



Saint Paul Regional Water Services
Cost of Services
FINAL REPORT
March 20, 2023

Contents

1. PROJECT BACKGROUND, OBJECTIVES AND SCOPE.....	1
2. COST OF SERVICES	2

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1. Project Background, Objectives and Scope

Baker Tilly was hired to review and analyze the City of St. Paul's/St. Paul Regional Water Service (SPRWS) Water Fund to determine the appropriate rate structures and other revenue sources needed for operations and the financing of capital improvements. The rate structure and other revenue in the Water Fund must provide sufficient revenue to cover anticipated operating and maintenance expenses, debt service including principal and interest, capital improvements and replacements, and to maintain adequate cash reserves. The total revenue collected should reflect not only recent cost experience but should recognize anticipated future costs during the period for which rates are being established.

Our scope included a cost-of-services analysis for wholesale customers to determine the revenue requirements that should come from. The purpose of this report is to present the cost of services analysis.

2. Cost of Services

SPRWS performed a base extra capacity analysis in 2017 and in 2019. The first study completed in November of 2017 was a “*Cost of Services Study for Wholesale Customers Cities of Little Canada and Roseville*”. The second was completed in November 2019 and was a *Cost of Services Study for Wholesale Customers Cities of Little Canada and Roseville November 2017 and Incorporating Cost Of Service Study for University Of Minnesota November 2019*”.

- Baker Tilly performed a cost-of-service study as part of this water rate study. Our cost-of-service study followed the processes incorporated in the two previous studies to provide consistency. However, we carefully reviewed the two previous studies and the widely accepted methodology provided in the American Water Works Association (AWWA) “*Principles of Water Rates, Fees, and Charges Manual M1*”, to ensure we agreed with the methodology used. The cost-of-service study is based on a large amount of data related to utility assets, water consumption, methods of operation and other related data. The data provided for this analysis included:
 - Wholesale water consumption data for 2017 through 2021
 - Asset report for 12/31/2020
 - 2022 budget data

Assumptions incorporated into the cost-of-service analysis from the previous two studies and from our own experience include:

- Assets that serve each of the wholesale customers (the same as in the 2017 & 2019 study)
- The 2022 cost per foot of distribution piping serving each wholesale customer was estimated based on the 2017 cost in the previous studies inflated to 2022 by the long-term average increase in the American and City Municipal Construction cost index
- The 2022 cost of preparing and collecting a bill including meter reading was estimated by inflating the 2019 costs by the change in operating costs from 2019 to 2022
- The 2022 administration and engineering design base percentages were the same as in the 2019 study
- The present worth of the assets was determined by inflating the current book value from the asset report by the long-term average increase in the American and City Municipal Construction cost index
- Assets that were not readily identifiable to a particular functional classification were assumed to be in the same functional classification as in the 2019 study. New assets were assigned to the most logical classification based on the type.
- A 5% return on investment as was used as in the 2017 and 2019 studies

Return on Rate Base

Return on rate base provides a rate of return on the capital investment required to provide water service to SPRWS' customers. The underlying logic is that SPRWS should receive a return on its invested capital from nonowner customers because they do not share in financing SPRWS' capital improvements except through the cost of depreciation. The revenue requirements associated with "a return on rate base" are calculated by multiplying the present worth of the asset (the original cost minus accumulated depreciation adjusted to its present worth) by an inflation factor to bring it to its present value. The 2017 and 2019 studies used the Handy Whitman Index to determine the present worth. Neither SPRWS nor Baker Tilly currently subscribe to this index so the long-term average increase in the American and City Municipal Construction cost index was used for the present worth calculations. A spot check of this index against the Handy Whitman Index found negligible differences. The estimated present worth of SPRWS' assets by functional area were calculated from the asset database provided for this analysis. These present worth costs were then allocated to retail and wholesale customers based on consumption data. The average consumption data for the period 2017 through 2021 was used for this purpose. This data is shown below. The data showed a fairly large reduction for the U of M from the 2019 study average of 153.15 million gallons per year (MGY) to 117.51 MGY for this study.

Water Demand (MGY)

Year	Roseville (MGY)	Little Canada (MGY)	Wholesale U of M	Retail (MGY)	Total consumption Water (MGY)	Total Treated Water (MGY)
2017	1,640.605604	353.181664		10,377.556024	12,371.343292	14,349.124731
2018	1,714.346436	339.788724		10,309.872496	12,364.007656	14,469.866214
2019	1,629.465640	337.297884		9,930.225844	11,896.989368	14,121.936735
2020	1,708.833676	355.041940	105.170296	9,782.851144	11,951.897056	14,005.936735
2021	1,878.726168	383.789076	129.864020	10,337.531292	12,729.910556	14,647.457608
Average	1,714.395505	353.819858	117.517158	10,147.607360	12,262.829586	14,236.716104

The average day, max day and max hour relative volumes were determined to be as shown in the table below for each customer.

Customers	Average Day			Max Day		Max Hour	
	MGY	MGD	% of Total	MGD			
Retail Customers	10,147.61	27.80	82.28%	51.03	82.28%	153.09	82.28%
Roseville	1,714.40	4.70	13.90%	8.62	13.90%	25.86	13.90%
Little Canada	353.82	0.97	2.87%	1.78	2.87%	5.34	2.87%
U of M	117.52	0.32	0.95%	0.59	0.95%	1.77	0.95%
Total	12,333.34	33.79	100.00%	62.02	100.00%	186.06	100.00%

The allocation percentages for the base extra capacity method using the consumption data are shown in the table below.

	Base	Extra Capacity		
Base Extra Capacity	Capacity	Max Day	Max Hour	Total
Total Capacity (MGD)	33.79	62.02	186.06	
Percent Allocation				
Avg Day and Max Day	54%	46%	0%	100%
Avg Day and Max Hour	18%	0%	82%	100%
Avg Day, Max Day and Max Hour	18%	33%	49%	100%

The asset value present worth amounts, and depreciation amounts were distributed to the wholesale and retail customers using the base plus extra capacity factors derived from the consumption data with the exception of distribution, meters and billing assets which we distributed based on the assets each customer benefited from similar to the 2017 and 2019 studies. The total capital cost is determined by the sum of the plant value, the return on investment at 5% and the current depreciation. These allocations are shown in the table below and on the following pages.

Allocation of Asset Present Worth

Description	Asset Value (Present Worth)	Total					
		Base		Extra Capacity			
		Average Day		Maximum Day		Maximum Hour	
		%	Amount	%	Amount	%	Amount
Administration							
Total	\$ 15,585,780	100.00%	\$ 15,585,780		\$ -	0.00%	\$ -
Business							
Total	\$ -	100.00%	\$ -				\$ -
Engineering							
Total	\$ 61,121	100.00%	\$ 61,121		\$ -		\$ -
Land							
Production Land	\$ 3,716,925	100.00%	\$ 3,716,925				
Other Land	\$ 344,841	100.00%	\$ 344,841				
Total	\$ 4,061,766		\$ 4,061,766		\$ -		\$ -
Treatment (Production)							
Total	\$ 101,938,211	54.48%	\$ 55,538,364	45.52%	\$ 46,399,847	0.00%	\$ -
Distribution Equipment etc.							
Building and Structures	\$ 500,537						
Equipment	\$ 2,740,763						
Infrastructure	\$ 348,116,749						
Improvements other than Buildings	\$ 7,059						
Total	\$ 351,365,108	18.16%	\$ 63,810,691	0.00%	\$ -	81.84%	\$ 287,554,417
Tanks and Towers							
Infrastructure, Equipment, Machinery	\$ 12,704,086	18.16%	\$ 2,307,163	0.00%	\$ -	81.84%	\$ 10,396,923
McCarrons Finished Water Reservoir	\$ 619,626	18.16%	\$ 112,529	0.00%	\$ -	81.84%	\$ 507,097
Total	\$ 13,323,712		\$ 2,419,692		\$ -		\$ 10,904,020
Roseville							
Building and Infrastructure (Dale Street Reservoir)	\$ 7,498,090	18.16%	\$ 1,361,713	0.00%	\$ -	81.84%	\$ 6,136,378
Equipment and Machinery (meters/meter vault)	\$ 283,768	18.16%	\$ 51,535	0.00%	\$ -	81.84%	\$ 232,234
Other Capital Outlay	\$ -			0.00%			
Total	\$ 7,781,859		\$ 1,413,247	0.00%	\$ -		\$ 6,368,611
Little Canada							
Building and Infrastructure (Including meter house/meter)	\$ 24,041	18.16%	\$ 4,366			81.84%	\$ 19,675
Total	\$ 24,041		\$ 4,366		\$ -		\$ 19,675
U of M							
Total	\$ 3,378,067	18.16%	\$ 613,484	0.00%	\$ -	81.84%	\$ 2,764,583
Meters and Billing							
Total	\$ 18,324,095	100.00%	\$ 18,324,095	0.00%	\$ -	0.00%	\$ -
Total Plant Value	\$ 515,843,760		\$ 161,832,606		\$ 46,399,847		\$ 307,611,306

Allocation of Asset Present Worth (continued)

	Roseville					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
Total	13.90%	\$ 2,166,501	0.00%	\$ -	0.00%	\$ -
Business						
Total	13.90%	\$ -				
Engineering						
Total	13.90%	\$ 8,496	0.00%	\$ -	0.00%	\$ -
Land						
Production Land	13.90%	\$ 516,671	0.00%	\$ -	0.00%	\$ -
Other Land	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 516,671		\$ -		\$ -
Treatment (Production)						
Total	13.90%	\$ 7,720,108	13.90%	\$ 6,449,809	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	1.09%	\$ 698,100	0.00%	\$ -	1.09%	\$ 3,145,894
Tanks and Towers						
Infrastructure, Equipment, Machinery	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	13.90%	\$ 15,642	0.00%	\$ -	13.90%	\$ 70,489
Total		\$ 15,642		\$ -		\$ 70,489
Roseville						
Building and Infrastructure (Dale Street Reservoir)	50.00%	\$ 680,856	0.00%	\$ -	50.00%	\$ 3,068,189
Equipment and Machinery (meters/meter vault)	100.00%	\$ 51,535	0.00%	\$ -	100.00%	\$ 232,234
Other Capital Outlay	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 732,391		\$ -	0.00%	\$ 3,300,422
Little Canada						
Building and Infrastructure (Including meter house/meter)						
Total						
U of M						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value		\$ 11,857,909		\$ 6,449,809	1.09%	\$ 6,516,805

Allocation of Asset Present Worth (continued)

	Little Canada					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
Total	2.87%	\$ 447,126	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	2.87%	\$ 1,753	0.00%	\$ -	0.00%	\$ -
Land						
Production Land	2.87%	\$ 106,631	0.00%	\$ -	0.00%	\$ -
Other Land	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 106,631		\$ -		\$ -
Treatment (Production)						
Total	2.87%	\$ 1,593,289	2.87%	\$ 1,331,123	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	0.45%	\$ 289,291	0.00%	\$ -	0.45%	\$ 1,303,654
Tanks and Towers						
Infrastructure, Equipment, Machinery	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	2.87%	\$ 3,228	0.00%	\$ -	2.87%	\$ 14,548
Total		\$ 3,228		\$ -		\$ 14,548
Roseville						
Building and Infrastructure (Dale Street Reservoir)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Equipment and Machinery (meters/meter vault)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Other Capital Outlay	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
Little Canada						
Building and Infrastructure (Including meter house/meter)						
Total	100.00%	\$ 4,366			100.00%	\$ 19,675
U of M						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value	109.06%	\$ 2,445,686	2.87%	\$ 1,331,123	100.45%	\$ 1,337,876

Allocation of Asset Present Worth (continued)

	University of Minnesota					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
Total	0.95%	\$ 148,508	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	0.95%	\$ 582	0.00%		0.00%	
Land						
Production Land	0.95%	\$ 35,416	0.00%	\$ -	0.00%	\$ -
Other Land	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 35,416		\$ -		\$ -
Treatment (Production)						
Total	0.95%	\$ 529,192	0.95%	\$ 442,117	0.95%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	0.79%	\$ 506,459	0.00%	\$ -	0.79%	\$ 2,282,289
Tanks and Towers						
Infrastructure, Equipment, Machinery	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	0.95%	\$ 1,072	0.00%	\$ -	0.95%	\$ 4,832
Total		\$ 1,072		\$ -		\$ 4,832
Roseville						
Building and Infrastructure (Dale Street Reservoir)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Equipment and Machinery (meters/meter vault)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Other Capital Outlay	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
Little Canada						
Building and Infrastructure (Including meter house/meter)						
Total						
U of M						
Total	25.00%	\$ 153,371	0.00%	\$ -	25.00%	\$ 691,146
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value	28.65%	\$ 1,374,601	0.95%	\$ 442,117	26.75%	\$ 2,978,267

Allocation of Asset Present Worth (continued)

	Retail Customers					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
Total	82.28%	\$ 12,823,645	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	82.28%	\$ 50,289	0.00%	\$ -	0.00%	\$ -
Land						
Production Land	82.28%	\$ 3,058,206	0.00%	\$ -	0.00%	\$ -
Other Land	100.00%	\$ 344,841	0.00%	\$ -	0.00%	\$ -
Total		\$ 3,403,047				\$ -
Treatment (Production)						
Total	82.28%	\$ 45,695,774	82.28%	\$ 38,176,798	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	97.66%	\$ 62,316,842	0.00%	\$ -	97.66%	\$ 280,822,580
Tanks and Towers						
Infrastructure, Equipment, Machinery	100.00%	\$ 2,307,163	0.00%	\$ -	100.00%	\$ 10,396,923
McCarrons Finished Water Reservoir	82.28%	\$ 92,586	0.00%	\$ -	82.28%	\$ 417,229
Total		\$ 2,399,749		\$ -		\$ 10,814,152
Roseville						
Building and Infrastructure (Dale Street Reservoir)	50.00%	\$ 680,856	0.00%	\$ -	50.00%	\$ 3,068,189
Equipment and Machinery (meters/meter vault)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Other Capital Outlay	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 680,856		\$ -		\$ 3,068,189
Little Canada						
Building and Infrastructure (Including meter house/meter)						
Total						
U of M						
Total	75.00%	\$ 460,113	0.00%	\$ -	75.00%	\$ 2,073,437
Meters and Billing						
Total	100.00%	\$ 18,324,095	0.00%	\$ -	0.00%	\$ -
Total Plant Value	519.49%	\$ 146,154,410	82.28%	\$ 38,176,798		\$ 296,778,358

Allocation of Depreciation

Description	Depreciation	Total					
		Base		Extra Capacity			
		Average Day		Maximum Day		Maximum Hour	
		%	Amount	%	Amount	%	Amount
Administration							
Total	\$ 236,967	100.00%	\$ 236,967	0.00%	\$ -	0.00%	\$ -
Business							
Total							
Engineering							
Total	\$ 22,098	100.00%	\$ 22,098	0.00%	\$ -	0.00%	\$ -
Land							
Total	\$ -						
Treatment (Production)							
Total	\$ 2,825,676	54.00%	\$ 1,525,865	46.00%	\$ 1,299,811	0.00%	\$ -
Distribution Equipment etc.							
Building and Structures	\$ 10,556						
Equipment	\$ 527,959						
Infrastructure	\$ 5,334,849						
Improvements other than Buildings	\$ 584						
Total	\$ 5,873,948	18.16%	\$ 1,066,756	0.00%	\$ -	81.84%	\$ 4,807,193
Tanks and Towers							
Other than McCarrons	\$ 319,744	18.16%	\$ 58,068	0.00%	\$ -	81.84%	\$ 261,676
McCarrons Finished Water Reservoir	\$ 21,375	18.16%	\$ 3,882	0.00%	\$ -	81.84%	\$ 17,493
McCarron's Low Service Tank	\$ -	18.16%	\$ -	0.00%	\$ -	81.84%	\$ -
Total	\$ 341,119		\$ 61,950		\$ -		\$ 279,169
Roseville							
Building and Infrastructure (Dale Street Reservoir)	\$ 107,660	18.16%	\$ 19,552	0.00%	\$ -	81.84%	\$ 88,108
Equipment and Machinery (meters/valves)	\$ 7,166	18.16%	\$ 1,301	0.00%	\$ -	81.84%	\$ 5,865
Total	\$ 114,826		\$ 20,853		\$ -		\$ 93,973
Little Canada							
Building and Infrastructure (Including meter house/meter)	\$ 379	18.16%	\$ 69	0.00%	\$ -	81.84%	\$ 310
Total	\$ 379		\$ 69		\$ -		\$ 310
U of M							
Total	\$ 46,115	18.16%	\$ 8,375	0.00%	\$ -	81.84%	\$ 37,740
Meters and Billing							
Total	\$ 800,281	100.00%	\$ 800,281	0.00%	\$ -	0.00%	\$ -
Total Plant Value	\$ 10,261,410	390.32%	\$ 3,743,214	46.00%	\$ 1,299,811	163.68%	\$ 5,218,385

Allocation of Depreciation (continued)

	Roseville					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
	%	Amount	%	Amount	%	Amount
Description						
Administration						
Total	13.90%	\$ 32,940	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	13.90%	\$ 3,072	0.00%	\$ -	0.00%	\$ -
Land						
Total						
Treatment (Production)						
Total	13.90%	\$ 212,103	13.90%	\$ 180,680	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	1.09%	\$ 11,670	0.00%	\$ -	1.09%	\$ 52,592
Tanks and Towers						
Other than McCarrons	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	13.90%	\$ 540	0.00%	\$ -	13.90%	\$ 2,432
McCarron's Low Service Tank	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 540		\$ -		\$ 2,432
Roseville						
Building and Infrastructure (Dale Street Reservoir)	50.00%	\$ 9,776	0.00%	\$ -	50.00%	\$ 44,054
Equipment and Machinery (meters/valves)	100.00%	\$ 1,301	0.00%	\$ -	100.00%	\$ 5,865
Total		\$ 11,077		\$ -		\$ 49,919
Little Canada						
Building and Infrastructure (Including meter house/meter)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
U of M						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value	42.80%	\$ 271,402	13.90%	\$ 180,680	1.09%	\$ 104,942

Allocation of Depreciation (continued)

	Little Canada					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
	%	Amount	%	Amount	%	Amount
Description						
Administration						
Total	2.87%	\$ 6,798	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	2.87%	\$ 634	0.00%	\$ -	0.00%	\$ -
Land						
Total						
Treatment (Production)						
Total	2.87%	\$ 43,774	2.87%	\$ 37,289	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	0.45%	\$ 4,836	0.00%	\$ -	0.45%	\$ 21,794
Tanks and Towers						
Other than McCarrons	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	2.87%	\$ 111	0.00%	\$ -	2.87%	\$ 502
McCarron's Low Service Tank	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 111		\$ -		\$ 502
Roseville						
Building and Infrastructure (Dale Street Reservoir)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Equipment and Machinery (meters/valves)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
Little Canada						
Building and Infrastructure (Including meter house/meter)	100.00%	\$ 69	0.00%	\$ -	100.00%	\$ 310
Total		\$ 69		\$ -		\$ 310
U of M						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value	9.06%	\$ 56,223	2.87%	\$ 37,289	0.45%	\$ 22,606

Allocation of Depreciation (continued)

	University of Minnesota					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
Total	0.95%	\$ 2,258	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	0.95%	\$ 211	0.00%	\$ -	0.00%	\$ -
Land						
Total						
Treatment (Production)						
Total	0.95%	\$ 14,539	0.95%	\$ 12,385	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	0.79%	\$ 8,467	0.00%	\$ -	0.79%	\$ 38,154
Tanks and Towers						
Other than McCarrons	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
McCarrons Finished Water Reservoir	0.95%	\$ 37	0.00%	\$ -	0.95%	\$ 167
McCarron's Low Service Tank	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 37		\$ -		\$ 167
Roseville						
Building and Infrastructure (Dale Street Reservoir)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Equipment and Machinery (meters/valves)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
Little Canada						
Building and Infrastructure (Including meter house/meter)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
U of M						
Total	25.00%	\$ 2,094	0.00%	\$ -	25.00%	\$ 9,435
Meters and Billing						
Total	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total Plant Value	28.65%	\$ 27,605	0.95%	\$ 12,385	25.79%	\$ 47,756

Allocation of Depreciation (continued)

	Retail Customers					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
	%	Amount	%	Amount	%	Amount
Description						
Administration						
Total	82.28%	\$ 194,971	0.00%	\$ -	0.00%	\$ -
Business						
Total						
Engineering						
Total	82.28%	\$ 18,182	0.00%	\$ -	0.00%	\$ -
Land						
Total						
Treatment (Production)						
Total	82.28%	\$ 1,255,449	82.28%	\$ 1,069,457	0.00%	\$ -
Distribution Equipment etc.						
Building and Structures						
Equipment						
Infrastructure						
Improvements other than Buildings						
Total	97.66%	\$ 1,041,782	0.00%	\$ -	97.66%	\$ 4,694,653
Tanks and Towers						
Other than McCarrons	100.00%	\$ 58,068	0.00%	\$ -	100.00%	\$ 261,676
McCarrons Finished Water Reservoir	82.28%	\$ 3,194	0.00%	\$ -	82.28%	\$ 14,393
McCarron's Low Service Tank	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 61,262		\$ -		\$ 276,069
Roseville						
Building and Infrastructure (Dale Street Reservoir)	50.00%	\$ 9,776	0.00%	\$ -	50.00%	\$ 44,054
Equipment and Machinery (meters/valves)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 9,776		\$ -		\$ 44,054
Little Canada						
Building and Infrastructure (Including meter house/meter)	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ -		\$ -		\$ -
U of M						
Total	75.00%	\$ 6,281	0.00%	\$ -	75.00%	\$ 28,305
Meters and Billing						
Total	100.00%	\$ 800,281	0.00%	\$ -	0.00%	\$ -
Total Plant Value	519.49%	\$ 3,387,985	82.28%	\$ 1,069,457	172.66%	\$ 5,043,081

Asset Value and Depreciation Allocation Summary

Description	Roseville	Little Canada	U of M	Total
Plant Value (Present Worth Allocation)	\$ 24,824,524	\$ 5,114,685	\$ 4,794,985	\$ 34,734,193
Return on Investment (5%)	\$ 1,241,226	\$ 255,734	\$ 239,749	\$ 1,736,710
Current Depreciation	\$ 557,024	\$ 116,118	\$ 87,746	\$ 760,887
Total Capital Cost	\$ 1,798,250	\$ 371,852	\$ 327,495	\$ 2,497,597

The allocation of operations and maintenance expenses generally followed the same logic as the 2017 and 2019 studies. This is based on our understanding that the operations of SPRWS have not changed materially from 2019. The allocation of operating and maintenance expenses to base, maximum day and maximum hour is shown in the table on the following page. The allocation of some expenses was done based on the 2017 and 2019 study including:

- 49.50% of administration costs with the exception of safety and security were allocated based on a time allocation of staff in that function
- 66.7% of safety and security costs were allocated based on a time allocation of staff in that function
- Meter expenses were allocated based on an allocation of staff time and resources
- 21.9% of Engineering Maps and Records costs were allocated based on a time allocation of staff in that function
- 49.5% of GA employee fringe cost were allocated because they are part of administration

In addition, engineering costs related to homeowner lead replacement loans and land sales were not allocated as they do not benefit wholesale customers.

The operations and maintenance total expense allocations are shown on the following pages.

Allocation of O & M Expenses

Description	Total							
	O & M Costs	% Assigned	O & M Cost to Allocate	Base		Extra Capacity		
				Average Day		Maximum Day		Maximum Hour
				%	Amount	%	Amount	% Amount
Administration								
69082100 AD General Administration	\$ 886,865	49.50%	\$ 438,998	100.00%	\$ 438,998	0.00%	\$ -	0.00% \$ -
69082105 AD Admin Bodge and Campus Ground Mtce	\$ 5,699,222	49.50%	\$ 2,821,115	100.00%	\$ 2,821,115	0.00%	\$ -	0.00% \$ -
69082107 AD Safety and Security	\$ 573,049	49.50%	\$ 283,659	100.00%	\$ 283,659	0.00%	\$ -	0.00% \$ -
69082110 BD Business SS Administration	\$ 220,658	49.50%	\$ 109,226	100.00%	\$ 109,226	0.00%	\$ -	0.00% \$ -
69082115 AD Business Improvement Unit	\$ 438,232	49.50%	\$ 216,925	100.00%	\$ 216,925	0.00%	\$ -	0.00% \$ -
69082120 BD Call Center	\$ 1,550,244	0.00%	\$ -	100.00%	\$ -	0.00%	\$ -	0.00% \$ -
69082130 BD Financial Services	\$ 1,783,656	49.50%	\$ 882,910	100.00%	\$ 882,910	0.00%	\$ -	0.00% \$ -
69082140 BD Information Services Unit	\$ 3,379,232	49.50%	\$ 1,672,720	100.00%	\$ 1,672,720	0.00%	\$ -	0.00% \$ -
69082150 BD Meter Operations	\$ 1,815,692	100.00%	\$ 1,815,692	100.00%	\$ 1,815,692	0.00%	\$ -	0.00% \$ -
69082170 AD Travel and Training	\$ 227,700	49.50%	\$ 112,712	100.00%	\$ 112,712	0.00%	\$ -	0.00% \$ -
Total	\$ 16,574,550		\$ 8,353,956		\$ 8,353,956		\$ -	\$ -
DD Mains Hydrant Services								
69082210 DD Mains Hydrants services	\$ 9,962,691	100.00%	\$ 9,962,691	18.16%	\$ 1,809,304	0.00%	\$ -	81.84% \$ 8,153,387
69082240 Storehouse and Yard	\$ 152,368	100.00%	\$ 152,368	18.16%	\$ 27,671	0.00%	\$ -	81.84% \$ 124,697
69082260 DD Garage	\$ (500)	100.00%	\$ (500)	18.16%	\$ (91)	0.00%	\$ -	81.84% \$ (409)
69082261 DD Auto Truck Maintenance	\$ (450,000)	100.00%	\$ (450,000)	18.16%	\$ (81,724)	0.00%	\$ -	81.84% \$ (368,276)
69082262 Tractor Maintenance	\$ (162,000)	100.00%	\$ (162,000)	18.16%	\$ (29,420)	0.00%	\$ -	81.84% \$ (132,580)
69082263 Compressor Other Equipment MNTC	\$ (57,000)	100.00%	\$ (57,000)	18.16%	\$ (10,352)	0.00%	\$ -	81.84% \$ (46,648)
Total	\$ 9,445,559		\$ 9,445,559		\$ 1,715,388		\$ -	\$ 7,730,171
Engineering								
69082310 ED Engineering Maps Records	\$ 4,163,423	21.90%	\$ 911,790	100.00%	\$ 911,790	0.00%	\$ -	0.00% \$ -
69082350 ED Homeowners Lead Replace Loans	\$ 650,000	0.00%	\$ -	100.00%	\$ -	0.00%	\$ -	0.00% \$ -
69082355 ED Land Sales	\$ 3,000	0.00%	\$ -	100.00%	\$ -	0.00%	\$ -	0.00% \$ -
Total	\$ 4,816,423		\$ 911,790		\$ 911,790		\$ -	\$ -
PD Supply								
69082410 PD Supply	\$ 2,797,580	100.00%	\$ 2,797,580	54.48%	\$ 1,524,188	45.52%	\$ 1,273,392	0.00% \$ -
69082430 PD Treatment and Pumping	\$ 8,020,753	100.00%	\$ 8,020,753	54.48%	\$ 4,369,897	45.52%	\$ 3,650,856	0.00% \$ -
69082450 PD Water Quality	\$ 1,181,355	100.00%	\$ 1,181,355	54.48%	\$ 643,630	45.52%	\$ 537,725	0.00% \$ -
Electricity	\$ 1,500,000	100.00%	\$ 1,500,000	100.00%	\$ 1,500,000	0.00%	\$ -	0.00% \$ -
Chemicals	\$ 3,750,000	100.00%	\$ 3,750,000	100.00%	\$ 3,750,000	0.00%	\$ -	0.00% \$ -
Total	\$ 17,249,688		\$ 17,249,688		\$ 11,787,716		\$ 5,461,972	\$ -
GA Employee Fringe Costs								
69082610 GA Employee Fringe Costs	\$ 180,000	49.50%	\$ 89,100	100.00%	\$ 89,100	0.00%	\$ -	0.00% \$ -
Total	\$ 180,000		\$ 89,100		\$ 89,100		\$ -	\$ -
Total	\$ 48,266,220		\$ 36,050,093	0.00%	\$ 22,857,950	0.00%	\$ 5,461,972	0.00% \$ 7,730,171

Allocation of O & M Expenses

	Roseville					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
69082100 AD General Administration	13.90%	\$ 61,023	0.00%	\$ -	0.00%	\$ -
69082105 AD Admin Bodge and Campus Ground Mtce	13.90%	\$ 392,149	0.00%	\$ -	0.00%	\$ -
69082107 AD Safety and Security	13.90%	\$ 39,430	0.00%	\$ -	0.00%	\$ -
69082110 BD Business SS Administration	13.90%	\$ 15,183	0.00%	\$ -	0.00%	\$ -
69082115 AD Business Improvement Unit	13.90%	\$ 30,154	0.00%	\$ -	0.00%	\$ -
69082120 BD Call Center	13.90%	\$ -	0.00%	\$ -	0.00%	\$ -
69082130 BD Financial Services	13.90%	\$ 122,729	0.00%	\$ -	0.00%	\$ -
69082140 BD Information Services Unit	13.90%	\$ 232,516	0.00%	\$ -	0.00%	\$ -
69082150 BD Meter Operations		\$ 8,473	0.00%	\$ -	0.00%	\$ -
69082170 AD Travel and Training	13.90%	\$ 15,667	0.00%	\$ -	0.00%	\$ -
Total		\$ 917,324		\$ -		\$ -
DD Mains Hydrant Services						
69082210 DD Mains Hydrants services	1.09%	\$ 19,794	0.00%	\$ -	1.09%	\$ 89,199
69082240 Storehouse and Yard	1.09%	\$ 303	0.00%	\$ -	1.09%	\$ 1,364
69082260 DD Garage	1.09%	\$ (1)	0.00%	\$ -	1.09%	\$ (4)
69082261 DD Auto Truck Maintenance	1.09%	\$ (894)	0.00%	\$ -	1.09%	\$ (4,029)
69082262 Tractor Maintenance	1.09%	\$ (322)	0.00%	\$ -	1.09%	\$ (1,450)
69082263 Compressor Other Equipment MNTC	1.09%	\$ (113)	0.00%	\$ -	1.09%	\$ (510)
Total		\$ 18,767		\$ -		\$ 84,569
Engineering						
69082310 ED Engineering Maps Records	13.90%	\$ 126,743	0.00%	\$ -	0.00%	\$ -
69082350 ED Homeowners Lead Replace Loans	13.90%	\$ -	0.00%	\$ -	0.00%	\$ -
69082355 ED Land Sales	13.90%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 126,743		\$ -		\$ -
PD Supply						
69082410 PD Supply	13.90%	\$ 211,870	13.90%	\$ 177,008	0.00%	\$ -
69082430 PD Treatment and Pumping	13.90%	\$ 607,437	13.90%	\$ 507,487	0.00%	\$ -
69082450 PD Water Quality	13.90%	\$ 89,468	13.90%	\$ 74,746	0.00%	\$ -
Electricity	13.90%	\$ 208,507	13.90%	\$ -	0.00%	\$ -
Chemicals	13.90%	\$ 521,269	13.90%	\$ -	0.00%	\$ -
Total		\$ 1,638,551		\$ 759,241		\$ -
GA Employee Fringe Costs						
69082610 GA Employee Fringe Costs	13.90%	\$ 12,385	0.00%	\$ -	0.00%	\$ -
Total		\$ 12,385		\$ -		\$ -
Total	0.00%	\$ 2,713,771	0.00%	\$ 759,241	0.00%	\$ 84,569

Allocation of O & M Expenses

	Little Canada					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
69082100 AD General Administration	2.87%	\$ 12,594	0.00%	\$ -	0.00%	\$ -
69082105 AD Admin Bodge and Campus Ground Mtce	2.87%	\$ 80,932	0.00%	\$ -	0.00%	\$ -
69082107 AD Safety and Security	2.87%	\$ 8,138	0.00%	\$ -	0.00%	\$ -
69082110 BD Business SS Administration	2.87%	\$ 3,133	0.00%	\$ -	0.00%	\$ -
69082115 AD Business Improvement Unit	2.87%	\$ 6,223	0.00%	\$ -	0.00%	\$ -
69082120 BD Call Center	2.87%	\$ -	0.00%	\$ -	0.00%	\$ -
69082130 BD Financial Services	2.87%	\$ 25,329	0.00%	\$ -	0.00%	\$ -
69082140 BD Information Services Unit	2.87%	\$ 47,987	0.00%	\$ -	0.00%	\$ -
69082150 BD Meter Operations		\$ 2,188	0.00%	\$ -	0.00%	\$ -
69082170 AD Travel and Training	2.87%	\$ 3,233	0.00%	\$ -	0.00%	\$ -
Total		\$ 189,758		\$ -		\$ -
DD Mains Hydrant Services						
69082210 DD Mains Hydrants services	0.45%	\$ 8,203	0.00%	\$ -	0.45%	\$ 36,964
69082240 Storehouse and Yard	0.45%	\$ 125	0.00%	\$ -	0.45%	\$ 565
69082260 DD Garage	0.45%	\$ (0)	0.00%	\$ -	0.45%	\$ (2)
69082261 DD Auto Truck Maintenance	0.45%	\$ (371)	0.00%	\$ -	0.45%	\$ (1,670)
69082262 Tractor Maintenance	0.45%	\$ (133)	0.00%	\$ -	0.45%	\$ (601)
69082263 Compressor Other Equipment MNTC	0.45%	\$ (47)	0.00%	\$ -	0.45%	\$ (211)
Total		\$ 7,777		\$ -		\$ 35,045
Engineering						
69082310 ED Engineering Maps Records	2.87%	\$ 26,157	0.00%	\$ -	0.00%	\$ -
69082350 ED Homeowners Lead Replace Loans	2.87%	\$ -	0.00%	\$ -	0.00%	\$ -
69082355 ED Land Sales	2.87%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 26,157		\$ -		\$ -
PD Supply						
69082410 PD Supply	2.87%	\$ 43,726	2.87%	\$ 36,531	0.00%	\$ -
69082430 PD Treatment and Pumping	2.87%	\$ 125,364	2.87%	\$ 104,736	0.00%	\$ -
69082450 PD Water Quality	2.87%	\$ 18,465	2.87%	\$ 15,426	0.00%	\$ -
Electricity	2.87%	\$ 43,032	2.87%	\$ -	0.00%	\$ -
Chemicals	2.87%	\$ 107,580	2.87%	\$ -	0.00%	\$ -
Total		\$ 338,167		\$ 156,694		\$ -
GA Employee Fringe Costs						
69082610 GA Employee Fringe Costs	2.87%	\$ 2,556	0.00%	\$ -	0.00%	\$ -
Total		\$ 2,556		\$ -		\$ -
Total	0.00%	\$ 564,416	0.00%	\$ 156,694	0.00%	\$ 35,045

Allocation of O & M Expenses

	University of Minnesota					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
Description	%	Amount	%	Amount	%	Amount
Administration						
69082100 AD General Administration	0.95%	\$ 4,183	0.00%	\$ -	0.00%	\$ -
69082105 AD Admin Bldg and Campus Ground Mtce	0.95%	\$ 26,881	0.00%	\$ -	0.00%	\$ -
69082107 AD Safety and Security	0.95%	\$ 2,703	0.00%	\$ -	0.00%	\$ -
69082110 BD Business SS Administration	0.95%	\$ 1,041	0.00%	\$ -	0.00%	\$ -
69082115 AD Business Improvement Unit	0.95%	\$ 2,067	0.00%	\$ -	0.00%	\$ -
69082120 BD Call Center	0.95%	\$ -	0.00%	\$ -	0.00%	\$ -
69082130 BD Financial Services	0.95%	\$ 8,413	0.00%	\$ -	0.00%	\$ -
69082140 BD Information Services Unit	0.95%	\$ 15,938	0.00%	\$ -	0.00%	\$ -
69082150 BD Meter Operations		\$ 2,807	0.00%	\$ -	0.00%	\$ -
69082170 AD Travel and Training	0.95%	\$ 1,074	0.00%	\$ -	0.00%	\$ -
Total		\$ 65,106		\$ -		\$ -
DD Mains Hydrant Services						
69082210 DD Mains Hydrants services	0.79%	\$ 14,360	0.00%	\$ -	0.79%	\$ 64,713
69082240 Storehouse and Yard	0.79%	\$ 220	0.00%	\$ -	0.79%	\$ 990
69082260 DD Garage	0.79%	\$ (1)	0.00%	\$ -	0.79%	\$ (3)
69082261 DD Auto Truck Maintenance	0.79%	\$ (649)	0.00%	\$ -	0.79%	\$ (2,923)
69082262 Tractor Maintenance	0.79%	\$ (234)	0.00%	\$ -	0.79%	\$ (1,052)
69082263 Compressor Other Equipment MNTC	0.79%	\$ (82)	0.00%	\$ -	0.79%	\$ (370)
Total		\$ 13,615		\$ -		\$ 61,354
Engineering						
69082310 ED Engineering Maps Records	0.95%	\$ 8,688	0.00%	\$ -	0.00%	\$ -
69082350 ED Homeowners Lead Replace Loans	0.95%	\$ -	0.00%	\$ -	0.00%	\$ -
69082355 ED Land Sales	0.95%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 8,688		\$ -		\$ -
PD Supply						
69082410 PD Supply	0.95%	\$ 14,523	0.95%	\$ 12,133	0.00%	\$ -
69082430 PD Treatment and Pumping	0.95%	\$ 41,638	0.95%	\$ 34,787	0.00%	\$ -
69082450 PD Water Quality	0.95%	\$ 6,133	0.95%	\$ 5,124	0.00%	\$ -
Electricity	0.95%	\$ 14,293	0.95%	\$ -	0.00%	\$ -
Chemicals	0.95%	\$ 35,732	0.95%	\$ -	0.00%	\$ -
Total		\$ 112,318		\$ 52,044		\$ -
GA Employee Fringe Costs						
69082610 GA Employee Fringe Costs	0.95%	\$ 849	0.00%	\$ -	0.00%	\$ -
Total		\$ 849		\$ -		\$ -
Total	0.00%	\$ 200,576	0.00%	\$ 52,044	0.00%	\$ 61,354

Allocation of O & M Expenses

Description	Retail Customers					
	Base		Extra Capacity			
	Average Day		Maximum Day		Maximum Hour	
	%	Amount	%	Amount	%	Amount
Administration						
69082100 AD General Administration	82.28%	\$ 361,198	0.00%	\$ -	0.00%	\$ -
69082105 AD Admin Bodge and Campus Ground Mtce	82.28%	\$ 2,321,153	0.00%	\$ -	0.00%	\$ -
69082107 AD Safety and Security	82.28%	\$ 233,389	0.00%	\$ -	0.00%	\$ -
69082110 BD Business SS Administration	82.28%	\$ 89,869	0.00%	\$ -	0.00%	\$ -
69082115 AD Business Improvement Unit	82.28%	\$ 178,481	0.00%	\$ -	0.00%	\$ -
69082120 BD Call Center	82.28%	\$ -	0.00%	\$ -	0.00%	\$ -
69082130 BD Financial Services	82.28%	\$ 726,439	0.00%	\$ -	0.00%	\$ -
69082140 BD Information Services Unit	82.28%	\$ 1,376,278	0.00%	\$ -	0.00%	\$ -
69082150 BD Meter Operations	82.28%	\$ 1,802,224	0.00%	\$ -	0.00%	\$ -
69082170 AD Travel and Training	82.28%	\$ 92,737	0.00%	\$ -	0.00%	\$ -
Total		\$ 7,181,767		\$ -		\$ -
DD Mains Hydrant Services						
69082210 DD Mains Hydrants services	97.66%	\$ 1,766,947	0.00%	\$ -	97.66%	\$ 7,962,511
69082240 Storehouse and Yard	97.66%	\$ 27,023	0.00%	\$ -	97.66%	\$ 121,778
69082260 DD Garage	97.66%	\$ (89)	0.00%	\$ -	97.66%	\$ (400)
69082261 DD Auto Truck Maintenance	97.66%	\$ (79,810)	0.00%	\$ -	97.66%	\$ (359,655)
69082262 Tractor Maintenance	97.66%	\$ (28,732)	0.00%	\$ -	97.66%	\$ (129,476)
69082263 Compressor Other Equipment MNTC	97.66%	\$ (10,109)	0.00%	\$ -	97.66%	\$ (45,556)
Total		\$ 1,675,230		\$ -		\$ 7,549,202
Engineering						
69082310 ED Engineering Maps Records	82.28%	\$ 750,201	0.00%	\$ -	0.00%	\$ -
69082350 ED Homeowners Lead Replace Loans	82.28%	\$ -	0.00%	\$ -	0.00%	\$ -
69082355 ED Land Sales	82.28%	\$ -	0.00%	\$ -	0.00%	\$ -
Total		\$ 750,201		\$ -		\$ -
PD Supply						
69082410 PD Supply	82.28%	\$ 1,254,069	82.28%	\$ 1,047,719	0.00%	\$ -
69082430 PD Treatment and Pumping	82.28%	\$ 3,595,458	82.28%	\$ 3,003,846	0.00%	\$ -
69082450 PD Water Quality	82.28%	\$ 529,565	82.28%	\$ 442,428	0.00%	\$ -
Electricity	82.28%	\$ 1,234,168	82.28%	\$ -	0.00%	\$ -
Chemicals	82.28%	\$ 3,085,420	82.28%	\$ -	0.00%	\$ -
Total		\$ 9,698,679		\$ 4,493,994		\$ -
GA Employee Fringe Costs						
69082610 GA Employee Fringe Costs	82.28%	\$ 73,310	0.00%	\$ -	0.00%	\$ -
Total		\$ 73,310		\$ -		\$ -
Total	0.00%	\$ 19,379,187	0.00%	\$ 4,493,994	0.00%	\$ 7,549,202

The operations and maintenance expenses allocated to each wholesale customer using the base extra capacity method resulted in the amounts shown below.

Wholesale Customer	O & M Cost Allocation
Roseville	\$ 3,557,581
Little Canada	\$ 756,155
U ofM	\$ 313,974
Total	\$ 4,627,710

The total cost of providing services to the wholesale customers based on FY 2022 costs is the sum of the capital costs and the operations and maintenance costs. This amount is the revenue each wholesale customer should provide to SPRWS. These are shown below.

FY 2022				
Description	Roseville	Little Canada	U of M	Total
Plant Value (Present Worth Allocation)	\$ 24,824,524	\$ 5,114,685	\$ 4,794,985	\$ 34,734,193
Return on Investment (5%)	\$ 1,241,226	\$ 255,734	\$ 239,749	\$ 1,736,710
Current Depreciation	\$ 557,024	\$ 116,118	\$ 87,746	\$ 760,887
Total Capital Cost	\$ 1,798,250	\$ 371,852	\$ 327,495	\$ 2,497,597
O & M Cost	\$ 3,557,581	\$ 756,155	\$ 313,974	\$ 4,627,710
Total Revenue	\$ 5,355,831	\$ 1,128,007	\$ 641,469	\$ 7,125,306

The base rate and volume fee for each retail customer was estimated by applying the logic used in the 2017 and 2019 studies. Specifically, that logic set the volume rate for Roseville and Little Canada at 60% of the blended rate for SPRWS retail customers and the U of M volume rate at 92% of the SPRWS blended retail rate. The base fee was then determined to provide the balance of the revenue not coming from volume rates. The FY 2022 base and volume rates were calculated to provide the total revenues determined from the base extra capacity analysis. The rates for future years were projected using the percentage increases recommended in the financial projections. The resulting projected revenues, base rates, and volume rates for each wholesale customer are shown on the following page.

Wholesale Customer Revenues and Charges

Future Years	2022	2023	2024	2025	2026	2027
Total Revenue Requirement	\$ 7,125,306	\$ 7,802,211	\$ 8,348,365	\$ 8,932,751	\$ 9,379,388	\$ 9,848,358
Roseville						
Revenue Requirement	\$ 5,355,831	\$ 5,864,635	\$ 6,275,159	\$ 6,714,421	\$ 7,050,142	\$ 7,402,649
Preliminary Volume Rate	\$ 2.03	\$ 2.22	\$ 2.38	\$ 2.54	\$ 2.669389	\$ 2.80
Preliminary Volume Fee Revenue	\$ 4,647,831	\$ 5,089,375	\$ 5,445,631	\$ 5,826,825	\$ 6,118,167	\$ 6,424,075
Base fee revenue	\$ 708,000	\$ 775,260	\$ 829,528	\$ 887,595	\$ 931,975	\$ 978,574
Monthly Base Fee rounded	\$ 59,000	\$ 64,600	\$ 69,100	\$ 74,000	\$ 77,700	\$ 81,500
Base fee revenue rounded	\$ 708,000	\$ 775,200	\$ 829,200	\$ 888,000	\$ 932,400	\$ 978,000
Volume Fee Revenue needed	\$ 4,647,831	\$ 5,089,435	\$ 5,445,959	\$ 5,826,421	\$ 6,117,742	\$ 6,424,649
Volume rate	\$ 2.03	\$ 2.22	\$ 2.38	\$ 2.54	\$ 2.67	\$ 2.80
Little Canada						
Revenue Requirement	\$ 1,128,007	\$ 1,235,167	\$ 1,321,629	\$ 1,414,143	\$ 1,484,850	\$ 1,559,093
Preliminary Volume Rate	\$ 2.03	\$ 2.22	\$ 2.38	\$ 2.54	\$ 2.67	\$ 2.80
Preliminary Volume Fee Revenue	\$ 959,287	\$ 1,050,419	\$ 1,123,949	\$ 1,202,625	\$ 1,262,756	\$ 1,325,894
Base fee revenue	\$ 168,720	\$ 184,748	\$ 197,680	\$ 211,518	\$ 222,094	\$ 233,199
Monthly Base Fee rounded	\$ 14,100	\$ 15,400	\$ 16,500	\$ 17,600	\$ 18,500	\$ 19,400
Base fee revenue rounded	\$ 169,200	\$ 184,800	\$ 198,000	\$ 211,200	\$ 222,000	\$ 232,800
Volume Fee Revenue needed	\$ 958,807	\$ 1,050,367	\$ 1,123,629	\$ 1,202,943	\$ 1,262,850	\$ 1,326,293
Volume rate	\$ 2.03	\$ 2.22	\$ 2.38	\$ 2.54	\$ 2.67	\$ 2.80
U of M						
Revenue Requirement	\$ 641,469	\$ 702,408	\$ 751,577	\$ 804,187	\$ 844,397	\$ 886,617
Preliminary Volume Rate	\$ 3.11	\$ 3.41	\$ 3.64	\$ 3.90	\$ 4.09	\$ 4.30
Preliminary Volume Fee Revenue	\$ 488,545	\$ 534,956	\$ 572,403	\$ 612,471	\$ 643,095	\$ 675,250
Base fee revenue	\$ 152,924	\$ 167,452	\$ 179,174	\$ 191,716	\$ 201,302	\$ 211,367
Monthly Base Fee rounded	\$ 12,700	\$ 14,000	\$ 14,900	\$ 16,000	\$ 16,800	\$ 17,600
Base fee revenue rounded	\$ 152,400	\$ 168,000	\$ 178,800	\$ 192,000	\$ 201,600	\$ 211,200
Volume Fee Revenue needed	\$ 489,069	\$ 534,408	\$ 572,777	\$ 612,187	\$ 642,797	\$ 675,417
Volume rate	\$ 3.11	\$ 3.40	\$ 3.65	\$ 3.90	\$ 4.09	\$ 4.30

The findings and preliminary recommendations in this memorandum are based on information provided to Baker Tilly for this study. We understand that after the SPRWS staff has an opportunity to review and discuss both the analysis and preliminary recommendations some revisions may be needed.