000	c	100%	\$24,878	60	30	50,000	30	30	117,878	10%	75%	15%	3,214	258
				100%								0%	0%	100%	0	0
Surface Water Treatment				100%								0%	0%	100%	0	0
Intake Pumps (7.5 HP)	1975	3,500	c	100%	\$3,685	15	45	10,500	-30	5	12,113	100%	0%	0%	6,750	1,049
Flocculator System and Basin	1975	800,000	c	100%	\$280,767	60	45	800,000	15	5	922,926	5%	45%	50%	25,713	3,995
Sedimentation Basin 25,000 gal	1983	700,000	c	100%	\$295,935	60	37	700,000	23	5	807,560	5%	45%	50%	22,499	3,495
Hach Chlorinators	2012	800	c	100%	\$1,328	15	8	1,600	7	7	1,954	100%	0%	0%	1,029	Not Cap.
Clear Well Pump (7.5 HP)	1980	3,500	c	100%	\$4,140	15	40	10,500	-25	5	12,113	100%	0%	0%	6,750	1,049
Vac Pumps (25 HP)	1975	4,000	c	100%	\$2,808	15	45	8,000	-30	5	9,229	100%	0%	0%	5,143	799
Generators (25 KW) for Ozonation	2000	20,000	c	100%	\$25,116	20	20	40,000	0	5	46,146	50%	50%	0%	12,857	1,997
Wedeco H400T Ozone Monitors	2018	400	c	100%	\$764	10	2	800	8	8	1,006	100%	0%	0%	514	Not Cap.
Contact Chamber 5,000 gal	1980	50,000	c	100%	\$19,713	50	40	50,000	10	10	66,546	50%	50%	0%	16,071	1,646
Ozone Destruct Unit	1980	1,000	c	100%	\$394	10	40	1,000	-30	5	1,154	100%	0%	0%	643	Not Cap.
50HP Distribution Pumps	2010	20,000	c	100%	\$31,696	15	10	40,000	5	5	46,146	50%	50%	0%	12,857	1,997
VFD for Dist. Pumps	2010	17,000	c	100%	\$26,942	15	10	34,000	5	5	39,224	50%	50%	0%	10,928	1,698
Mag Meters	2019	1,500	c	100%	\$2,931	15	1	3,000	14	14	4,476	100%	0%	0%	1,928	172
				100%								0%	0%	100%	0	0
				100%								0%	0%	100%	0	0
Distribution				100%								0%	0%	100%	0	0
8-12" Asbestos Cement Piping (linear feet)	1975	75	c	100%	\$1,052,875	100	45	3,000,000	55	55	14,453,295	2%	45%	53%	38,570	3,878
8-12" C900 Distribution Piping (linear feet)	2005	35	c	100%	\$493,761	100	15	700,000	85	85	7,950,691	5%	45%	50%	22,499	3,500
				100%								0%	0%	100%	0	0
				100%								0%	0%	100%	0	0
Wells and Storage Tank				100%								0%	0%	100%	0	0
Groundwater Well	2019	200,000	c	100%	\$195,400	50	1	200,000	49	49	811,677	5%	45%	50%	6,428	602
50,000 gal Storage Tank	1975	50,000	c	100%	\$17,548	50	45	50,000	5	5	57,683	50%	50%	0%	16,071	2,497
150,000 gal Storage Tank	1996	150,000	c	100%	\$85,815	50	24	150,000	26	26	315,421	10%	75%	15%	9,642	768
200,000 gal Storage Tank	1975	200,000	c	100%	\$70,192	50	45	200,000	5	5	230,731	10%	75%	15%	12,857	1,997
				100%								0%	0%	100%	0	0
Other				100%								0%	0%	100%	0	0
Clear Well 1,000 gal	1975	10,000	c	100%	\$3,510	50	45	10,000	5	5	11,537	100%	0%	0%	6,428	999
Mixed Media Filters	1975	23,000	c	100%	\$16,144	20	45	46,000	-25	10	61,223	50%	50%	0%	14,785	1,514
Alum Storage Tank	1975	900	c	100%	\$316	20	45	900	-25	5	1,038	100%	0%	0%	579	Not Cap.
Air Compressor	1975	5,000	c	100%	\$1,755	15	45	5,000	-30	5	5,768	100%	0%	0%	3,214	499
Polymer Pumps	1975	1,000	c	100%	\$702	15	45	2,000	-30	3	2,179	100%	0%	0%	1,286	Not Cap.
SCADA System	2000	15,000	c	100%	\$9,419	15	20	15,000	-5	3	16,343	100%	0%	0%	9,642	2,206
Chlorine Analyzer	2010	1,000	c	100%	\$792	15	10	1,000	5	5	1,154	100%	0%	0%	643	Not Cap.
Turbidimeters	2009	1,000	c	100%	\$2,323	15	11	3,000	4	4	3,363	100%	0%	0%	1,928	352
Hydrants	2000	5,000	c	100%	\$313,951	50	20	500,000	30	30	1,178,776	5%	45%	50%	16,071	1,290
Connection Meters	2010	300	c	100%	\$76,308	15	10	96,300	5	5	111,097	10%	75%	15%	6,190	962
Pressure release valves	2010	20,000	c	100%	\$190,177	20	10	240,000	10	10	319,422	10%	75%	15%	15,428	1,580
				100%								0%	0%	100%	0	0
#REF!					\$3,327,853			7,147,563			27,886,935	0%	0%	0%	332,274	43,061
Reserves for Additional Capital Assets																
Connect well	2021	75,000	F	100%		15	1	72,825			75,000	100%	0%	0%	0	75,000
Raw water to SCADA	2021	40,000	F	100%		15	1	38,840			40,000	100%	0%	0%	0	40,000
Chlorine contact time	2022	75,000	F	100%		15	2	70,713			75,000	100%	0%	0%	0	37,406
				100%								0%	0%	0%	0	0
Subtotal Reserves for Additional Capital Assets								182,378			190,000	0%	0%	0%	0	152,406

5.1 Long term plan

Long-term, Horseshoe Bend is presented with the challenges of an aging SWTP that is going to require attention from city leaders. Many of the major components of the plant are near or at the end of their presumed lifespan. City leaders can either plan for the ultimate complete upgrade of a new plant or they

can choose to address the issues in a strategic manner to repair and replace components as the need arises. City leaders and planners have opted for the latter choice in hopes of negating the need for taking out a large loan to finance such large upgrades. To do this, however, immediate needs must be addressed as is seen with the three stated projects at the bottom of the chart. These projects put an immediate strain on existing reserves, which makes replenishing reserves more imperative. With so many components at the end of life, the city will have to start making the upgrades as soon as is feasible.

5.2 Suggested reserve funding

Reserve Targets

Reserve Targets	Amount	Make Up Period	First Year Reserve Addition	Excess funds Tfr to CIP
Debt Reserve	\$0		\$0	\$0
Operating Reserve	\$32,726		\$0	\$132,274
Emergency Reserve	\$250,000	5	\$2,480	\$0
Avail. for Cap. Reserve	\$332,274			

Horseshoe Bend reported a very strong operating reserve of \$165,000. It is recommended that the city consider moving some of the liquid cash reserve to a longer-term, higher interest-bearing investment when capital projects are no longer planned. As it stands now, it is likely the excess operating reserve funds may be used to fund some of the planned capital projects. Under normal circumstances, it is recommended that systems maintain an operating reserve the equivalent of 45 days of normal business operations on hand.

Horseshoe Bend also reported healthier longer-term reserves with only a \$2,480 to be transferred to the CIP funds annually to fully fund reserves. It must be reiterated that many assets in the capital improvement plan are at or near the end of their lifespan, so system managers can expect frequent drawdowns on reserve in coming years. Because of this, it is very important that the city fully fund its reserve accounts and replenish them when drawn down to fund capital projects.

Capitalization threshold

The capitalization threshold for Horseshoe Bend was set at \$3,000. This means that any asset of a value less than this is assumed to be funded using operations and maintenance accounts rather than reserves.

Alternatives/consequences to not funding reserves

As has been stated previously, Horseshoe Bend's SWTP is an aging facility with many of its major components at or near the end of their lifespan. It is critical for the city to fully fund its reserve because the reserve accounts are going to be used frequently to fund projects. If the city fails to meet this obligation, they will likely have to look to sources of public loans such as USDA Rural

Development or the Idaho State Revolving Fund for assistance. This would not achieve the stated goals of city leaders.

5.3 Suggested rates

Proposed customer classes

No changes to current customer classes are proposed in this rate study. The current four customer classes remain intact for the rate recommendation for Horseshoe Bend as well as any other alternatives that are proposed. Customer classes are the following:

1. Inside District (On)
2. Inside District (Off)
3. Outside District (On)
4. Outside District (Off)

Proposed rate structure

The proposed rate structure for all rate recommendations in this document are for an increasing tiered-block rate structure. This means that drinking water customers will be provided with a base usage allowance included with the base rate. As new usage tiers are introduced to the rate structure, the usage rate increases for larger tiers. Generally, such rate structures are used to encourage conservation measures from larger water users.

Proposed rate schedules

Meter Diameter	In District ON	In District OFF	Out of District ON	Out of District Off
¾"	\$42.15	\$21.08	\$63.23	\$31.62
1"	\$70.26	\$35.13	\$105.38	\$52.69
1 ½"	\$140.51	\$70.26	\$210.77	\$105.38
2"	\$224.82	\$112.41	\$337.23	\$168.62
3"	\$590.35	\$295.18	\$885.53	\$442.76

Tier Breaks	Proposed Usage Rate
0-5,000 gallons	This amount included in the base rate for all customers in all scenarios.
5,001-20,000 gallons	\$2.00/1,000 gallons
20,001-50,000 gallons	\$2.50/1,000 gallons
50,001-75,000 gallons	\$3.00/1,000 gallons
75,001 gallons→	\$3.50/1,000 gallons

The above tables lay out the proposed new base and use rates for FY2020. For ¾ inch residential customers, the base rate increases by 3.9 percent and the base usage allowance increases from 3,000 gallons per month currently to 5,000 gallons per month. For larger connection diameter customers, the

base rates increase more significantly to bring base rates more in line with a larger connection’s ability to demand water. How this is calculated is represented in the Theoretical base rate section below.

Also included in the new rate recommendation is the addition of new usage tiers and an increasing tier block. Much of the newly derived revenue will come from the addition of these usage tiers. Revenue is generated more from a fee-for-use mechanism rather than increases to the base rate. Use rates are paid by all active customer classes regardless of connection size making this a shared cost among active customer classes.

Theoretical base rate

Meter Size in "	Decimal Size	of Meters	AWWA Safe Maximum Operating Cap. (GPM)	Demand (GPM)	Max Demand	Total Fixed Costs Allocated by Meter Size	Theoretical Base Rate by Meter Size per M
A	B	C	D	E= D * C	F= % of total	G= % * total	H=G/C/12
3/4"	0.750	369	30	11,070	88.28%	\$303,915	\$68.63
1"	1.000	11	50	550	4.39%	\$15,100	\$114.39
1.5"	1.500	6	100	600	4.78%	\$16,472	\$228.78
2"	2.000	2	160	320	2.55%	\$8,785	\$366.05
Total		388		12,540	100.00%	\$344,272	

The theoretical base rate is used to develop fairness in rates based on demand capacity of a meter as is represented above. The theoretical rate is the developed proportional to the demand by meter size. Once this proportionality has been achieved, rates are then modified in this same proportion to meet a system’s financial needs.

Proposed base rate

Meter Diameter	In District ON	In District OFF	Out of District ON	Out of District Off
3/4"	\$42.15	\$21.08	\$63.23	\$31.62
1"	\$70.26	\$35.13	\$105.38	\$52.69
1 1/2"	\$140.51	\$70.26	\$210.77	\$105.38
2"	\$224.82	\$112.41	\$337.23	\$168.62
3"	\$590.35	\$295.18	\$885.53	\$442.76

The “Off” customer class is set at 1/2 the “On” rate for rate payers relative to whether the account is located within or out of the defined enterprise service area.

Proposed usage rate

Tier Breaks	Proposed Usage Rate
0-5,000 gallons	This amount included in the base rate for all customers in all scenarios.
5,001-20,000 gallons	\$2.00/1,000 gallons
20,001-50,000 gallons	\$2.50/1,000 gallons
50,001-75,000 gallons	\$3.00/1,000 gallons
75,001 gallons →	\$3.50/1,000 gallons

New usage tiers are added in this proposal with an increasing tier rate structure. Use rates increase at \$0.50/1000 gallon with each tier. Customer base usage allowance has been increased from 3,000 gallons to 5,000 gallons.

5.4 Impact of suggested rates on five-year budget

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
	Base	3.00%	3.00%	3.00%	3.00%		
	Usage	3.00%	3.00%	3.00%	3.00%		
Results of the new rates		2021	2022	2023	2024	2025	5 Years
	TOTAL EXPENSES	\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
	TOTAL REVENUE	\$347,589	\$360,773	\$374,440	\$388,609	\$403,297	\$1,874,707
	NET LOSS OR GAIN: (Short/Over to Reserves)	-\$112,164	\$8,427	\$51,688	\$59,087	\$65,632	\$72,670
	NET CASH FLOW (Contribution to Reserves)	\$85,784	\$91,375	\$97,229	\$103,359	\$109,775	\$487,523
	Affordability assuming MHI of \$35667 for residential meters.	2.07%	2.15%	2.23%	2.31%	2.40%	

5.5 Impact of suggested rates on customer bills

Average Bill Every M by Meter Size for the In District ON Class									
Meter Size	Count	Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5	
0.500	0	1/2"							
0.625	0	5/8"							
0.750	305	3/4"	\$50.86	\$60.38	\$62.63	\$64.96	\$67.37	\$69.88	
1.000	10	1"	\$112.33	\$158.94	\$165.84	\$173.01	\$180.48	\$188.24	
1.500	5	1.5"	\$200.19	\$244.89	\$254.77	\$265.02	\$275.67	\$286.72	
2.000	1	2"	\$326.43	\$365.27	\$379.64	\$394.55	\$410.01	\$426.05	

5.6 Alternative Scenario for Consideration

Base and Usage Rate

In this alternative scenario, the base rate recommendations and usage rate tiers and rates are kept the same. The only difference is in the rate of growth of rates. Since large reserve drawdowns are made in years one and two after enactment of the rates, revenues are raised more significantly to replenish the drawdowns. In this scenario, after the year one initial increase, the rate of growth in rates is reduced to below inflation levels for two years before returning back to 3 percent annually. Usage rates are frozen for five years after implementation of the new tiers and corresponding tiered usage rates. The effect is a five-year reduction of contributions to reserves totaling \$63,106.

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
	Base	1.00%	2.00%	3.00%	3.00%		
	Usage	0.00%	0.00%	0.00%	0.00%		
Results of the new rates		2021	2022	2023	2024	2025	5 Years
TOTAL EXPENSES		\$459,753	\$352,346	\$322,752	\$329,521	\$337,665	\$1,802,037
TOTAL REVENUE		\$347,589	\$352,919	\$360,450	\$370,291	\$380,351	\$1,811,602
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$112,164	\$574	\$37,699	\$40,770	\$42,686	\$9,564
NET CASH FLOW (Contribution to Reserves)		\$85,784	\$83,522	\$83,240	\$85,042	\$86,830	\$424,417
Affordability assuming MHI of \$35667 for residential meters.		2.07%	2.10%	2.14%	2.20%	2.26%	

Average Bill Every M by Meter Size for the In District ON Class								
Meter Size	Count	Meter Size	Current	Year 1	Year 2	Year 3	Year 4	Year 5
0.500	0	1/2"						
0.625	0	5/8"						
0.750	305	3/4"	\$50.86	\$60.38	\$61.22	\$62.50	\$64.23	\$66.00
1.000	10	1"	\$112.33	\$158.94	\$161.71	\$165.20	\$169.46	\$173.78
1.500	5	1.5"	\$200.19	\$244.89	\$248.75	\$254.05	\$260.86	\$267.80
2.000	1	2"	\$326.43	\$365.27	\$370.83	\$378.69	\$388.96	\$399.43

6 Recommendations

6.1 Summary of rates, reserve funding, other recommendations

Recommendations for improving financial position

Horseshoe Bend is currently providing enough revenue through water rates to fund current operations along with annual additions to reserve. The SWTP, however, is aging and many of the major components are nearing the end of expected useful life. This means that in the near future the city will have to pursue large-scale upgrades or choose to strategically approach the replacement of key assets. By adopting one of the recommended rate options, Horseshoe Bend will be able to increase its contributions to reserves in order to prepare for planned upgrades. The desire of the city is to approach these needed upgrades with minimal reliance on external sources of funding.

Rates

Raising base rates on residential customers was a sensitive topic with city officials in light of recent changes to city sewer rates. Efforts were made to minimize rate impacts on residential customers and to collect more funds to fee-for-use options.

Reserve Funding

5 Year Reserve Contributions	
Do Nothing	\$ 134,711
Recommended Rates	\$ 487,523
Alternative 1	\$ 424,417

Reserve funding was the number one focus of this rate study. In order to fund many of the needed upgrades with city funds, additional reserve funding is imperative. The rate scenarios included in this document raise the projected five-year reserve contribution by over \$350,000 under the recommended rate alternative and just under \$300,000 under the alternate recommendation.

What happens if no action is taken

If the city takes no action, the upgrades to Horseshoe Bend's SWTP will be necessary with or without the adoption of the recommended rates. When that time occurs, the City will likely have to seek outside sources of funding, such as loans. With loans come conditions that will necessitate additional revenues to be generated by the Drinking Water Enterprise. By taking action this year, Horseshoe Bend will be in a better position to address more issues in-house and minimize future impacts to rate payers.

6.2 Implementation of rate adjustments

The adoption and implementation of any of the recommended rate increases can be enacted with the annual city budget. The resulting timing of such increases would allow Horseshoe Bend to evaluate the above proposals as part of the larger budgeting process. This also allows sufficient time for evaluation and consideration of the alternatives through the requisite public hearing process. By implementing these raises with the beginning of the fiscal year, this allows for a full year's worth of reserve savings in line with the projected five-year budget numbers.

7 Appendix

7.1 Financial spreadsheet (multi-year budget)

EXPENSES AND SOURCES OF FUNDS	2019	2020	2021	2022	2023	2024	2025
OPERATIONS & MAINTENANCE EXPENSES							
Wages	\$ 82,527	\$ 89,860	\$ 92,466	\$ 95,147	\$ 97,907	\$ 100,746	\$ 103,668
Employee Benefits	\$ 35,317	\$ 40,396	\$ 41,567	\$ 42,773	\$ 44,013	\$ 45,290	\$ 46,603
Dues	\$ 2,557	\$ 2,831	\$ 2,913	\$ 2,998	\$ 3,085	\$ 3,174	\$ 3,266
Utilities	\$ 29,221	\$ 24,790	\$ 25,509	\$ 26,249	\$ 27,010	\$ 27,793	\$ 28,599
Treatment, Chemicals, and Testing	\$ 31,700	\$ 32,666	\$ 33,613	\$ 34,588	\$ 35,591	\$ 36,623	\$ 37,685
Repairs and Maintenance	\$ 32,324	\$ 30,029	\$ 30,900	\$ 31,796	\$ 32,718	\$ 33,667	\$ 34,643
Supplies	\$ 17,711	\$ 10,374	\$ 10,675	\$ 10,984	\$ 11,303	\$ 11,631	\$ 11,968
Contract Services	\$ 1,685	\$ 285	\$ 293	\$ 302	\$ 311	\$ 320	\$ 329
Billing and Operation	\$ 21,696	\$ 18,804	\$ 19,349	\$ 19,910	\$ 20,488	\$ 21,082	\$ 21,693
Insurance	\$ 4,370	\$ 4,154	\$ 4,274	\$ 4,398	\$ 4,526	\$ 4,657	\$ 4,792
Training	\$ 280	\$ 238	\$ 245	\$ 252	\$ 259	\$ 267	\$ 275
Total Refurbishing and Rebuilding Cost			\$ -	\$ -	\$ -	\$ -	\$ -
Contracted Work	\$ 110,000	\$ 185,000					
Total Operation and Maintenance Expenses:	\$ 369,388	\$ 439,427	\$ 261,805	\$ 269,398	\$ 277,210	\$ 285,249	\$ 293,522
GENERAL & ADMINISTRATIVE EXPENSES							
Operating Reserve Funding			\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Reserve Funding			\$ 2,480	\$ 2,480	\$ 2,480	\$ 2,480	\$ 2,480
Debt Reserve Funding			\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Existing Capital Assets			\$ 43,061	\$ 43,061	\$ 43,061	\$ 41,792	\$ 41,664
Replacement of Funded Project Assets			\$ -	\$ -	\$ -	\$ -	\$ -
Reserves for Additional Capital Assets			\$ 152,406	\$ 37,406	\$ -	\$ -	\$ -
Debt Service			\$ -	\$ -	\$ -	\$ -	\$ -
Capital Improvement (Backhoe)	\$ 20,000	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -
Total General and Administrative Expenses:	\$ 20,000	\$ 20,000	\$ 197,948	\$ 82,948	\$ 45,541	\$ 44,272	\$ 44,144
TOTAL EXPENSES	\$ 389,388	\$ 459,427	\$ 459,753	\$ 352,346	\$ 322,752	\$ 329,521	\$ 337,665
SOURCE OF FUNDS / REVENUES RECEIVED							
Sales Revenue (Base + Usage)	\$ 299,136	\$ 260,000	\$ 333,701	\$ 338,580	\$ 345,668	\$ 355,074	\$ 364,686
New connections	\$ 6,180	\$ 15,540	\$ 15,991	\$ 16,454	\$ 16,932	\$ 17,423	\$ 17,928
Interest income	\$ 1,691	\$ 1,200	\$ 1,235	\$ 1,271	\$ 1,307	\$ 1,345	\$ 1,384
Uncollectable Receivables			\$ (3,337)	\$ (3,386)	\$ (3,457)	\$ (3,551)	\$ (3,647)
Reconnect/Admin			\$ -	\$ -	\$ -	\$ -	\$ -
Fees Late/NSF			\$ -	\$ -	\$ -	\$ -	\$ -
Bulk Sales			\$ -	\$ -	\$ -	\$ -	\$ -
Other	\$ 10,461		\$ -	\$ -	\$ -	\$ -	\$ -
Reimbursements	\$ 110,000	\$ 165,000	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL REVENUE	\$ 427,468	\$ 441,740	\$ 347,589	\$ 352,919	\$ 360,450	\$ 370,291	\$ 380,351
NET LOSS OR GAIN:	\$ 38,080	\$ (17,687)	\$ (112,164)	\$ 574	\$ 37,699	\$ 40,770	\$ 42,686
NET CASH FLOW (Contribution to Reserves)	\$ 38,080	\$ (17,687)	\$ 85,784	\$ 83,522	\$ 83,240	\$ 85,042	\$ 86,830

7.2 Capital Reserve Plan (CRP)

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	% Belonging to Water	Estimated Historic Cost (Water only)	Normal Estimated Life	Current Age	Estimated Current Cost	Planned Remaining Life	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
Replacement of Existing Capital Assets																	
1	2006 Ford Ranger (20%WW, 20%DW)	2006	20,000	c	20%	\$2,888	15	14	4,000	1	3	4,358	100%	0%	0%	2,571	588
1	2019 Ford Extended Cab (40%WW, 40%DW)	2019	40,000	c	40%	\$15,632	15	1	16,000	14	14	23,875	50%	50%	0%	5,143	458
1	1978 Case 580C Loader (20%WW, 20%DW)	1985	13,000	h	20%	\$2,600	20	35	5,763	-15	7	4,606	100%	0%	0%	3,704	119
1	Dump Truck (20%WW, 20%DW)	2000	16,000	c	20%	\$2,009	20	20	3,200	0	7	3,909	100%	0%	0%	2,057	256
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
Buildings																	
1	Intake Bldg	1975	75,000	c	100%	\$26,322	60	45	75,000	15	15	115,157	10%	75%	15%	4,821	420
1	Operations Bldg	1975	75,000	c	100%	\$26,322	60	45	75,000	15	15	115,157	10%	75%	15%	4,821	420
1	Ozone Bldg	1990	50,000	e	100%	\$24,878	60	30	50,000	30	30	117,878	10%	75%	15%	3,214	258
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
Surface Water Treatment																	
3	Intake Pumps (7.5 HP)	1975	3,500	c	100%	\$3,685	15	45	10,500	-30	5	12,113	100%	0%	0%	6,750	1,049
1	Flocculator System and Basin	1975	800,000	c	100%	\$280,767	60	45	800,000	15	5	922,926	5%	45%	50%	25,713	3,995
1	Sedimentation Basin 25,000 gal	1983	700,000	c	100%	\$295,935	60	37	700,000	23	5	807,560	5%	45%	50%	22,499	3,495
2	Hach Chlorinators	2012	800	c	100%	\$1,328	15	8	1,600	7	7	1,954	100%	0%	0%	1,029	Not Cap.
3	Clear Well Pump (7.5 HP)	1980	3,500	c	100%	\$4,140	15	40	10,500	-25	5	12,113	100%	0%	0%	6,750	1,049
2	Vac Pumps (25 HP)	1975	4,000	c	100%	\$2,808	15	45	8,000	-30	5	9,229	100%	0%	0%	5,143	799
2	Generators (25 KW) for Ozonation	2000	20,000	c	100%	\$25,116	20	20	40,000	0	5	46,146	50%	50%	0%	12,857	1,997
2	Wedeco H400T Ozone Monitors	2018	400	c	100%	\$764	10	2	800	8	8	1,006	100%	0%	0%	514	Not Cap.
1	Contact Chamber 5,000 gal	1980	50,000	e	100%	\$19,713	50	40	50,000	10	10	66,546	50%	50%	0%	16,071	1,646
1	Ozone Destruct Unit	1980	1,000	e	100%	\$394	10	40	1,000	-30	5	1,154	100%	0%	0%	643	Not Cap.
2	50HP Distribution Pumps	2010	20,000	c	100%	\$31,696	15	10	40,000	5	5	46,146	50%	50%	0%	12,857	1,997
2	VFD for Dist. Pumps	2010	17,000	c	100%	\$26,942	15	10	34,000	5	5	39,224	50%	50%	0%	10,928	1,698
2	Mag Meters	2019	1,500	c	100%	\$2,931	15	1	3,000	14	14	4,476	100%	0%	0%	1,928	172
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
Distribution																	
40,000	8-12" Asbestos Cement Piping (linear feet)	1975	75	c	100%	\$1,052,875	100	45	3,000,000	55	55	14,453,295	2%	45%	53%	38,570	3,878
20,000	8-12" C900 Distribution Piping (linear feet)	2005	35	c	100%	\$493,761	100	15	700,000	85	85	7,950,691	5%	45%	50%	22,499	3,500
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
Wells and Storage Tank																	
1	Groundwater Well	2019	200,000	c	100%	\$195,400	50	1	200,000	49	49	811,677	5%	45%	50%	6,428	602
1	50,000 gal Storage Tank	1975	50,000	c	100%	\$17,548	50	45	50,000	5	5	57,683	50%	50%	0%	16,071	2,497
1	150,000 gal Storage Tank	1996	150,000	c	100%	\$85,815	50	24	150,000	26	26	315,421	10%	75%	15%	9,642	768
1	200,000 gal Storage Tank	1975	200,000	c	100%	\$70,192	50	45	200,000	5	5	230,731	10%	75%	15%	12,857	1,997
					100%								0%	0%	100%	0	0
					100%								0%	0%	100%	0	0
Other																	
1	Clear Well 1,000 gal	1975	10,000	c	100%	\$3,510	50	45	10,000	5	5	11,537	100%	0%	0%	6,428	999
2	Mixed Media Filters	1975	23,000	c	100%	\$16,144	20	45	46,000	-25	10	61,223	50%	50%	0%	14,785	1,514
1	Alum Storage Tank	1975	900	c	100%	\$316	20	45	900	-25	5	1,038	100%	0%	0%	579	Not Cap.
1	Air Compressor	1975	5,000	c	100%	\$1,755	15	45	5,000	-30	5	5,768	100%	0%	0%	3,214	499
2	Polymer Pumps	1975	1,000	c	100%	\$702	15	45	2,000	-30	3	2,179	100%	0%	0%	1,286	Not Cap.
1	SCADA System	2000	15,000	c	100%	\$9,419	15	20	15,000	-5	3	16,343	100%	0%	0%	9,642	2,206
1	Chlorine Analyzer	2010	1,000	c	100%	\$792	15	10	1,000	5	5	1,154	100%	0%	0%	643	Not Cap.
3	Turbidometers	2009	1,000	c	100%	\$2,323	15	11	3,000	4	4	3,363	100%	0%	0%	1,928	352
100	Hydrants	2000	5,000	c	100%	\$313,951	50	20	500,000	30	30	1,178,776	5%	45%	50%	16,071	1,290
321	Connection Meters	2010	300	c	100%	\$76,308	15	10	96,300	5	5	111,097	10%	75%	15%	6,190	962
12	Pressure release valves	2010	20,000	c	100%	\$190,177	20	10	240,000	10	10	319,422	10%	75%	15%	15,428	1,580
					100%								0	0%	100%	0	0
#REF!						\$3,327,853			7,147,563			27,886,935	0%	0%	0%	332,274	43,061
#REF!																	
Reserves for Additional Capital Assets																	
1	Connect well	2021	75,000	F	100%		15	1	72,825			75,000	100%	0%	0%	0	75,000
1	Raw water to SCADA	2021	40,000	F	100%		15	1	38,840			40,000	100%	0%	0%	0	40,000
1	Chlorine contact time	2022	75,000	F	100%		15	2	70,713			75,000	100%	0%	0%	0	37,406
					100%								0%	0%	0%	0	0
Subtotal Reserves for Additional Capital Assets												190,000	0%	0%	0%	0	152,406

7.3 Fixed versus variable charges

	5-Year Average	% Fixed	\$ Fixed	\$ Variable
OPERATIONS & MAINTENANCE EXPENSES				
Wages	97,987	100%	97,987	0
Employee Benefits	44,049	90%	39,644	4,405
Dues	3,087	75%	2,315	772
Utilities	27,032	90%	24,329	2,703
Treatment, Chemicals, and Testing	35,620	80%	28,496	7,124
Repairs and Maintenance	32,745	100%	32,745	0
Supplies	11,312	90%	10,181	1,131
Contract Services	311	100%	311	0
Billing and Operation	20,505	100%	20,505	0
Insurance	4,530	100%	4,530	0
Training	260	100%	260	0
Total Operation and Maintenance Expenses:	277,437		261,302	16,135
GENERAL & ADMINISTRATIVE EXPENSES				
Operating Reserve Funding	0	100%	0	0
Emergency Reserve Funding	2,480	100%	2,480	0
Debt Reserve Funding	0	100%	0	0
Replacement of Existing Capital Assets	42,528	100%	42,528	0
Replacement of Funded Project Assets	0	100%	0	0
Reserves for Additional Capital Assets	37,963	100%	37,963	0
0	0	100%	0	0
Total General and Administrative Expenses:	82,971		82,971	0
Total All Expenses				
	360,407		344,272	16,135
Fixed-Variable as % of all Expenses			96%	4%

7.4 Methodology

Rate Setting with Water Meters

