



Water and Sewer Rate Study

Lake County, Illinois

Water and Sewer Rate Study
Project No. 109356

Final Report
10/20/2019



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prepared for

Lake County, Illinois
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prepared by

Burns & McDonnell Engineering Company, Inc.

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
AWWA	American Water Works Association
BLS	Bureau of Labor Statistics
BOD	Biochemical oxygen demand
Ccf	Hundred cubic feet
CIP	Capital Improvement Program
CLCJAWA	Central Lake County Joint Action Water Agency
CPI-U	Consumer Price Index for all Urban Consumers
FY	Fiscal year
IEPA	Illinois Environmental Protection Agency
Kgal	Thousand gallons of water
Mgd	Million gallons per day
NSWRD	North Shore Water Reclamation District
O&M	Operation & Maintenance Expense
SS	Suspended solids
RCE	Residential customer equivalent
WEF	Water Environment Federation

1.0 EXECUTIVE SUMMARY

1.1 Project Background

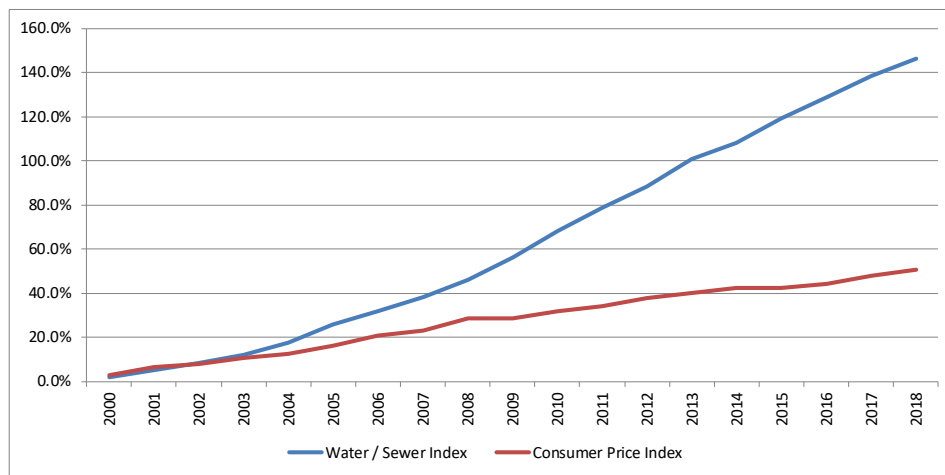
Burns & McDonnell was engaged by Lake County, Illinois (Lake County) to perform a water and sewer rate study (Study) that (i) evaluates the financial planning implications of the funding requirements for the utilities, and (ii) proposes rates to adequately recover these costs for the water and sewer utilities. This Report presents the major findings of the Study.

1.2 Industry Trends in Water and Sewer Rates

Nationally, water and sewer rates have been on a steady rise for decades. Replacement of aging infrastructure is one of several dynamics impacting water and sewer utility rates. Other dynamics may include regulatory requirements, inflation on operating and capital costs, and a general trend in declining consumption most often associated with more efficient fixtures and appliances and greater awareness of water conservation.

Each utility is different, and the relative importance of these dynamics will vary by utility. However, there is no doubt that water and sewer rate increases have substantially outpaced general inflation in the United States. The United States Bureau of Labor Statistics (BLS) tracks many facets of inflation. The most commonly referenced measure is the Consumer Price Index for all Urban Consumers (CPI-U) which measures inflation at the consumer level. The BLS also tracks a combined inflation index for consumer water and sewer costs. Figure 1-1 compares changes in the consumer price index to changes in the water and sewer cost index.

Figure 1-1: Trends in National Water and Sewer Rates Compared to Inflation



Source: Bureau of Labor Statistics, Consumer Price Index & Water & Sewer Maintenance Series

Annually, the trend shown in Figure 1-1 represents an approximate increase of 5 percent per year for the water and sewer index, while CPI's annual rate of change is about 2 percent per year. Other industry surveys such as the American Water Works Association's Rate Survey and the National Association of Clean Water Association's Cost of Clean Water index also indicate 5 percent to 6 percent per year for utility rate increases.

Each utility may be influenced by specific circumstances that can lead to increases that are higher or lower than these industry trends. However, costs associated with renewal and replacement of existing infrastructure and the increasing cost of regulatory compliance are two of the primary dynamics contributing toward the increases in water and sewer rates. Understanding the reality of increasing costs within the water and sewer industry provides helpful context in evaluating proposed financial plans.

1.3 Financial Planning

As discussed in Section 2 of this report, revenues under existing rates are not sufficient to meet the projected cash obligations of the utilities over the ten-year study period. The need for revenue adjustments is influenced by the following factors:

- Inflationary impacts on operation and maintenance expenses and future capital improvements.
- Implementation of the proposed capital plans, including pay-as-you-go funding for capital improvements.

Financial planning assumptions are described in Section 2 of this report. The financial plans detailed in this report propose the following revenue increases to be effective December 1 of each fiscal year indicated.

Table 1-1: Proposed Water and Sewer Revenue Increases

	Water			Sewer		
	System Increase	CPI	Total Adjustment	System Increase	CPI	Total Adjustment
2020	9.5%	2.1%	11.6%	2.0%	2.1%	4.1%
2021	9.5%	2.1%	11.6%	2.0%	2.1%	4.1%
2022	9.5%	2.1%	11.6%	1.0%	2.1%	3.1%
2023	9.5%	2.1%	11.6%	0.0%	2.1%	2.1%
2024	9.5%	2.1%	11.6%	0.0%	2.1%	2.1%
2025	9.5%	2.1%	11.6%	0.0%	2.1%	2.1%
2026	9.5%	2.1%	11.6%	0.0%	2.1%	2.1%
2027	0.0%	2.1%	2.1%	0.0%	2.1%	2.1%
2028	0.0%	2.1%	2.1%	0.0%	2.1%	2.1%
2029	0.0%	2.1%	2.1%	0.0%	2.1%	2.1%

Table 1-1 shows increases for both the core system as well as assumed general inflation. CPI is estimated to be 2.1 percent and is subject to change from year to year. The increases proposed in Table 1-1 are designed to enable the water utility to reach its cash-funded capital improvement program funding in seven years, while the sewer utility is projected to reach its cash-funded capital improvement program funding in three years. Note that once these funding thresholds are reached, the system increase falls to 0.0 percent in Table 1-1, with only CPI-based adjustments through the end of the study period.

It is important to recognize among the assumptions used to develop the financial plans herein, no extensive capital improvements are included beyond the capital investment targets established by Lake County staff. In the event that an unforeseen, material capital improvement is required, it may prompt revisions to the planning shown in this report.

1.4 Cost of Service Analysis

Using Lake County's historical cost accounting information, costs were distributed to the water and sewer utilities and then to service areas for each utility. Results of the cost of service analysis are discussed in Section 3 of this report.

1.5 Proposed Rates

Development of proposed rates is discussed in Section 4 of this report. Existing and proposed water rates are shown in Table 1-2. Proposed rates include the development of a monthly, fixed service charge and the elimination of the minimum bill associated with water use.

Existing and proposed sewer rates are shown in Table 1-3. No changes to the sewer rate structure are proposed at this time.

The impact of proposed water and sewer rates on typical residential customers has been calculated and is shown in Tables 1-4 and 1-5. A regional comparison of water and sewer bills has also been prepared. As shown in Figure 1, for a residential customer using 5,000 gallons under selected existing Lake County water and sewer rates, the impact of proposed FY 2020 changes to water and sewer rates does not have a material impact on Lake County's position in the regional survey.

Table 1-2: Existing and Proposed Water Rates

	Existing FY 2019	Proposed, Fiscal Year				
		2020	2021	2022	2023	2024
Monthly Service Charge						
Meter Size						
Up to 1"	\$ -	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30
1.5"	\$ -	\$ 8.20	\$ 9.10	\$ 10.20	\$ 11.40	\$ 12.70
2"	\$ -	\$ 10.60	\$ 11.80	\$ 13.20	\$ 14.80	\$ 16.50
3"	\$ -	\$ 28.70	\$ 32.00	\$ 35.80	\$ 39.90	\$ 44.60
4"	\$ -	\$ 35.40	\$ 39.50	\$ 44.10	\$ 49.20	\$ 54.90
6"	\$ -	\$ 51.00	\$ 56.90	\$ 63.50	\$ 70.90	\$ 79.10
8"	\$ -	\$ 68.80	\$ 76.80	\$ 85.70	\$ 95.70	\$ 106.80
12"	\$ -	\$ 115.60	\$ 129.00	\$ 144.00	\$ 160.80	\$ 179.50
Volumetric Rates						
Metered Well Water						
(A) General Service Areas						
(1) Block 1 (0-2,000 gallons per month)	\$ 4.16	\$ 1.00	\$ 1.12	\$ 1.25	\$ 1.40	\$ 1.56
(2) Block 2 (3,000-6,000 gallons per month)	\$ 4.39	\$ 4.80	\$ 5.36	\$ 5.98	\$ 6.68	\$ 7.46
(3) Block 3 (7,000 gallons or greater per month)	\$ 4.60	\$ 5.28	\$ 5.90	\$ 6.58	\$ 7.35	\$ 8.21
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 4.39	\$ 4.80	\$ 5.36	\$ 5.98	\$ 6.68	\$ 7.46
(B) CLCJAWA Service Areas						
(1) Block 1 (0-2,000 gallons per month)	\$ 5.72	\$ 3.08	\$ 3.09	\$ 3.10	\$ 3.11	\$ 3.12
(2) Block 2 (3,000-6,000 gallons per month)	\$ 6.03	\$ 6.28	\$ 6.66	\$ 7.08	\$ 7.55	\$ 8.08
(3) Block 3 (7,000 gallons or greater per month)	\$ 6.33	\$ 6.91	\$ 7.33	\$ 7.79	\$ 8.31	\$ 8.89
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 6.03	\$ 6.28	\$ 6.66	\$ 7.08	\$ 7.55	\$ 8.08
(C) Hawthorn Woods - Glennshire/Forest Lake						
(1) Block 1 (0-2,000 gallons per month)	\$ 8.03	\$ 5.56	\$ 5.57	\$ 5.58	\$ 5.59	\$ 5.60
(2) Block 2 (3,000-6,000 gallons per month)	\$ 8.45	\$ 8.81	\$ 9.19	\$ 9.62	\$ 10.10	\$ 10.63
(3) Block 3 (7,000 gallons or greater per month)	\$ 8.88	\$ 9.69	\$ 10.11	\$ 10.58	\$ 11.11	\$ 11.69
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 8.45	\$ 8.81	\$ 9.19	\$ 9.62	\$ 10.10	\$ 10.63
Unmetered Water						
(1) Arden Shores	\$ 55.10	\$ 62.03	\$ 63.11	\$ 64.32	\$ 65.67	\$ 67.18
(2) Countryside Lake	\$ 43.86	\$ 48.00	\$ 53.60	\$ 59.80	\$ 66.80	\$ 74.60
(3) Forest Lake	\$ 43.51	\$ 52.86	\$ 55.14	\$ 57.72	\$ 60.60	\$ 63.78
(4) Oak Terrace	\$ 33.42	\$ 36.00	\$ 40.20	\$ 44.85	\$ 50.10	\$ 55.95

Table 1-3: Existing and Proposed Sewer Rates

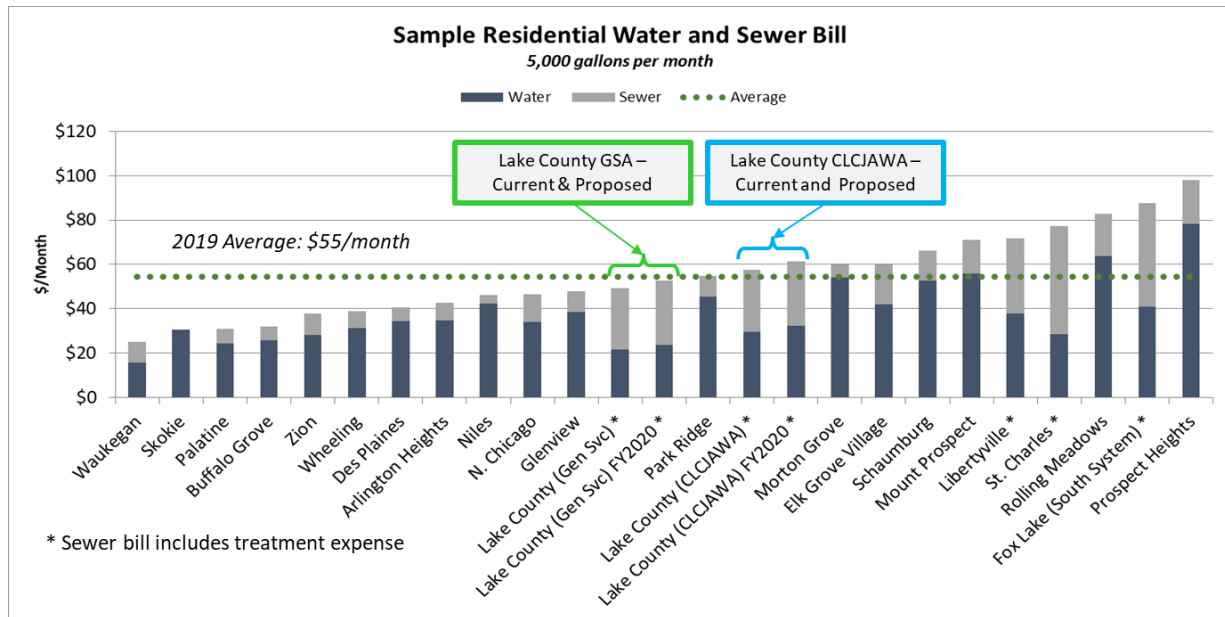
	Existing	Proposed, Fiscal Year										
	FY 2019	2020	2021	2022	2023	2024						
Volumetric Rates												
Metered Sewer												
(1) General Service Areas	\$ 5.57	\$ 5.80	\$ 6.04	\$ 6.23	\$ 6.36	\$ 6.50						
(2) Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire	\$ 6.56	\$ 6.83	\$ 7.11	\$ 7.33	\$ 7.49	\$ 7.65						
(3) Northeast Central - NSWRD Wildwood	\$ 8.08	\$ 8.29	\$ 8.51	\$ 8.69	\$ 8.81	\$ 8.94						
(4) Northeast Central - NSWRD Arbor Vista	\$ 10.20	\$ 10.40	\$ 10.61	\$ 10.78	\$ 10.90	\$ 11.02						
Wholesale Sewer												
	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month				
(1) Antioch	\$ 4.94	\$ 39.52	\$ 5.14	\$ 41.12	\$ 5.35	\$ 42.80	\$ 5.52	\$ 44.16	\$ 5.64	\$ 45.12	\$ 5.76	\$ 46.08
(2) Buffalo Grove	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(3) Grayslake	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(4) Green Oaks	\$ 1.10	\$ 8.80	\$ 1.15	\$ 9.20	\$ 1.20	\$ 9.60	\$ 1.24	\$ 9.92	\$ 1.27	\$ 10.16	\$ 1.30	\$ 10.40
(5) Gurnee	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(6) Hainesville (Northwest)	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(7) Hainesville (Northeast Central)	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(8) Harbor Ridge	\$ 5.57	\$ 41.78	\$ 5.71	\$ 42.83	\$ 5.85	\$ 43.88	\$ 5.96	\$ 44.70	\$ 6.04	\$ 45.30	\$ 6.12	\$ 45.90
(9) Lakes Region Sanitary District	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(10) Lake Villa	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(11) Lake Zurich	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(12) Libertyville	\$ 1.10	\$ 8.80	\$ 1.15	\$ 9.20	\$ 1.20	\$ 9.60	\$ 1.24	\$ 9.92	\$ 1.27	\$ 10.16	\$ 1.30	\$ 10.40
(13) Lincolnshire	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(14) Riverwoods	\$ 5.57	\$ 44.56	\$ 5.80	\$ 46.40	\$ 6.04	\$ 48.32	\$ 6.23	\$ 49.84	\$ 6.36	\$ 50.88	\$ 6.50	\$ 52.00
(15) Round Lake	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(16) Round Lake Beach	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(17) Round Lake Park	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(18) Round Lake Heights	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(19) Waukegan	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
Unmetered Sewer												
(A) General Service Area	\$ 44.55	\$ 46.40	\$ 48.32	\$ 49.84	\$ 50.88	\$ 52.00						
(B) Southeast Central - Libertyville	\$ 48.39	\$ 54.64	\$ 56.88	\$ 58.64	\$ 59.92	\$ 61.20						
(C) Northwest	\$ 41.77	\$ 43.50	\$ 45.30	\$ 46.73	\$ 47.70	\$ 48.75						
(D) Northeast Central	\$ 53.70	\$ 62.18	\$ 63.83	\$ 65.18	\$ 66.08	\$ 67.05						
(E) Ravenna, Royal Melbourne, Kildeer North Kildeer Central, Kildeer South	\$ 55.73	\$ 58.00	\$ 60.40	\$ 62.30	\$ 63.60	\$ 65.00						
(F) Riverside Preserve	\$ 70.73	\$ 73.65	\$ 76.69	\$ 79.09	\$ 80.77	\$ 82.49						

Table 1-4: Typical Residential Water Bills Under Existing and Proposed Rates

Meter <u>Size</u> inches	Monthly	Current	Proposed Rates					Difference				
	Water	<u>Rates</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
	Use kgal	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$	\$	\$	\$	\$
General Service Areas												
1"	0	\$ 8.32	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (1.04)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18
1"	1	\$ 8.32	\$ 8.28	\$ 9.25	\$ 10.32	\$ 11.53	\$ 12.86	\$ (0.04)	\$ 0.97	\$ 1.08	\$ 1.21	\$ 1.34
1"	2	\$ 8.32	\$ 9.28	\$ 10.37	\$ 11.57	\$ 12.93	\$ 14.42	\$ 0.96	\$ 1.09	\$ 1.21	\$ 1.36	\$ 1.50
1"	3	\$ 12.71	\$ 14.08	\$ 15.73	\$ 17.55	\$ 19.61	\$ 21.88	\$ 1.37	\$ 1.65	\$ 1.83	\$ 2.06	\$ 2.28
1"	4	\$ 17.10	\$ 18.88	\$ 21.09	\$ 23.53	\$ 26.29	\$ 29.34	\$ 1.78	\$ 2.21	\$ 2.45	\$ 2.76	\$ 3.06
1"	5	\$ 21.49	\$ 23.68	\$ 26.45	\$ 29.51	\$ 32.97	\$ 36.80	\$ 2.19	\$ 2.77	\$ 3.07	\$ 3.46	\$ 3.84
1"	6	\$ 25.88	\$ 28.48	\$ 31.81	\$ 35.49	\$ 39.65	\$ 44.26	\$ 2.60	\$ 3.33	\$ 3.69	\$ 4.16	\$ 4.62
1"	8	\$ 35.08	\$ 39.04	\$ 43.61	\$ 48.65	\$ 54.35	\$ 60.68	\$ 3.96	\$ 4.57	\$ 5.05	\$ 5.70	\$ 6.34
1"	10	\$ 44.28	\$ 49.60	\$ 55.41	\$ 61.81	\$ 69.05	\$ 77.10	\$ 5.32	\$ 5.81	\$ 6.41	\$ 7.24	\$ 8.06
1"	12	\$ 53.48	\$ 60.16	\$ 67.21	\$ 74.97	\$ 83.75	\$ 93.52	\$ 6.68	\$ 7.05	\$ 7.77	\$ 8.78	\$ 9.78
1"	15	\$ 67.28	\$ 76.00	\$ 84.91	\$ 94.71	\$ 105.80	\$ 118.15	\$ 8.72	\$ 8.91	\$ 9.81	\$ 11.09	\$ 12.36
1"	20	\$ 90.28	\$ 102.40	\$ 114.41	\$ 127.61	\$ 142.55	\$ 159.20	\$ 12.12	\$ 12.01	\$ 13.21	\$ 14.94	\$ 16.66
CLCIWA Service Areas												
1"	0	\$ 11.44	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (4.16)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18
1"	1	\$ 11.44	\$ 10.36	\$ 11.22	\$ 12.17	\$ 13.24	\$ 14.42	\$ (1.08)	\$ 0.86	\$ 0.96	\$ 1.07	\$ 1.19
1"	2	\$ 11.44	\$ 13.44	\$ 14.31	\$ 15.27	\$ 16.35	\$ 17.54	\$ 2.00	\$ 0.87	\$ 0.97	\$ 1.08	\$ 1.20
1"	3	\$ 17.47	\$ 19.72	\$ 20.97	\$ 22.35	\$ 23.90	\$ 25.62	\$ 2.25	\$ 1.25	\$ 1.39	\$ 1.55	\$ 1.73
1"	4	\$ 23.50	\$ 26.00	\$ 27.63	\$ 29.43	\$ 31.45	\$ 33.70	\$ 2.50	\$ 1.63	\$ 1.81	\$ 2.02	\$ 2.26
1"	5	\$ 29.53	\$ 32.28	\$ 34.29	\$ 36.51	\$ 39.00	\$ 41.78	\$ 2.75	\$ 2.01	\$ 2.23	\$ 2.49	\$ 2.79
1"	6	\$ 35.56	\$ 38.56	\$ 40.95	\$ 43.59	\$ 46.55	\$ 49.86	\$ 3.00	\$ 2.39	\$ 2.65	\$ 2.96	\$ 3.32
1"	8	\$ 48.22	\$ 52.38	\$ 55.61	\$ 59.17	\$ 63.17	\$ 67.64	\$ 4.16	\$ 3.23	\$ 3.57	\$ 4.00	\$ 4.48
1"	10	\$ 60.88	\$ 66.20	\$ 70.27	\$ 74.75	\$ 79.79	\$ 85.42	\$ 5.32	\$ 4.07	\$ 4.49	\$ 5.04	\$ 5.64
1"	12	\$ 73.54	\$ 80.02	\$ 84.93	\$ 90.33	\$ 96.41	\$ 103.20	\$ 6.48	\$ 4.91	\$ 5.41	\$ 6.08	\$ 6.80
1"	15	\$ 92.53	\$ 100.75	\$ 106.92	\$ 113.70	\$ 121.34	\$ 129.87	\$ 8.22	\$ 6.17	\$ 6.79	\$ 7.64	\$ 8.54
1"	20	\$ 124.18	\$ 135.30	\$ 143.57	\$ 152.65	\$ 162.89	\$ 174.32	\$ 11.12	\$ 8.27	\$ 9.09	\$ 10.24	\$ 11.44
Hawthorn Woods Service Areas												
1"	0	\$ 16.06	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (8.78)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18
1"	1	\$ 16.06	\$ 12.84	\$ 13.70	\$ 14.65	\$ 15.72	\$ 16.90	\$ (3.22)	\$ 0.86	\$ 0.96	\$ 1.07	\$ 1.19
1"	2	\$ 16.06	\$ 18.40	\$ 19.27	\$ 20.23	\$ 21.31	\$ 22.50	\$ 2.34	\$ 0.87	\$ 0.97	\$ 1.08	\$ 1.20
1"	3	\$ 24.51	\$ 27.21	\$ 28.46	\$ 29.85	\$ 31.41	\$ 33.13	\$ 2.70	\$ 1.25	\$ 1.40	\$ 1.56	\$ 1.73
1"	4	\$ 32.96	\$ 36.02	\$ 37.65	\$ 39.47	\$ 41.51	\$ 43.76	\$ 3.06	\$ 1.63	\$ 1.83	\$ 2.04	\$ 2.26
1"	5	\$ 41.41	\$ 44.83	\$ 46.84	\$ 49.09	\$ 51.61	\$ 54.39	\$ 3.42	\$ 2.01	\$ 2.26	\$ 2.52	\$ 2.79
1"	6	\$ 49.86	\$ 53.64	\$ 56.03	\$ 58.71	\$ 61.71	\$ 65.02	\$ 3.78	\$ 2.39	\$ 2.69	\$ 3.00	\$ 3.32
1"	8	\$ 67.62	\$ 73.02	\$ 76.25	\$ 79.87	\$ 83.93	\$ 88.40	\$ 5.40	\$ 3.23	\$ 3.63	\$ 4.06	\$ 4.48
1"	10	\$ 85.38	\$ 92.40	\$ 96.47	\$ 101.03	\$ 106.15	\$ 111.78	\$ 7.02	\$ 4.07	\$ 4.57	\$ 5.12	\$ 5.64
1"	12	\$ 103.14	\$ 111.78	\$ 116.69	\$ 122.19	\$ 128.37	\$ 135.16	\$ 8.64	\$ 4.91	\$ 5.51	\$ 6.18	\$ 6.80
1"	15	\$ 129.78	\$ 140.85	\$ 147.02	\$ 153.93	\$ 161.70	\$ 170.23	\$ 11.07	\$ 6.17	\$ 6.92	\$ 7.77	\$ 8.54
1"	20	\$ 174.18	\$ 189.30	\$ 197.57	\$ 206.83	\$ 217.25	\$ 228.68	\$ 15.12	\$ 8.27	\$ 9.27	\$ 10.42	\$ 11.44

Table 1-5: Typical Residential Sewer Bills Under Existing and Proposed Rates

Meter Size inches	Monthly	Current Rates \$/mo	Proposed Rates					Difference					
	Water		2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	
	Use kgal		\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$	\$	\$	\$	\$	
(1) General Service Areas													
1"	0	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28
1"	1	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28
1"	2	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28
1"	3	\$ 16.71	\$ 17.40	\$ 18.12	\$ 18.69	\$ 19.08	\$ 19.50	\$	0.69	\$ 0.72	\$ 0.57	\$ 0.39	\$ 0.42
1"	4	\$ 22.28	\$ 23.20	\$ 24.16	\$ 24.92	\$ 25.44	\$ 26.00	\$	0.92	\$ 0.96	\$ 0.76	\$ 0.52	\$ 0.56
1"	5	\$ 27.85	\$ 29.00	\$ 30.20	\$ 31.15	\$ 31.80	\$ 32.50	\$	1.15	\$ 1.20	\$ 0.95	\$ 0.65	\$ 0.70
1"	6	\$ 33.42	\$ 34.80	\$ 36.24	\$ 37.38	\$ 38.16	\$ 39.00	\$	1.38	\$ 1.44	\$ 1.14	\$ 0.78	\$ 0.84
1"	8	\$ 44.56	\$ 46.40	\$ 48.32	\$ 49.84	\$ 50.88	\$ 52.00	\$	1.84	\$ 1.92	\$ 1.52	\$ 1.04	\$ 1.12
1"	10	\$ 55.70	\$ 58.00	\$ 60.40	\$ 62.30	\$ 63.60	\$ 65.00	\$	2.30	\$ 2.40	\$ 1.90	\$ 1.30	\$ 1.40
1"	12	\$ 66.84	\$ 69.60	\$ 72.48	\$ 74.76	\$ 76.32	\$ 78.00	\$	2.76	\$ 2.88	\$ 2.28	\$ 1.56	\$ 1.68
1"	15	\$ 83.55	\$ 87.00	\$ 90.60	\$ 93.45	\$ 95.40	\$ 97.50	\$	3.45	\$ 3.60	\$ 2.85	\$ 1.95	\$ 2.10
1"	20	\$ 111.40	\$ 116.00	\$ 120.80	\$ 124.60	\$ 127.20	\$ 130.00	\$	4.60	\$ 4.80	\$ 3.80	\$ 2.60	\$ 2.80
(2) Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire													
1"	0	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32
1"	1	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32
1"	2	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32
1"	3	\$ 19.68	\$ 20.49	\$ 21.33	\$ 21.99	\$ 22.47	\$ 22.95	\$	0.81	\$ 0.84	\$ 0.66	\$ 0.48	\$ 0.48
1"	4	\$ 26.24	\$ 27.32	\$ 28.44	\$ 29.32	\$ 29.96	\$ 30.60	\$	1.08	\$ 1.12	\$ 0.88	\$ 0.64	\$ 0.64
1"	5	\$ 32.80	\$ 34.15	\$ 35.55	\$ 36.65	\$ 37.45	\$ 38.25	\$	1.35	\$ 1.40	\$ 1.10	\$ 0.80	\$ 0.80
1"	6	\$ 39.36	\$ 40.98	\$ 42.66	\$ 43.98	\$ 44.94	\$ 45.90	\$	1.62	\$ 1.68	\$ 1.32	\$ 0.96	\$ 0.96
1"	8	\$ 52.48	\$ 54.64	\$ 56.88	\$ 58.64	\$ 59.92	\$ 61.20	\$	2.16	\$ 2.24	\$ 1.76	\$ 1.28	\$ 1.28
1"	10	\$ 65.60	\$ 68.30	\$ 71.10	\$ 73.30	\$ 74.90	\$ 76.50	\$	2.70	\$ 2.80	\$ 2.20	\$ 1.60	\$ 1.60
1"	12	\$ 78.72	\$ 81.96	\$ 85.32	\$ 87.96	\$ 89.88	\$ 91.80	\$	3.24	\$ 3.36	\$ 2.64	\$ 1.92	\$ 1.92
1"	15	\$ 98.40	\$ 102.45	\$ 106.65	\$ 109.95	\$ 112.35	\$ 114.75	\$	4.05	\$ 4.20	\$ 3.30	\$ 2.40	\$ 2.40
1"	20	\$ 131.20	\$ 136.60	\$ 142.20	\$ 146.60	\$ 149.80	\$ 153.00	\$	5.40	\$ 5.60	\$ 4.40	\$ 3.20	\$ 3.20
(3) Northeast Central - NSWRD Wildwood													
1"	0	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26
1"	1	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26
1"	2	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26
1"	3	\$ 24.24	\$ 24.87	\$ 25.53	\$ 26.07	\$ 26.43	\$ 26.82	\$	0.63	\$ 0.66	\$ 0.54	\$ 0.36	\$ 0.39
1"	4	\$ 32.32	\$ 33.16	\$ 34.04	\$ 34.76	\$ 35.24	\$ 35.76	\$	0.84	\$ 0.88	\$ 0.72	\$ 0.48	\$ 0.52
1"	5	\$ 40.40	\$ 41.45	\$ 42.55	\$ 43.45	\$ 44.05	\$ 44.70	\$	1.05	\$ 1.10	\$ 0.90	\$ 0.60	\$ 0.65
1"	6	\$ 48.48	\$ 49.74	\$ 51.06	\$ 52.14	\$ 52.86	\$ 53.64	\$	1.26	\$ 1.32	\$ 1.08	\$ 0.72	\$ 0.78
1"	8	\$ 64.64	\$ 66.32	\$ 68.08	\$ 69.52	\$ 70.48	\$ 71.52	\$	1.68	\$ 1.76	\$ 1.44	\$ 0.96	\$ 1.04
1"	10	\$ 80.80	\$ 82.90	\$ 85.10	\$ 86.90	\$ 88.10	\$ 89.40	\$	2.10	\$ 2.20	\$ 1.80	\$ 1.20	\$ 1.30
1"	12	\$ 96.96	\$ 99.48	\$ 102.12	\$ 104.28	\$ 105.72	\$ 107.28	\$	2.52	\$ 2.64	\$ 2.16	\$ 1.44	\$ 1.56
1"	15	\$ 121.20	\$ 124.35	\$ 127.65	\$ 130.35	\$ 132.15	\$ 134.10	\$	3.15	\$ 3.30	\$ 2.70	\$ 1.80	\$ 1.95
1"	20	\$ 161.60	\$ 165.80	\$ 170.20	\$ 173.80	\$ 176.20	\$ 178.80	\$	4.20	\$ 4.40	\$ 3.60	\$ 2.40	\$ 2.60
(4) Northeast Central - NSWRD Arbor Vista													
1"	0	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24
1"	1	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24
1"	2	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24
1"	3	\$ 30.60	\$ 31.20	\$ 31.83	\$ 32.34	\$ 32.70	\$ 33.06	\$	0.60	\$ 0.63	\$ 0.51	\$ 0.36	\$ 0.36
1"	4	\$ 40.80	\$ 41.60	\$ 42.44	\$ 43.12	\$ 43.60	\$ 44.08	\$	0.80	\$ 0.84	\$ 0.68	\$ 0.48	\$ 0.48
1"	5	\$ 51.00	\$ 52.00	\$ 53.05	\$ 53.90	\$ 54.50	\$ 55.10	\$	1.00	\$ 1.05	\$ 0.85	\$ 0.60	\$ 0.60
1"	6	\$ 61.20	\$ 62.40	\$ 63.66	\$ 64.68	\$ 65.40	\$ 66.12	\$	1.20	\$ 1.26	\$ 1.02	\$ 0.72	\$ 0.72
1"	8	\$ 81.60	\$ 83.20	\$ 84.88	\$ 86.24	\$ 87.20	\$ 88.16	\$	1.60	\$ 1.68	\$ 1.36	\$ 0.96	\$ 0.96
1"	10	\$ 102.00	\$ 104.00	\$ 106.10	\$ 107.80	\$ 109.00	\$ 110.20	\$	2.00	\$ 2.10	\$ 1.70	\$ 1.20	\$ 1.20
1"	12	\$ 122.40	\$ 124.80	\$ 127.32	\$ 129.36	\$ 130.80	\$ 132.24	\$	2.40	\$ 2.52	\$ 2.04	\$ 1.44	\$ 1.44
1"	15	\$ 153.00	\$ 156.00	\$ 159.15	\$ 161.70	\$ 163.50	\$ 165.30	\$	3.00	\$ 3.15	\$ 2.55	\$ 1.80	\$ 1.80
1"	20	\$ 204.00	\$ 208.00	\$ 212.20	\$ 215.60	\$ 218.00	\$ 220.40	\$	4.00	\$ 4.20	\$ 3.40	\$ 2.40	\$ 2.40

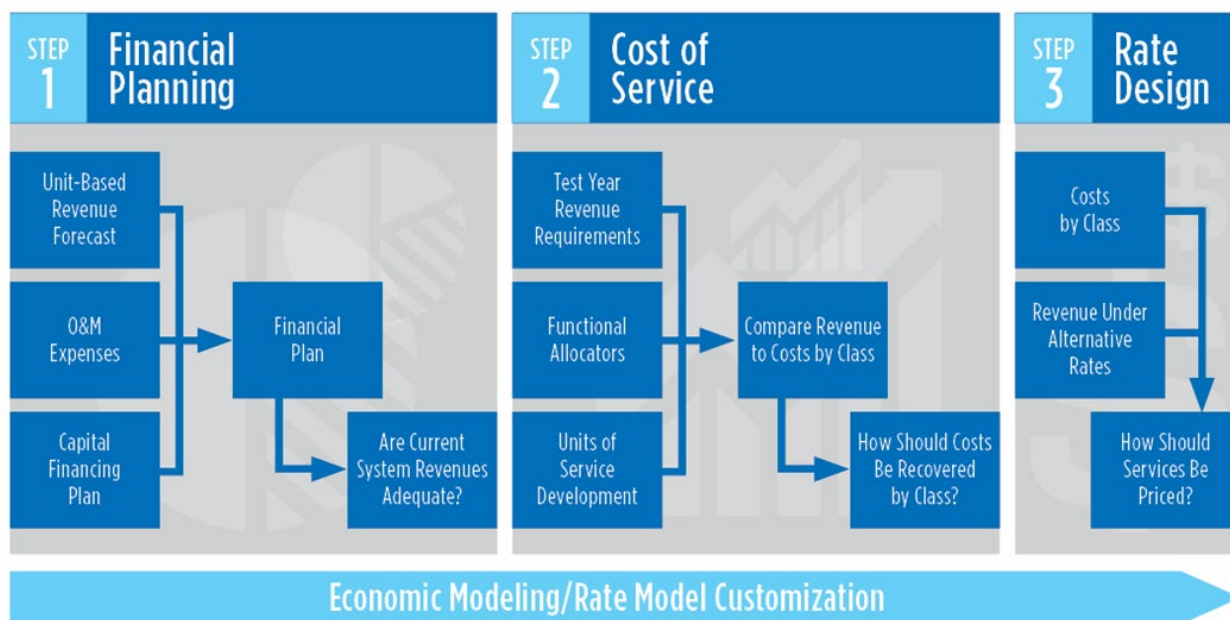
Figure 1-2: Regional Comparison of Combined Water and Sewer Bills

2.0 FINANCIAL PLANNING ANALYSIS

2.1 Project Approach

Burns & McDonnell conducted the water and sewer rate study in a three-step approach. Our general approach to water and sewer rate studies, depicted in Figure 2-1, is grounded in the principles established by the American Water Works Association (AWWA) *M1 Rate Manual* and the Water Environment Federation (WEF) *Financing and Charges for Wastewater Systems*.

Figure 2-1: General Study Methodology



Step 1: Financial Planning provides an indication of the adequacy of the revenue generated by current rates. The results of the financial forecast analysis answer the questions "Are the existing rates adequate?" and "If not, what level of overall revenue increase is needed?" The Financial Planning Analysis is presented in this section of our report.

Step 2: Cost of Service focuses on assigning cost responsibility to customer classes. Each customer class is allocated an appropriate share of the overall system costs based on the level of service provided. The net revenue requirements (costs to be recovered from rates) identified in Step 1 are allocated to customers based on Lake County's historical cost accounting system and service characteristics. The Cost of Service Analysis is detailed in Section 3 of this report.

Step 3: Rate Design provides for the required revenue recovery. Once the overall level of revenue required is identified and allocated cost has been evaluated, schedules of rates for each rate class are

developed that will generate revenues accordingly. The Rate Design Analysis is detailed in Section 4 of this report.

2.2 Introduction to Financial Planning

The primary issue addressed in the Financial Planning Analysis is revenue sufficiency. The results of the Financial Planning Analysis answer the questions:

- "Are the existing rates sufficient to fund anticipated operating and capital costs?"
- "If not, what level of overall revenue increase is needed?"

To determine if the existing schedule of rates can be expected to generate revenues sufficient to meet Lake County's operating and capital costs, Burns & McDonnell prepared a ten-year financial projection of revenues and expenditures for the water and sewer utilities. A comparison of projected revenues and expenditures provides insight into the adequacy of overall revenue levels.

Our approach to Financial Planning involves the following basic steps:

1. Project revenues under existing rates.
2. Project water and sewer utility expenditures, including operating and capital costs.
3. Evaluate the sufficiency of revenues under existing rates to fund future costs and meet financial performance targets.

The planning period includes the current fiscal year (FY) 2019 as a budget year and a ten-year forecast period, FY 2020 through FY 2029. Lake County's fiscal year ends on November 30, and the projected periods in the financial plan recognize the same fiscal year ending November 30.

2.3 Water and Sewer Utility Revenues under Existing Rates

The first step in the Financial Plan Analysis was to project revenues under the existing schedule of rates. To complete this effort required an analysis of water and sewer customers, volumes, and revenues.

2.3.1 Historical and Projected Customers and Volumes

Table 2-1 presents Lake County's a summary of historical retail water and sewer customers and total volumes from 2015 to 2017, estimated customers and volume for 2018 and 2019, and projected customers and volume for the 2020 to 2029 planning period. In recent years, both water and sewer accounts as well as water and sewer volumes have remained relatively stable. For planning purposes, overall levels of accounts and volume are projected to remain consistent with 2018 levels.

Table 2-1: Summary of Historical and Projected Customer Accounts and Volumes

Line No.		Historical			Budgeted			Projected									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Retail Customer Accounts																	
1	Water	20,426	21,047	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	20,636	
2	Sewer	23,915	24,461	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	24,106	
Total Billed Volume																	
3	Water	1,709,105	1,699,460	1,631,663	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	1,644,300	
4	Sewer	2,341,618	2,107,370	2,208,665	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	2,208,600	
5	Sewer - Wholesale	4,702,740	4,820,098	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	4,814,495	
6	Total	8,753,463	8,626,928	8,654,823	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	8,667,395	

2.3.2 Existing Water and Sewer Rates

Existing water and sewer rate schedules are shown in Tables 2-2 and 2-3. Existing metered water rates, shown in Table 2-2, include an inclining block rate structure with a minimum bill for residential service. Non-residential water rates are billed based on a uniform volumetric rate. Lake County's water rates vary based on the water supply source and include the following areas.

- General Service Areas
- Central Lake County Joint Action Water Agency (CLCJAWA) Service Areas
- Hawthorne Woods – Glenshire/Forest Lake

Unmetered water rates consist of a monthly charge by service area based on residential equivalents and include Arden Shores, Countryside Lake, Forest Lake and Oak Terrace.

Existing metered sewer rates, shown in Table 2-3, include a uniform volumetric charge per thousand gallons with a minimum bill. Metered sewer service areas include the following:

- General Service Areas
- Southeast Central
- Northeast Central – North Shore Water Reclamation District (NSWRD) Wildwood
- Northeast Central – NSWRD Arbor Vista

Unmetered sewer rates consist of a monthly charge differentiated by service area. Unmetered sewer service areas include the General Service area; Southeast Central – Libertyville; Northwest; Northeast Central; Ravenna, Royal Melbourne, Kildeer North, Kildeer Central, Kildeer South; and Riverside Preserve.

Lake County provides wholesale sewer service to multiple areas. Service levels vary to include conveyance, or treatment, or both. The existing wholesale sewer rate structure includes either a uniform rate per 1,000 gallons or an equivalent rate per residential customer equivalent (RCE). The RCE is based on an equivalency multiplier that varies from 7.5 to 8.0 by area.

Table 2-2: Existing Water Rates

Volumetric Rates	
	Existing FY 2019
General Service Areas	(\$/1000 gal)
Block 1 (0-2,000 gallons per month)	\$4.16
Block 2 (3,000-6,000 gallons per month)	\$4.39
Block 3 (7,000 gallons or greater per month)	\$4.60
Non-Residential	\$4.39
CLCJAWA Service Areas	
Block 1 (0-2,000 gallons per month)	\$5.72
Block 2 (3,000-6,000 gallons per month)	\$6.03
Block 3 (7,000 gallons or greater per month)	\$6.33
Non-Residential	\$6.03
Hawthorn Woods - Glennshire/Forest Lake	
Block 1 (0-2,000 gallons per month)	\$8.03
Block 2 (3,000-6,000 gallons per month)	\$8.45
Block 3 (7,000 gallons or greater per month)	\$8.88
Non-Residential	\$8.45
Unmetered Water	
	Existing FY 2019
	(\$/mo)
Arden Shores	\$55.11
Countryside Lake	\$43.86
Forest Lake	\$43.51
Oak Terrace	\$33.42

Table 2-3: Existing Sewer Rates

Metered Sewer Volumetric Rates	
	<u>Existing FY 2019</u>
	(\$/1000 gal)
General Service Areas	\$5.57
Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire	\$6.56
Northeast Central - NSWRD Wildwood	\$8.08
Northeast Central - NSWRD Arbor Vista	\$10.20
Unmetered Sewer	
	<u>Existing FY 2019</u>
	(\$/mo)
General Service Area	\$44.55
Southeast Central - Libertyville	\$48.39
Northwest	\$41.77
Northeast Central	\$53.70
Ravenna, Royal Melbourne, Kildeer North Kildeer Central, Kildeer South	\$55.73
Riverside Preserve	\$70.73
Wholesale Sewer	
	<u>Existing FY 2019</u>
	(\$/1000 gal) (\$/RCE/Month)
Antioch	\$4.94 \$39.49
Buffalo Grove	\$4.08 \$30.60
Grayslake	\$3.44 \$25.78
Green Oaks	\$1.10 \$8.80
Gurnee	\$3.44 \$25.78
Hainesville (Northwest)	\$3.70 \$27.75
Hainesville (Northeast Central)	\$3.44 \$25.78
Harbor Ridge	\$5.57 \$41.78
Lakes Region Sanitary District	\$3.70 \$27.75
Lake Villa	\$3.70 \$27.75
Lake Zurich	\$4.08 \$30.60
Libertyville	\$1.10 \$8.80
Lincolnshire	\$4.08 \$30.60
Riverwoods	\$5.57 \$44.56
Round Lake	\$3.70 \$27.75
Round Lake Beach	\$3.70 \$27.75
Round Lake Park	\$3.70 \$27.75
Round Lake Heights	\$3.70 \$27.75
Waukegan	\$3.44 \$25.78

2.3.3 User Revenues under Existing Rates

Table 2-4 presents historical user charge revenues for 2015 to 2017, budgeted revenue for 2018 and 2019, and a projection of user charge revenues under current rates for the 2020 to 2029 planning period.

The water and sewer systems owned and operated by Lake County represent a complex array of facilities. In some instances, Lake County provides full service, considered for the water utility to be water treatment, transmission and distribution. Full sewer utility service generally includes collection and

treatment. In some areas of Lake County, the County only provides a portion of the water or sewer service received by the end customer. Partial water service may include transmission and/or distribution only; partial sewer service may be collection only. In such instances, the remaining service (primarily treatment) is provided by other service providers in the region.

Lake County differentiates its collected revenues between revenues for services Lake County provides and revenues collected for the payment of services provided by others. Table 2-4 shows the revenue detailed by utility between Lake County revenues and those revenues collected and passed on to other regional utilities that provide a portion of service in Lake County.

As can be seen on Line 1 of Table 2-4, Lake County's portion of historical and budgeted water user charge revenues have ranged from \$4.3 million to \$5.1 million per year. As shown on Line 2, retail sewer service revenues have ranged from \$10.1 million to \$11.8 million per year, while wholesale sewer revenues have ranged from \$8.9 million to \$11.6 million per year. Overall, user charge revenues under existing rates are projected to remain consistent with the 2019 budget through 2029.

For the purpose of this analysis, the pass-through portion of Lake County's projected revenues are forecasted to remain consistent with budgeted 2019 levels. Should regional service providers increase rates over the forecast period, it is anticipated associated revenue increases would be passed through to applicable Lake County customers when such rates are implemented.

Table 2-4: Historical and Projected Water and Sewer User Revenues

Line No.	Historical			Budgeted		Projected									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Lake County User Charge Revenue															
1 Water	5,051,198	4,657,213	4,804,917	\$4,305,800	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500	\$4,777,500
2 Sewer	\$10,108,354	\$11,413,174	\$11,823,255	\$11,200,600	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200	\$10,718,200
3 Sewer - Wholesale	<u>8,923,080</u>	<u>9,859,912</u>	<u>9,228,476</u>	<u>\$8,771,500</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>	<u>\$11,556,700</u>
4 Total	\$24,082,631	\$25,930,299	\$25,856,649	\$24,277,900	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400	\$27,052,400
Pass Through User Charge Revenue															
5 Water	\$4,130,500	\$4,574,000	\$4,269,400	\$4,780,300	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000	\$4,692,000
6 Sewer	1,251,600	1,181,500	1,290,600	\$1,453,700	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500	\$1,534,500
7 Sewer - Wholesale	<u>\$7,088,300</u>	<u>\$6,691,400</u>	<u>\$7,309,400</u>	<u>\$8,233,100</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>	<u>\$8,690,800</u>
8 Total	12,470,400	12,446,900	12,869,400	14,467,100	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300
Total User Charge Revenue															
9 Water	9,181,698	9,231,213	9,074,317	9,086,100	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500	9,469,500
10 Sewer	11,359,954	12,594,674	13,113,855	12,654,300	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700	12,252,700
11 Sewer - Wholesale	<u>16,011,380</u>	<u>16,551,312</u>	<u>16,537,876</u>	<u>17,004,600</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>	<u>20,247,500</u>
12 Total	36,553,031	38,377,199	38,726,049	38,745,000	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700	41,969,700

2.4 Water and Sewer Utility Expenditures

Typically, a municipal water or sewer utility's primary cash expenditures include the following direct operating and capital costs:

- Operation and Maintenance (O&M) Expenses
- Revenue-Financed Capital Improvement Program Expenditures

- Debt Service Principal and Interest Payments

2.4.1 O&M Expenses

Table 2-5 summarizes recent water and sewer O&M expense history and the projection of water and sewer system O&M expenses through the 2029 planning period. Expenses summarized on Table 2-5 reflect operating costs only; costs related to capital projects are excluded from Table 2-5 and are addressed in Section 2.4.2 of this report.

In recent history, combined water and sewer O&M expenses ranged from \$30.0 million in 2015 to a budget of \$34.6 million in 2018. Anticipated 2019 O&M costs are based on Lake County's approved budget. In general, projected O&M expenses are anticipated to increase from budgeted 2019 amounts by about 2.1 percent, consistent with recent trends in the consumer price index. Consistent with the forecasting of pass-through revenues, water purchase and sewerage treatment expenses in this analysis are forecasted to remain at the 2019 budget levels. Should regional service providers increase rates over the forecast period, it is anticipated associated revenue increases would be passed through to applicable Lake County customers so that pass-through revenues and expenses are consistent.

Overall, O&M expenses are projected to increase from \$38.3 million in 2019 to \$43.8 million in 2029.

Table 2-5: Historical and Projected Operation and Maintenance Expenses

Line No.	Historical			Budgeted		Projected									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1 Personal Services	9,091,541	9,151,002	9,606,565	9,373,600	9,503,800	9,706,200	9,913,000	10,124,100	10,339,800	10,560,000	10,785,000	11,014,700	11,249,300	11,489,000	11,733,700
2 Commodities	1,563,931	2,188,136	1,928,351	1,984,900	2,187,600	2,234,200	2,281,700	2,330,300	2,380,000	2,430,700	2,482,500	2,535,300	2,589,300	2,644,500	2,700,800
Contractuals															
3 Electricity	1,715,452	1,775,995	1,536,830	1,867,900	1,995,600	2,038,100	2,081,500	2,125,900	2,171,100	2,217,400	2,264,600	2,312,900	2,362,100	2,412,400	2,463,800
4 Wholesale Water Purchase	4,130,454	4,573,982	4,269,440	4,780,300	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000
5 Wholesale Sewerage Treatment	8,339,893	7,872,933	8,600,000	9,686,700	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200	10,225,200
6 Indirect Cost Allocations	1,176,246	1,153,714	1,392,567	1,562,100	1,630,700	1,665,400	1,700,900	1,737,100	1,774,100	1,811,900	1,850,500	1,889,900	1,930,200	1,971,300	2,013,300
7 All other Contractual Expenses	4,017,446	5,101,622	6,855,078	5,384,100	8,062,000	8,233,800	8,409,200	8,588,300	8,771,300	8,958,100	9,148,900	9,343,700	9,542,800	9,746,100	9,953,700
8 Total Utility Expenses	30,034,963	31,817,384	34,188,831	34,639,600	38,296,900	38,794,900	39,303,500	39,822,900	40,353,500	40,895,300	41,448,700	42,013,700	42,590,900	43,180,500	43,782,500
9 Total Inflation		5.9%	7.5%	1.3%	10.6%	1.3%	1.3%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%
10 Inflation Excluding Wholesale Costs		10.3%	10.1%	-5.4%	15.9%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
11 Total Water O&M				9,613,100	10,293,200	10,412,500	10,534,300	10,658,800	10,785,900	10,915,700	11,048,300	11,183,700	11,321,900	11,463,200	11,607,400
12 Total Sewer O&M				25,026,500	28,003,700	28,382,400	28,769,200	29,164,200	29,567,600	29,979,600	30,400,400	30,830,100	31,269,100	31,717,300	32,175,100

[1] O&M projected to increase by 2.13 percent, annual CPI increase from 2016 to 2017.

[2] O&M excluding Wholesale Water Purchases and Sewerage Treatment is distributed between utilities based on Lake County 2017 trial balances.

2.4.2 Projected Capital Improvement Expenditures

Table 2-6 shows the projected capital improvement plan (CIP) for the 2019 to 2029 planning period. Lake County anticipates total capital investment needs for water and sewer projects to be \$9.2 million per year in 2018 dollars. This targeted investment in utility infrastructure is inflated over the forecast period at 2.1 percent annually and is summarized on Lines 1 through 3 of Table 2-6. Lake County plans to cash finance these projects. As such, the spending targets have been phased-in to align with funding anticipated to be available from future operations and rate increases. As can be seen on Lines 4 through 7 of Table 2-6, the

water utility is expected to reach 100 percent funding of the CIP target in 2026 and the sewer utility is expected to reach 100 percent of the CIP target in 2023.

Table 2-6: Capital Improvement Program

Line No.		Projected										
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	Total Inflated Water Utility CIP	3,758,400	3,838,400	3,920,200	4,003,700	4,089,000	4,176,100	4,265,100	4,355,900	4,448,700	4,543,500	4,640,200
2	Total Inflated Sewer Utility CIP	5,637,600	5,757,700	5,880,300	6,005,600	6,133,500	6,264,100	6,397,600	6,533,900	6,673,000	6,815,200	6,960,300
3	Total Inflated Combined Utility CIP	9,396,000	9,596,100	9,800,500	10,009,300	10,222,500	10,440,200	10,662,700	10,889,800	11,121,700	11,358,700	11,600,500
4	Annual Percentage of Water CIP	0.0%	0.0%	5.0%	30.0%	45.0%	60.0%	80.0%	100.0%	100.0%	100.0%	100.0%
5	Projected Annual Water CIP	-	-	196,000	1,201,100	1,840,100	2,505,700	3,412,100	4,355,900	4,448,700	4,543,500	4,640,200
6	Annual Percentage of Sewer CIP	35.0%	60.0%	60.0%	95.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
7	Projected Annual Sewer CIP	1,973,200	3,454,600	3,528,200	5,705,300	6,133,500	6,264,100	6,397,600	6,533,900	6,673,000	6,815,200	6,960,300
8	Projected Annual Combined CIP	1,973,200	3,454,600	3,724,200	6,906,400	7,973,600	8,769,800	9,809,700	10,889,800	11,121,700	11,358,700	11,600,500

2.4.3 Existing Debt Service Requirements

Table 2-7 summarizes the existing debt service requirements for the water and sewer utilities. As shown on Table 2-7, the water utility annual debt service payments decrease from \$168,600 in 2019 to \$85,400 in 2029. The sewer utility annual debt service payments decrease from \$6.1 million in 2019 to \$3.9 million in 2029. The reductions are expected because the 2005S-1 and the 2016 series debt issues are fully amortized during the forecast period. No new debt is anticipated in the financial planning performed for this study.

Table 2-7: Existing Debt Service

Line No.		Projected										
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing Debt Issues												
Water Utility Debt												
1	2005S-1	76,900	74,400	76,900	74,100	76,300	73,200	-	-	-	-	-
2	2009S-1	91,700	95,100	93,300	91,400	89,500	92,500	90,200	87,900	85,500	88,100	85,400
3	Total Water Utility Debt	168,600	169,500	170,200	165,500	165,800	165,700	90,200	87,900	85,500	88,100	85,400
Sewer Utility Debt												
4	2010A	1,260,400	1,299,600	1,336,300	2,000,300	1,874,400	1,830,400	1,784,900	1,737,900	1,689,400	1,639,400	1,837,900
5	2016 (Refunded 2006B)	2,364,300	2,367,000	2,299,500	-	-	-	-	-	-	-	-
6	IEPA L17	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100	1,910,100
7	IEPA L14964	578,900	578,900	578,900	578,900	578,900	578,900	578,900	578,900	578,900	578,900	178,800
8	Total Sewer Utility Debt	6,113,700	6,155,600	6,124,800	4,489,300	4,363,400	4,319,400	4,273,900	4,226,900	4,178,400	4,128,400	3,926,800
9	Total Existing Debt	6,282,300	6,325,100	6,295,000	4,654,800	4,529,200	4,485,100	4,364,100	4,314,800	4,263,900	4,216,500	4,012,200

2.5 Water and Sewer Utility Financial Plans

Based on the preceding information, financial plans for the water and sewer utilities have been assembled. The financial plans aggregate the revenues and expenses forecasted and discussed in preceding sections of this report to assess the adequacy of revenues to meet future operating and capital requirements. The cash flow analyses identify the overall increase in water and sewer revenues needed to meet Lake County's financial objectives.

2.5.1 Water Utility Flow of Funds

Detailed cash flow tables were developed individually for the water and sewer utility, and then combined to show the consolidated utility cash flow under the proposed plan. Table 2-8 presents the water utility cash flow, Table 2-9 presents the sewer utility cash flow, and Table 2-10 shows the consolidated utility cash flow.

Beginning with the water utility, Line 1 of Table 2-8 shows Lake County's portion of user revenues under current rates, identified previously in Table 2-4. Lines 2 through 11 present the revenue increases which have been sized to reflect an underlying water system increase of 9.5 percent per year plus an allowance for inflation, estimated to be 2.13 percent annually. The total increase of 11.63 percent continues through FY 2026, at which point the inflated CIP spending target for the water utility is fully funded. Subsequent rate increases are proposed to reflect inflation only starting in FY 2027. Each increase is assumed to be effective December 1 of the fiscal year indicated. Total Lake County user revenues are summarized on Line 13.

Line 14 shows the wholesale water purchase passthrough revenue and Line 15 shows other revenues, forecast to remain at 2019 budget amounts. Line 16 shows the total operating revenue forecasted over the study period. Including the proposed revenue adjustments and CPI, total revenue is projected to increase from \$10.2 million in 2019 to \$16.4 million in 2029.

Water O&M expenses are shown on Lines 17 and 18 of Table 2-8, shown previously in Table 2-5. Existing debt service amounts on Line 19 reflect debt service payments identified previously in Table 2-7. Lake County is not forecasting the issuance of additional utility debt in this plan, as can be seen on Line 20.

Total revenue requirements are summarized on Line 22. This amount is deducted from Line 16, total revenue, to determine the annual operating surplus or deficit. With the proposed revenue adjustments, the operating balance on Line 23 is positive in all years of the forecast beginning in FY 2020, and increasing to provide the funding needed for a pay-as-you-go strategy for capital improvements.

Lines 24 through 28 show the flow of funds to finance the CIP for the water utility. For 2019, a beginning balance of approximately \$2.4 million was available, as shown on Line 24. The annual operating balance is added to this amount to reflect the cash surplus or deficit expected each year from ongoing operations of the water utility assuming all rate increases shown in Table 2-8 are implemented. The utility intends to maintain a minimum operating and capital balance of 25 percent of O&M, shown as the target on Line 29. Water capital improvement projects and the percentage of the total CIP shown on Lines 26 and 27 are

consistent with that shown previously in Table 2-6. Over time, the reserve target is achieved, and CIP funding is gradually increased, such that 100 percent of the CIP spending target is funded in FY 2026.

Line 30 shows the debt service coverage of the existing debt. As noted on the table, the minimum coverage is 1.5. Debt service coverage levels are intended to provide assurances to bond holders that the utility has the financial wherewithal to meet its annual debt payment. Municipal bond rating agencies evaluate many criteria regarding the credit worthiness of utility debt. Debt service coverage is one of the primary indicators that is examined, and rating agencies generally reserve their stronger ratings for debt service coverage ratios that exceed 1.50x to 2.00x. Due to the very low amount of existing debt, and no issuance of additional debt, the debt service coverage as shown on Line 30 is projected to be strong for the water utility.

Table 2-8: Water Utility Financial Plan

Line No.		Projected										
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	Water Utility Flow of Funds											
1	Revenue Under Existing Rates	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500	4,777,500
	Proposed Revenue Adjustments											
	Year	Month	Increase									
2	2020	2	11.63%	509,300	555,600	555,600	555,600	555,600	555,600	555,600	555,600	555,600
3	2021	2	11.63%		568,600	620,200	620,200	620,200	620,200	620,200	620,200	620,200
4	2022	2	11.63%			634,700	692,400	692,400	692,400	692,400	692,400	692,400
5	2023	2	11.63%				708,500	772,900	772,900	772,900	772,900	772,900
6	2024	2	11.63%					790,900	862,800	862,800	862,800	862,800
7	2025	2	11.63%						882,900	963,100	963,100	963,100
8	2026	2	11.63%							985,500	1,075,100	1,075,100
9	2027	2	2.13%								201,500	201,500
10	2028	2	2.13%									205,400
11	2029	2	2.13%									209,400
12	Total Proposed Additional Revenue	-	509,300	1,124,200	1,810,500	2,576,700	3,432,000	4,386,800	5,452,500	5,743,600	5,949,000	6,158,400
13	Total User Charge Revenue	4,777,500	5,286,800	5,901,700	6,588,000	7,354,200	8,209,500	9,164,300	10,230,000	10,521,100	10,726,500	10,935,900
14	Wholesale Water Purchase Passthrough	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000
15	Other Revenue	724,300	724,300	724,300	724,300	724,300	724,300	724,300	724,300	724,300	724,300	724,300
16	Grand Total Revenue	10,193,800	10,703,100	11,318,000	12,004,300	12,770,500	13,625,800	14,580,600	15,646,300	15,937,400	16,142,800	16,352,200
	Revenue Requirements											
17	Wholesale Water Purchase Passthrough	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000	4,692,000
18	Operation and Maintenance Expense	5,601,200	5,720,500	5,842,300	5,966,800	6,093,900	6,223,700	6,356,300	6,491,700	6,629,900	6,771,200	6,915,400
	Debt Service											
19	Existing Debt	147,000	148,500	149,700	145,800	146,700	147,200	72,600	71,100	69,600	73,000	71,300
20	Proposed Debt	-	-	-	-	-	-	-	-	-	-	-
21	Total Debt Service	147,000	148,500	149,700	145,800	146,700	147,200	72,600	71,100	69,600	73,000	71,300
22	Total Revenue Requirements	10,440,200	10,561,000	10,684,000	10,804,600	10,932,600	11,062,900	11,120,900	11,254,800	11,391,500	11,536,200	11,678,700
23	Annual Operating Balance	(246,400)	142,100	634,000	1,199,700	1,837,900	2,562,900	3,459,700	4,391,500	4,545,900	4,606,600	4,673,500
24	Beginning Balance Op and Cap Funds [1]	2,403,300	2,156,900	2,299,000	2,737,000	2,735,600	2,733,400	2,790,600	2,838,200	2,873,800	2,971,000	3,034,100
25	Funds from Operations	(246,400)	142,100	634,000	1,199,700	1,837,900	2,562,900	3,459,700	4,391,500	4,545,900	4,606,600	4,673,500
26	Percentage of CIP	0.0%	0.0%	5.0%	30.0%	45.0%	60.0%	80.0%	100.0%	100.0%	100.0%	100.0%
27	Use of Funds - CIP	-	-	196,000	1,201,100	1,840,100	2,505,700	3,412,100	4,355,900	4,448,700	4,543,500	4,640,200
28	Ending Op and Cap Balance	2,156,900	2,299,000	2,737,000	2,735,600	2,733,400	2,790,600	2,838,200	2,873,800	2,971,000	3,034,100	3,067,400
29	Target Annual Ending Balance [2]	2,573,300	2,603,100	2,633,600	2,664,700	2,696,500	2,728,900	2,762,100	2,795,900	2,830,500	2,865,800	2,901,900
30	Debt Service Coverage [3]	31.24	33.55	36.58	41.41	45.51	50.29	113.28	128.76	133.73	128.38	132.35

[1] 2019 Beginning Balance Operating and Capital Funds equal to prior year Target Annual Ending Balance - 25% of O&M.

[2] Target Annual Ending Balance taken from '2017 Lake County PW final FS' pg 26; Operation Account - 25% of O&M.

[3] Minimum Debt Service Coverage of 1.5x required by Bond ordinance.

2.5.2 Sewer Utility Flow of Funds

Table 2-9 presents the sewer utility cash flow. Lines 1 and 2 of Table 2-9 show the Lake County portion of retail and wholesale user revenues under current rates, identified previously in Table 2-4. Lines 3 through 12 present the revenue increases which have been sized to reflect an underlying sewer system increase of 2.0 percent per year plus an allowance for inflation, estimated to be 2.13 percent annually. The total increase of 4.13 percent is anticipated for FY 2020 and 2021. In FY 2022, the total increase is 3.13 percent. Starting in FY 2023, the sewer CIP is expected to be fully funded, and future increases reflect inflation only. Each increase is assumed to be effective December 1 of the fiscal year indicated. Total Lake County user revenues are summarized on Line 14.

Lines 15 and 16 show the wholesale water purchase pass-through revenue for retail and wholesale sewer treatment and Line 17 shows other revenues, forecast to remain at 2019 budget amounts. Line 18 shows the total operating revenue forecasted over the study period. Including the proposed revenue adjustments and CPI, total revenue is projected to increase from \$36.7 million in 2019 to \$43.2 million in 2029.

Sewer O&M expenses are shown on Lines 19 and 20 of Table 2-9, shown previously in Table 2-5. Existing debt service amounts on Line 21 reflect debt service payments identified previously in Table 2-7. Lake County is not forecasting the issuance of additional utility debt in this plan, as can be seen on Line 22.

Total revenue requirements are summarized on Line 24. This amount is deducted from Line 18, total revenue, to determine the annual operating surplus or deficit. With the proposed revenue adjustments, the operating balance on Line 25 is positive in all years of the forecast and increasing to provide the funding needed for a pay-as-you-go strategy for capital improvements.

Lines 26 through 30 show the flow of funds to finance the CIP for the sewer utility. For 2019, a beginning balance of approximately \$6.3 million was available, as shown on Line 26. The annual operating balance is added to this amount to reflect the cash surplus expected each year from ongoing operations of the sewer utility assuming all rate increases shown in Table 2-9 are implemented. Comparable to the water utility, the sewer utility targets a minimum operating and capital balance of 25 percent of O&M, shown as the target on Line 31. Sewer capital improvement projects and the percentage of the total CIP shown on Lines 28 and 29 are consistent with that shown previously in Table 2-6. Compared to the water utility, the sewer utility reaches its CIP funding target more quickly, such that 100 percent of the CIP spending target is funded in FY 2023.

Line 32 shows the debt service coverage of the existing debt. As previously noted, the minimum debt service coverage level is 1.5. As can be seen on Table 2-9, the debt service coverage level improves during the forecast period, increasing from 1.50 in 2019 to 2.96 in 2029. This improvement reflects the impact of proposed rate increases, the reduction in existing sewer debt service payments beginning in FY 2022, and no planned issuance of additional debt.

Table 2-9: Sewer Utility Financial Plan

Line No.		Projected										
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	Sewer Utility Flow of Funds											
	Revenue Under Existing Rates											
1	Retail Sewer Revenue	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200	10,718,200
2	Wholesale Sewer Revenue	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700	11,556,700
	Proposed Revenue Adjustments											
	Year	Month	Increase									
3	2020	2	4.13%	843,300	920,000	920,000	920,000	920,000	920,000	920,000	920,000	920,000
4	2021	2	4.13%		878,100	957,900	957,900	957,900	957,900	957,900	957,900	957,900
5	2022	2	3.13%			693,000	756,000	756,000	756,000	756,000	756,000	756,000
6	2023	2	2.13%				486,300	530,600	530,600	530,600	530,600	530,600
7	2024	2	2.13%					496,700	541,900	541,900	541,900	541,900
8	2025	2	2.13%						507,300	553,400	553,400	553,400
9	2026	2	2.13%							518,100	565,200	565,200
10	2027	2	2.13%								529,200	577,300
11	2028	2	2.13%									540,400
12	2029	2	2.13%									551,900
13	Total Proposed Additional Revenue	-	843,300	1,798,100	2,570,900	3,120,200	3,661,200	4,213,700	4,777,900	5,354,200	5,942,700	6,543,800
14	Total User Charge Revenue	22,274,900	23,118,200	24,073,000	24,845,800	25,395,100	25,936,100	26,488,600	27,052,800	27,629,100	28,217,600	28,818,700
15	Wholesale Sewer Treatment - Retail	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500	1,534,500
16	Wholesale Sewer Treatment - Wholesale	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800	8,690,800
17	Other Revenue	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700	4,158,700
18	Grand Total Revenue	36,658,900	37,502,200	38,457,000	39,229,800	39,779,100	40,320,100	40,872,600	41,436,800	42,013,100	42,601,600	43,202,700
	Revenue Requirements											
19	Wholesale Sewerage Treatment	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300	10,225,300
20	All Other Operation and Maint Expense	17,778,400	18,157,100	18,543,900	18,938,900	19,342,300	19,754,300	20,175,100	20,604,800	21,043,800	21,492,000	21,949,800
	Debt Service											
21	Existing Debt	5,777,500	5,823,200	5,797,100	4,167,200	4,057,400	4,028,800	3,999,200	3,968,600	3,937,100	3,904,600	3,721,000
22	Proposed Debt	-	-	-	-	-	-	-	-	-	-	-
23	Total Debt Service	5,777,500	5,823,200	5,797,100	4,167,200	4,057,400	4,028,800	3,999,200	3,968,600	3,937,100	3,904,600	3,721,000
24	Total Revenue Requirements	33,781,200	34,205,600	34,566,300	33,331,400	33,625,000	34,008,400	34,399,600	34,798,700	35,206,200	35,621,900	35,896,100
25	Annual Operating Balance	2,877,700	3,296,600	3,890,700	5,898,400	6,154,100	6,311,700	6,473,000	6,638,100	6,806,900	6,979,700	7,306,600
26	Beginning Balance Op and Cap Funds	6,256,600	7,161,100	7,003,100	7,365,600	7,558,700	7,579,300	7,626,900	7,702,300	7,806,500	7,940,400	8,104,900
27	Funds from Operations	2,877,700	3,296,600	3,890,700	5,898,400	6,154,100	6,311,700	6,473,000	6,638,100	6,806,900	6,979,700	7,306,600
28	Percentage of CIP	35.0%	60.0%	60.0%	95.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
29	Use of Funds - CIP	1,973,200	3,454,600	3,528,200	5,705,300	6,133,500	6,264,100	6,397,600	6,533,900	6,673,000	6,815,200	6,960,300
30	Ending Op and Cap Balance	7,161,100	7,003,100	7,365,600	7,558,700	7,579,300	7,626,900	7,702,300	7,806,500	7,940,400	8,104,900	8,451,200
31	Target Annual Ending Balance [1]	7,000,900	7,095,600	7,192,300	7,291,100	7,391,900	7,494,900	7,600,100	7,707,500	7,817,300	7,929,300	8,043,800
32	Debt Service Coverage [2]	1.50	1.57	1.67	2.42	2.52	2.57	2.62	2.67	2.73	2.79	2.96

[1] 2019 Beginning Balance Operating and Capital Funds equal to prior year Target Annual Ending Balance - 25% of O&M.

[2] Target Annual Ending Balance taken from '2017 Lake County PW final FS' pg 26; Operation Account - 25% of O&M.

[3] Minimum Debt Service Coverage of 1.5x required by Bond ordinance.

2.5.3 Consolidated Utility Flow of Funds

A combined water and sewer utility detailed cash flow table is presented in Table 2-10. On a consolidated basis, proposed revenue adjustments range between 4.1 percent and 5.5 percent while funding for capital spending targets is phased in. Consolidated utility increases by year are shown on Lines 2 through 11. At the consolidated level, beginning in FY 2027 revenue increases reflect CPI only. Ending operating balances are projected to meet the 25 percent operating reserve in each year. Assuming all proposed increases are implemented, the CIP is fully funded by cash under a pay-as-you-go strategy, and debt

service coverage improves throughout the forecast period. These important milestones are projected to be accomplished while keeping consolidated rate increases within national industry average increases of 5 to 6 percent per year.

Table 2-10: Combined Water and Sewer Utility Financial Plan

Line No.		Projected										
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	Combined Utility Flow of Funds											
1	Revenue Under Existing Rates	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400	27,052,400
	Proposed Revenue Adjustments											
	Year	Month	Increase									
2	2020	2	5.45%	1,352,600	1,475,600	1,475,600	1,475,600	1,475,600	1,475,600	1,475,600	1,475,600	1,475,600
3	2021	2	5.53%		1,446,700	1,578,100	1,578,100	1,578,100	1,578,100	1,578,100	1,578,100	1,578,100
4	2022	2	4.81%			1,327,700	1,448,400	1,448,400	1,448,400	1,448,400	1,448,400	1,448,400
5	2023	2	4.13%				1,194,800	1,303,500	1,303,500	1,303,500	1,303,500	1,303,500
6	2024	2	4.28%					1,287,600	1,404,700	1,404,700	1,404,700	1,404,700
7	2025	2	4.43%						1,390,200	1,516,500	1,516,500	1,516,500
8	2026	2	4.58%							1,503,600	1,640,300	1,640,300
9	2027	2	2.13%								730,700	778,800
10	2028	2	2.13%									745,800
11	2029	2	2.13%									761,300
12	Total Proposed Additional Revenue	-	1,352,600	2,922,300	4,381,400	5,696,900	7,093,200	8,600,500	10,230,400	11,097,800	11,891,700	12,702,200
13	Total User Charge Revenue	27,052,400	28,405,000	29,974,700	31,433,800	32,749,300	34,145,600	35,652,900	37,282,800	38,150,200	38,944,100	39,754,600
14	Pass Through Revenue	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300	14,917,300
15	Other Revenue	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000	4,883,000
16	Grand Total Revenue	46,852,700	48,205,300	49,775,000	51,234,100	52,549,600	53,945,900	55,453,200	57,083,100	57,950,500	58,744,400	59,554,900
	Revenue Requirements											
17	Operation and Maintenance Expense	38,296,900	38,794,900	39,303,500	39,823,000	40,353,500	40,895,300	41,448,700	42,013,800	42,591,000	43,180,500	43,782,500
	Debt Service											
18	Existing Debt	5,924,500	5,971,700	5,946,800	4,313,000	4,204,100	4,176,000	4,071,800	4,039,700	4,006,700	3,977,600	3,792,300
19	Proposed Debt	-	-	-	-	-	-	-	-	-	-	-
20	Total Debt Service	5,924,500	5,971,700	5,946,800	4,313,000	4,204,100	4,176,000	4,071,800	4,039,700	4,006,700	3,977,600	3,792,300
21	Total Revenue Requirements	44,221,400	44,766,600	45,250,300	44,136,000	44,557,600	45,071,300	45,520,500	46,053,500	46,597,700	47,158,100	47,574,800
22	Annual Operating Balance	2,631,300	3,438,700	4,524,700	7,098,100	7,992,000	8,874,600	9,932,700	11,029,600	11,352,800	11,586,300	11,980,100
23	Beginning Balance Op and Cap Funds [1]	8,659,900	9,318,000	9,302,100	10,102,600	10,294,300	10,312,700	10,417,500	10,540,500	10,680,300	10,911,400	11,139,000
24	Funds from Operations	2,631,300	3,438,700	4,524,700	7,098,100	7,992,000	8,874,600	9,932,700	11,029,600	11,352,800	11,586,300	11,980,100
25	Percentage of CIP	21.0%	36.0%	38.0%	69.0%	78.0%	84.0%	92.0%	100.0%	100.0%	100.0%	100.0%
26	Use of Funds - CIP	1,973,200	3,454,600	3,724,200	6,906,400	7,973,600	8,769,800	9,809,700	10,889,800	11,121,700	11,358,700	11,600,500
27	Ending Op and Cap Balance	9,318,000	9,302,100	10,102,600	10,294,300	10,312,700	10,417,500	10,540,500	10,680,300	10,911,400	11,139,000	11,518,600
28	Target Annual Ending Balance [2]	5,844,900	5,969,400	6,096,600	6,226,400	6,359,100	6,494,500	6,632,900	6,774,100	6,918,400	7,065,800	7,216,300
29	Debt Service Coverage [3]	3.96	4.07	4.27	6.10	6.45	6.70	7.10	7.42	7.56	7.66	8.09

[1] 2019 Beginning Balance Operating and Capital Funds equal to prior year Target Annual Ending Balance - 25% of O&M.

[2] Target Annual Ending Balance taken from '2017 Lake County PW final FS' pg 26; Operation Account - 25% of O&M.

[3] Minimum Debt Service Coverage of 1.5x required by Bond ordinance.

2.6 Alternate Financial Plans

During the study, several scenarios were evaluated that considered different timing in the speed with which capital spending targets were achieved. Through consultation with Lake County public works staff, and the Public Works, Planning and Transportation Committee, the scenario presented in this report was ultimately selected.

Sections 3 and 4 of this report discuss the cost of service analysis and the proposed rate design for each utility.

3.0 COST OF SERVICE ANALYSIS

3.1 Introduction

The cost of service analysis evaluates revenue responsibility. Once the overall need for revenue increases is identified through financial planning, the results of the cost of service analysis provides perspective on costs incurred to provide service to classes or segments of customers.

To determine each customer class' share of the cost of providing utility service, the cost of service analysis compares the revenues received from each customer class under the existing schedule of rates with the allocated cost responsibility for that class.

The water and sewer systems owned and operated by Lake County are a complex array of facilities. Water and sewer customers are aggregated by service area (Central, Northeast Central, South Central, Northeast, Southeast, and Northwest) and by type of service (Retail Water, Retail Sewer, and Sewer Wholesale). The cost of service analysis was developed in the following steps:

1. Determine the net revenue requirements to be recovered from user charges.
2. Allocate test period operating and capital costs.
3. Assign the costs of service to customer classes by service area.
4. Compare costs to revenues under existing rates.

For this study, cost allocations rely on historical cost accounting to distribute O&M costs between utilities and among service areas; Lake County staff guidance on the purpose of existing debt issuance; replacement cost asset valuations by service area; and, historical billed volumes to distribute costs within areas where needed. In this manner, the water and sewer utility's customer classes are allocated a reasonable share of the total cost of service according to their use of the system.

3.2 Water Cost of Service

3.2.1 Net Revenue Requirements

As described in Section 2 of this report, the cash needs of the water utility were projected over a ten-year study period. The test period for the cost of service analysis is 2020, which corresponds to the first year for which revenue adjustments are proposed. For the water utility, the revenue adjustment amounts to a 11.63 percent total increase.

Table 3-1 summarizes the development of the net revenue requirements to be recovered from water rates in the 2020 test year. The net revenue requirements represent the level of costs that must be recovered from water sales under the established water rate schedule and are equal to total cash operating and capital cost expenditures less all sources of other revenue. As presented in Table 3-1, the net operating costs are equal to \$5,040,300 and the net capital costs are equal to \$292,800 for a total net revenue requirement of \$5,333,100. It is important to note these costs exclude purchased water supply; rates associated with the pass-through cost of purchased water supply are assumed to be adjusted by Lake County as increases are encountered. As shown in Table 3-1, Lake County's water system revenue requirement is 11.63 percent higher than Lake County water revenues under existing rates. The increase shown in Table 3-1 is consistent with the 2020 revenue increase identified in the recommended water utility financial plan discussed in Section 2 of this report.

Table 3-1: Test Year 2020 Water Net Revenue Requirements

	Operating <u>Expense</u> \$	Capital <u>Cost</u> \$	<u>Total</u> \$
Revenue Requirements			
Operating Expense	5,720,500		5,720,500
Debt Service		148,500	148,500
Revenue Capital Financing		142,100	142,100
Total	5,720,500	290,600	6,011,100
Revenue Requirements Met from Other Sources			
Other Operating Revenue	724,300		724,300
Annualized Increase	(44,100)	(2,200)	(46,300)
Use of / (Deposit to) Reserves			-
Total	680,200	(2,200)	678,000
Cost of Service to be met by User Charges	5,040,300	292,800	5,333,100
Revenue under Existing Rates			4,777,500
System Revenue Adjustment			11.63%

3.2.2 Water Cost of Service Methodology

Two water cost allocation methodologies are generally promulgated by the American Water Works Association as described in AWWA *Manual M1, Principles of Water Rates, Fees, and Charges*: (1) the Base-Extra Capacity Method, and (2) the Commodity-Demand Method. Both methods are similar in that each customer class' average water usage requirements and peak demand water usage requirements are reflected in the allocation process. Although the allocation approach varies slightly in the assignment of costs, both approaches are centered on the recovery of costs related to both average and peak conditions.

Lake County's cost accounting system tracks certain operating and maintenance costs by service and service area, assigning costs directly where applicable and allocating costs primarily on the basis of volume. Administrative, engineering, lab and other shared services not assigned to service areas by Lake County's cost accounting system are distributed to service areas on the basis of volume. In coordination with Lake County staff, debt service costs have been assigned between water and sewer by debt issue, and then assigned to service areas based on the purpose of the bonds. Consistent with prior Lake County cost allocation practice, Lake County's cost accounting system and billed volume serve as the primary basis for assigning water revenue requirements.

3.2.2.1 Operating Expenses

Operating expenses for the water system were forecasted previously in Table 2-5 of this report. Test year 2020 operating costs are assigned to functional areas in Table 3-2. Cost allocations are based on 2017 actuals and billed volumes.

Table 3-2: Allocation of Test Year 2020 Water Operation and Maintenance Expenses

	<u>2017 Water Allocated Costs</u>		<u>Allocation Factors</u>		<u>Test Year O&M Costs</u>		
	<u>Wholesale Purchases</u>	<u>All Other O&M</u>	<u>Wholesale Purchases</u>	<u>All Other O&M</u>	<u>Wholesale Purchases</u>	<u>All Other O&M</u>	<u>Annualized Increase</u>
	\$	\$	%	%	\$	\$	\$
CLCJAWA	4,210,599	2,746,835	97.4%	74.0%	4,571,257	4,230,388	32,613
General Service	18,519	875,567	0.4%	23.6%	20,105	1,348,457	10,395
Hawthorn Woods	92,697	91,978	2.1%	2.5%	100,637	141,655	1,092
Total Water System	4,321,815	3,714,381	100.0%	100.0%	4,692,000	5,720,500	44,100

3.2.2.2 Capital Costs

Cash capital costs for the water utility include pay-as-you-go (or revenue-financed) capital projects and payments on existing debt. Capital costs are assigned to functional components in Table 3-3. Capital costs are allocated on the replacement cost-based investment in Lake County's water utility assets.

Table 3-3: Allocation of Test Year 2020 Water Capital Costs

Region	Replacement Cost Value of Water Assets						Allocation Factors		Allocated Test Year Costs		
	Well Supply	WTP	Storage	Water Main	Pump Station	Total	Capital Allocation Factors	Direct Debt Allocation Factors	Revenue Financed Capital	Debt Service	Annualized Increase
	\$	\$	\$	\$	\$	\$	%	%	\$	\$	\$
CLCJAWA	-	-	17,000,000	246,211,500	12,000,000	275,211,500	76.3%	100.0%	108,426	130,901	1,679
General Service	5,700,000	500,000	6,950,000	61,669,800	6,250,000	81,069,800	22.5%		31,939	16,650	494
Hawthorn Woods	-	-	-	4,401,900	-	4,401,900	1.2%		1,734	904	27
Total Water System	5,700,000	500,000	23,950,000	312,283,200	18,250,000	360,683,200	100.0%	100.0%	142,100	148,456	2,200

3.2.3 Summary of Revenues and Allocated Revenue Requirements

Table 3-4 summarizes the revenue and allocated revenue requirements by service area. As shown in Table 3-4, the overall revenue increase is identified as 11.6 percent.

Table 3-4: Comparison of Revenue Under Existing Rates to Allocated Cost of Service

	CLCJAWA	General Service	Hawthorn Woods	Total
Revenues				
User Charges	3,968,398	780,435	28,668	4,777,500
Other Revenues	705,499	17,126	1,675	724,300
Total Revenue	4,673,897	797,561	30,342	5,501,800
Revenues Requirements				
O&M (less pass through)	4,230,388	1,348,457	141,655	5,720,500
Debt Service	130,901	16,650	904	148,456
Revenue Financed Capital	108,426	31,939	1,734	142,100
Annualized Increase	34,291	10,890	1,119	46,300
Total Revenue Requirements	4,504,006	1,407,937	145,412	6,057,356
Excess/(Deficient) Revenues	169,890	(610,376)	(115,070)	(555,556)
Percent Change Needed	-4.3%	78.2%	401.4%	11.6%

It is important to note that cost of service results are instructive but for many reasons should not be interpreted as prescriptive in the development of proposed rates. Section 4 will discuss proposed rates for the water utility.

3.3 Sewer Cost of Service

3.3.1 Net Revenue Requirements

As described in Section 2 of this report, the cash needs of the sewer utility were projected over a ten-year study period. The test period for the cost of service analysis is 2020, which corresponds to the first year for which revenue adjustments are proposed. For the sewer utility, the revenue adjustment amounts to a 4.13 percent increase.

Table 3-5 summarizes the development of the net revenue requirements to be recovered from sewer rates in the 2020 test year. The net revenue requirements represent the level of costs that must be recovered from sewer rates and are equal to total operating and capital cost expenditures less all sources of other revenue. As presented in Table 3-5, the net operating costs are equal to \$14,049,500 and the net capital costs are equal to \$9,145,400 for a total net revenue requirement of \$23,194,900. It is important to note these costs exclude wholesale sewer treatment expenses; rates associated with the pass-through cost of wholesale sewer treatment expense are assumed to be adjusted by Lake County as increases are encountered. As shown in Table 3-5, Lake County's sewer system revenue requirement is 4.13 percent higher than revenues under existing sewer rates, consistent with the 2020 revenue increase identified in the recommended sewer utility financial plan discussed in Section 2 of this report.

Table 3-5: Test Year 2020 Sewer Net Revenue Requirements

	Operating <u>Expense</u> \$	Capital <u>Cost</u> \$	<u>Total</u> \$
Revenue Requirements			
Operating Expense	18,157,100		18,157,100
Debt Service		5,823,200	5,823,200
Revenue Capital Financing		3,296,600	3,296,600
Total	18,157,100	9,119,800	27,276,900
Revenue Requirements Met from Other Sources			
Other Operating Revenue	4,158,700		4,158,700
Annualized Increase	(51,100)	(25,600)	(76,700)
Use of / (Deposit to) Reserves			-
Total	4,107,600	(25,600)	4,082,000
Cost of Service to be met by User Charges	14,049,500	9,145,400	23,194,900
Revenue under Existing Rates			22,274,900
System Revenue Adjustment			4.13%

3.3.2 Sewer Cost of Service Methodology

According to the Water Environment Federation's *Financing and Charges for Wastewater Systems*, three cost allocation methodologies are generally used in the identification and allocation of wastewater utility costs. They are:

- Design-Basis Cost Allocation Methodology, whereby costs are allocated to functions based on engineering design considerations that influence the size and purpose of facilities.
- Functional Cost Allocation Methodology, whereby costs are allocated to functions based on the operational purpose of facilities rather than engineering design.

- Hybrid Approach, where in general capital costs are allocated on the design basis while operating costs are allocated on the functional basis.

Lake County's cost accounting system tracks operating and maintenance cost by service and service area, assigning costs directly where applicable and allocating costs primarily on the basis of volume.

Administrative, engineering, lab and other shared services not assigned to service areas by Lake County's cost accounting system are distributed to service areas on the basis of volume. In coordination with Lake County staff, debt service costs have been assigned between water and sewer by debt issue, and then assigned to service areas based on the purpose of the bonds. Consistent with Lake County cost allocation practice, Lake County's cost accounting system and billed volume serve as the primary basis for assigning sewer revenue requirements.

3.3.2.1 Operating Expenses

Operating expenses for the sewer system were forecasted previously in Table 2-5 of this report. Test year 2020 operating costs are assigned to functional areas in Table 3-6. Billing determinants and allocated cost are based on 2017 actuals and are the basis for the allocation factors for test year allocations.

Table 3-6: Allocation of Test Year 2020 Sewer Operation and Maintenance Expenses

	Billing Determinants					2017 Sewer Allocated Costs		Allocation Factors		Test Year O&M Costs		
	2017 Volume	Treatment	Dist/Coll	Transportation	Total	Treatment	All Other O&M	Treatment	All Other O&M	Treatment	All Other O&M	Annualized Increase
	kgal	kgal	kgal	kgal	kgal	\$	\$	%	%	\$	\$	\$
481: Central												
Retail Water	208,355		208,355		208,355							
Retail Sewer	179,713	141,693	179,713	38,020	217,734	304,111	484,742	3.5%	2.9%	352,975	530,639	1,493
Wholesale Sewer	643,116	-	-	643,116	643,116	325,131	697,256	3.7%	4.2%	377,372	763,275	2,148
Total 481	1,031,184	141,693	388,068	681,136	1,069,204	629,242	1,181,998			730,347	1,293,915	3,641
482: NE Central												
Retail Water	319,645	-	319,645		319,645							
Retail Sewer	335,910	-	335,910	335,910	671,820	1,017,962	543,260	11.6%	3.3%	1,181,527	594,698	1,674
Wholesale Sewer	879,542	-	-	879,542	879,542	3,186,487	695,152	36.2%	4.2%	3,698,486	760,971	2,142
Total 482	1,535,097	-	655,555	1,215,452	1,871,007	4,204,449	1,238,412			4,880,013	1,355,669	3,815
483: South Central												
Retail Water	837,575	-	837,575	-	837,575							
Retail Sewer	766,485	766,485	766,485	-	766,485	3,203,617			19.3%	3,506,948	9,870	
Wholesale Sewer	-	-	-	-	-	3,203,617				3,506,948	9,870	
Total 483	1,604,060	766,485	1,604,060	-	1,604,060							
484: Northeast												
Retail Water	111,019	-	111,019	-	111,019							
Retail Sewer	105,436	105,436	105,436	105,436	210,872	928,906			5.6%	1,016,859	2,862	
Wholesale Sewer	54,421	54,421	-	54,421	54,421	429,032			2.6%	469,654	1,322	
Total 484	270,876	159,857	216,455	159,857	376,312	1,357,938				1,486,513	4,184	
485: Southeast												
Retail Water	81,713	-	81,713	-	81,713							
Retail Sewer	680,777	680,777	680,777	680,777	1,361,554	2,981,511			18.0%	3,263,812	9,185	
Wholesale Sewer	1,624,914	1,624,914	-	1,624,914	1,624,914	4,695,535			28.3%	5,140,127	14,466	
Total 485	2,387,404	2,305,691	762,490	2,305,691	3,068,181	7,677,046				8,403,939	23,651	
486: Northwest												
Retail Water	73,357	-	73,357	-	73,357							
Retail Sewer	140,343	-	140,343	140,343	280,686	295,560			1.8%	323,545	911	
Wholesale Sewer	1,612,503	-	-	1,612,503	1,612,503	3,976,071	1,632,042	45.1%	9.8%	4,614,939	1,786,571	5,028
Total 486	1,826,202	-	213,700	1,752,846	1,966,546	3,976,071	1,927,602			4,614,939	2,110,115	5,939
Total Retail Water	1,631,663	-	1,631,663	-	1,631,663							
Total Retail Sewer	2,208,665	1,694,391	2,208,665	1,300,487	3,509,152	1,322,074	8,437,597	15.0%	50.9%	1,534,502	9,236,502	25,995
Total Wholesale Sewer	4,814,495	1,679,335	-	4,814,495	4,814,495	7,487,689	8,149,017	85.0%	49.1%	8,690,798	8,920,598	25,105
Total System	8,654,823	3,373,727	3,840,328	6,114,982	9,955,310	8,809,762	16,586,613	100.0%	100.0%	10,225,300	18,157,100	51,100

3.3.2.2 Capital Costs

Cash capital costs for the sewer utility include pay-as-you-go (or revenue-financed) capital projects and payments on existing debt. Capital costs are assigned to functional areas in Table 3-7. Capital costs are allocated on the replacement cost-based investment in Lake County's sewer utility assets.

Allocations shown on Table 3-7 are based on either the replacement cost of the system less local collector sewers or the replacement cost of the collector sewers with few exceptions. Two debt issues are directly assigned to functional areas based on the purpose of the bonds – IEPA Loan 17 which is associated with the Northwest area and IEPA Loan 14964 which is associated with the Southeast area. All other sewer debt is distributed on the basis of the replacement cost less collector sewers.

Cash-funded capital improvements are allocated 75 percent on the basis of replacement cost less collector sewers and 25 percent on the basis of collector sewers. Costs allocated on the basis of collector sewers are allocated within retail service only and not shared with wholesale service customers.

Within each area, volume is used to distribute costs between retail and wholesale.

Table 3-7: Allocation of Test Year 2020 Sewer Capital Costs

Region	Sewer Usage kgal	Replacement Cost Value of Sewer Assets						Total Less Collectors \$	Allocation Factors		Allocated Test Year Costs		
		Interceptor \$	Collector \$	Force Main \$	WWTP \$	Pump Station \$	Total \$		Capital Allocation Factors %	Collector Allocation Factors %	Debt Service \$	Revenue Financed Capital \$	Annualized Increase \$
481: Central													
Retail	179,713	2,127,600	56,992,800	2,024,400	42,405,200	1,791,400	105,341,400	48,348,600	9.8%	9.1%	326,513	316,821	2,507
Wholesale	643,116	8,626,200	-	1,543,900	-	1,658,600	11,828,700	11,828,700	2.4%		79,883	59,236	613
Total 481		10,753,800	56,992,800	3,568,300	42,405,200	3,450,000	117,170,100	60,177,300			406,396	376,057	3,120
482: NE Central													
Retail	335,910	5,665,500	114,880,800	554,000	-	1,589,100	122,689,400	7,808,600	1.6%	18.3%	52,734	189,604	405
Wholesale	879,542	14,834,400	-	1,450,600	-	4,160,900	20,445,900	20,445,900	4.1%		138,077	102,389	1,060
Total 482		20,499,900	114,880,800	2,004,600	-	5,750,000	143,135,300	28,254,500			190,811	291,994	1,465
483: South Central													
Retail	766,485	5,508,000	213,290,000	8,058,900	49,594,800	5,750,000	282,201,700	68,911,700	14.0%	33.9%	465,382	624,498	3,573
Total 483		5,508,000	213,290,000	8,058,900	49,594,800	5,750,000	282,201,700	68,911,700			465,382	624,498	3,573
484: Northeast													
Retail	105,436	15,476,100	43,121,200	23,500	23,892,700	379,200	82,892,700	39,771,500	8.1%	6.9%	268,589	255,669	2,062
Wholesale	54,421	7,988,000	-	12,200	12,332,300	195,800	20,528,300	20,528,300	4.2%		138,634	102,802	1,064
Total 484		23,464,100	43,121,200	35,700	36,225,000	575,000	103,421,000	60,299,800			407,223	358,471	3,127
485: Southeast													
Retail	680,777	12,960,500	155,582,800	11,037,400	54,327,700	4,234,200	238,142,600	82,559,800	16.7%	24.7%	752,373	617,245	4,281
Wholesale	1,624,914	15,200,200	-	12,944,700	129,672,300	4,965,800	162,783,000	162,783,000	33.0%		1,483,452	815,189	8,441
Total 485		28,160,700	155,582,800	23,982,100	184,000,000	9,200,000	400,925,600	245,342,800			2,235,824	1,432,434	12,721
486: Northwest													
Retail	140,343	1,523,300	45,277,200	476,800	-	460,400	47,737,700	2,460,500	0.5%	7.2%	169,546	71,622	128
Wholesale	1,612,503	17,502,300	-	5,478,900	-	5,289,600	28,270,800	28,270,800	5.7%		1,948,065	141,575	1,466
Total 486		19,025,600	45,277,200	5,955,700	-	5,750,000	76,008,500	30,731,300			2,117,611	213,197	1,593
Total Retail	2,208,665	43,261,000	629,144,800	22,175,000	170,220,400	14,204,300	879,005,500	249,860,700	50.6%		2,035,136	2,075,458	12,956
Total Wholesale	4,814,495	64,151,100	-	21,430,300	142,004,600	16,270,700	243,856,700	243,856,700	49.4%		4,253,492	1,845,689	16,218
Total Sewer System	7,023,160	107,412,100	629,144,800	43,605,300	312,225,000	30,475,000	1,122,862,200	493,717,400	100.0%	100.0%	5,823,247	3,296,650	25,600

3.3.3 Summary of Revenues and Allocated Revenue Requirements

Table 3-8 summarizes the revenue and allocated revenue requirements by service and by area. As shown in Table 3-8, the overall revenue increase is identified as 4.1 percent, with retail indicated to increase 5.2 percent and wholesale increasing 3.2 percent.

Table 3-8: Summary of Revenues and Allocated Revenue Requirement by Area

	Sewer Retail			Northeast	Southeast		Sewer Wholesale	Sewer System
<u>Revenues</u>	<u>Total</u>	<u>Northwest</u>	<u>Northeast</u>	<u>Central</u>	<u>Central</u>	<u>Southeast</u>	<u>Total</u>	<u>Total</u>
User Charges	10,718,198	1,700,897	251,929	755,660	758,100	8,090,116	11,556,702	22,274,900
Other Revenues	2,115,407	485,090	161,774	189,081	95,966	1,111,382	2,043,293	4,158,700
Total Revenue	12,833,605	2,185,987	413,703	944,741	854,065	9,201,499	13,599,995	26,433,600
<u>Revenues Requirements</u>								
O&M (less pass through)	9,236,502	1,786,571	469,654	760,971	763,275	5,140,127	8,920,598	18,157,100
Debt Service	2,035,136	1,948,065	138,634	138,077	79,883	1,483,452	3,788,111	5,823,247
Revenue Financed Capital	2,075,458	141,575	102,802	102,389	59,236	815,189	1,221,192	3,296,650
Annualized Increase	38,816	6,521	2,393	3,213	2,773	22,984	37,884	76,700
Total Revenue Requirements	13,385,913	3,882,731	713,483	1,004,651	905,167	7,461,750	13,967,784	27,353,697
Excess/(Deficient) Revenues	(552,308)	(1,696,744)	(299,780)	(59,910)	(51,102)	1,739,748	(367,789)	(920,097)
Percent Change Needed	5.2%	99.8%	119.0%	7.9%	6.7%	-21.5%	3.2%	4.1%

It is important to note that cost of service results are instructive but for many reasons should not be interpreted as prescriptive in the development of proposed rates. Section 4 will discuss proposed rates for the sewer utility.

4.0 PROPOSED RATE DESIGN

4.1 Introduction

Step 3 Rate Design develops proposed rates to provide revenues commensurate with funding requirements as identified in Section 2 of this report. Generally speaking, the objective is to design rates for each utility to progress toward the following goals:

- Generate adequate revenues to meet the projected operating and capital costs, while maintaining sound financial performance.
- Provide revenue stability.
- Provide cost recovery that is reasonably commensurate with the cost of providing service.

4.2 Existing Water Rates

The current water rate schedule is shown in Table 4-1. Existing metered water rates include an inclining block rate structure with a minimum bill for residential service.

Table 4-1: Existing Water Rates

Volumetric Rates	
	Existing FY 2019
General Service Areas	(\$/1000 gal)
Block 1 (0-2,000 gallons per month)	\$4.16
Block 2 (3,000-6,000 gallons per month)	\$4.39
Block 3 (7,000 gallons or greater per month)	\$4.60
Non-Residential	\$4.39
CLCJAWA Service Areas	
Block 1 (0-2,000 gallons per month)	\$5.72
Block 2 (3,000-6,000 gallons per month)	\$6.03
Block 3 (7,000 gallons or greater per month)	\$6.33
Non-Residential	\$6.03
Hawthorn Woods - Glennshire/Forest Lake	
Block 1 (0-2,000 gallons per month)	\$8.03
Block 2 (3,000-6,000 gallons per month)	\$8.45
Block 3 (7,000 gallons or greater per month)	\$8.88
Non-Residential	\$8.45
Unmetered Water	
	Existing FY 2019
	(\$/mo)
Arden Shores	\$55.11
Countryside Lake	\$43.86
Forest Lake	\$43.51
Oak Terrace	\$33.42

The current water rate structure includes a minimum bill for residential accounts but lacks a fixed component for larger, non-residential accounts. Fixed service charges over time will help provide revenue stability as weather or other events may impact water consumption.

4.3 Proposed Water Rates

Water rate structures frequently feature a fixed service charge and a volumetric fee. Service charges are often designed to recover costs associated with meter reading, meter cost recovery, billing and customer service, all functions that are not generally related to the amount of water consumed in a given month. Such fees may be uniform, meaning the same fixed fee applies to all types of users or sizes of meter. Alternately, the base fee can be designed to increase in accordance with meter size, recognizing the higher cost of larger meters.

A fixed monthly service charge has been developed for Lake County. The service charge increases by meter size and is designed to be the same across all three service areas. Volumetric rates are proposed to maintain the current 3-block structure, however the minimum use requirement of 2 kgal per month should be eliminated. Volume rates were developed to work in collaboration with fixed fees to provide necessary revenues and support the conservation-oriented inclining block rate structure previously used by Lake County.

Rates have been designed over a 5-year period and are shown in Table 4-2. Rates include the pass-through water supply cost associated with serving the CLCJAWA and Hawthorn Woods service areas. To the extent these water suppliers increase the cost of purchased water, it is anticipated Lake County would adjust the rates shown in Table 4-2 to recover the incremental increase. As presented in Table 4-2, no increase is assumed for CLCJAWA or Aqua purchased water costs.

Unmetered water rates shown in Table 4-2 reflect residential customer equivalent multipliers of 10.0 for Countryside Lake and 7.5 for Oak Terrace, applied against the GSA Block 2 Rate, consistent with rate setting precedent. The multiplier for Forest Lake is 6.0 applied against the Hawthorn Woods Block 2 Rate, also consistent with prior precedent.

A bill comparison has been prepared for both residential and commercial accounts reflecting the impact of rates proposed in Table 4-2 across a variety of customer profiles. Table 4-3 shows the residential bill impact, while Table 4-4 shows the commercial bill impact.

Table 4-2: Existing and Proposed Water Rates

	Existing FY 2019	Proposed, Fiscal Year				
		2020	2021	2022	2023	2024
Monthly Service Charge						
Meter Size						
Up to 1"	\$ -	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30
1.5"	\$ -	\$ 8.20	\$ 9.10	\$ 10.20	\$ 11.40	\$ 12.70
2"	\$ -	\$ 10.60	\$ 11.80	\$ 13.20	\$ 14.80	\$ 16.50
3"	\$ -	\$ 28.70	\$ 32.00	\$ 35.80	\$ 39.90	\$ 44.60
4"	\$ -	\$ 35.40	\$ 39.50	\$ 44.10	\$ 49.20	\$ 54.90
6"	\$ -	\$ 51.00	\$ 56.90	\$ 63.50	\$ 70.90	\$ 79.10
8"	\$ -	\$ 68.80	\$ 76.80	\$ 85.70	\$ 95.70	\$ 106.80
12"	\$ -	\$ 115.60	\$ 129.00	\$ 144.00	\$ 160.80	\$ 179.50
Volumetric Rates						
Metered Well Water						
(A) General Service Areas						
(1) Block 1 (0-2,000 gallons per month)	\$ 4.16	\$ 1.00	\$ 1.12	\$ 1.25	\$ 1.40	\$ 1.56
(2) Block 2 (3,000-6,000 gallons per month)	\$ 4.39	\$ 4.80	\$ 5.36	\$ 5.98	\$ 6.68	\$ 7.46
(3) Block 3 (7,000 gallons or greater per month)	\$ 4.60	\$ 5.28	\$ 5.90	\$ 6.58	\$ 7.35	\$ 8.21
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 4.39	\$ 4.80	\$ 5.36	\$ 5.98	\$ 6.68	\$ 7.46
(B) CLCJAWA Service Areas						
(1) Block 1 (0-2,000 gallons per month)	\$ 5.72	\$ 3.08	\$ 3.09	\$ 3.10	\$ 3.11	\$ 3.12
(2) Block 2 (3,000-6,000 gallons per month)	\$ 6.03	\$ 6.28	\$ 6.66	\$ 7.08	\$ 7.55	\$ 8.08
(3) Block 3 (7,000 gallons or greater per month)	\$ 6.33	\$ 6.91	\$ 7.33	\$ 7.79	\$ 8.31	\$ 8.89
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 6.03	\$ 6.28	\$ 6.66	\$ 7.08	\$ 7.55	\$ 8.08
(C) Hawthorn Woods - Glennshire/Forest Lake						
(1) Block 1 (0-2,000 gallons per month)	\$ 8.03	\$ 5.56	\$ 5.57	\$ 5.58	\$ 5.59	\$ 5.60
(2) Block 2 (3,000-6,000 gallons per month)	\$ 8.45	\$ 8.81	\$ 9.19	\$ 9.62	\$ 10.10	\$ 10.63
(3) Block 3 (7,000 gallons or greater per month)	\$ 8.88	\$ 9.69	\$ 10.11	\$ 10.58	\$ 11.11	\$ 11.69
(4) Non-Residential: Residential with multiple dwelling units per meter and irrigation meters	\$ 8.45	\$ 8.81	\$ 9.19	\$ 9.62	\$ 10.10	\$ 10.63
Unmetered Water						
(1) Arden Shores	\$ 55.10	\$ 62.03	\$ 63.11	\$ 64.32	\$ 65.67	\$ 67.18
(2) Countryside Lake	\$ 43.86	\$ 48.00	\$ 53.60	\$ 59.80	\$ 66.80	\$ 74.60
(3) Forest Lake	\$ 43.51	\$ 52.86	\$ 55.14	\$ 57.72	\$ 60.60	\$ 63.78
(4) Oak Terrace	\$ 33.42	\$ 36.00	\$ 40.20	\$ 44.85	\$ 50.10	\$ 55.95

Table 4-3: Residential Typical Bill Impacts

Meter Size Inches	Monthly Water Use kgal	Current Rates \$/mo	Proposed Rates					Difference					Difference				
			2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
			\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$	\$	\$	\$	\$	%	%	%	%	%
General Service Areas																	
1"	0	\$ 8.32	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (1.04)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18	-13%	12%	12%	12%	12%
1"	1	\$ 8.32	\$ 8.28	\$ 9.25	\$ 10.32	\$ 11.53	\$ 12.86	\$ (0.04)	\$ 0.97	\$ 1.08	\$ 1.21	\$ 1.34	0%	12%	12%	12%	12%
1"	2	\$ 8.32	\$ 9.28	\$ 10.37	\$ 11.57	\$ 12.93	\$ 14.42	\$ 0.96	\$ 1.09	\$ 1.21	\$ 1.36	\$ 1.50	12%	12%	12%	12%	12%
1"	3	\$ 12.71	\$ 14.08	\$ 15.73	\$ 17.55	\$ 19.61	\$ 21.88	\$ 1.37	\$ 1.65	\$ 1.83	\$ 2.06	\$ 2.28	11%	12%	12%	12%	12%
1"	4	\$ 17.10	\$ 18.88	\$ 21.09	\$ 23.53	\$ 26.29	\$ 29.34	\$ 1.78	\$ 2.21	\$ 2.45	\$ 2.76	\$ 3.06	10%	12%	12%	12%	12%
1"	5	\$ 21.49	\$ 23.68	\$ 26.45	\$ 29.51	\$ 32.97	\$ 36.80	\$ 2.19	\$ 2.77	\$ 3.07	\$ 3.46	\$ 3.84	10%	12%	12%	12%	12%
1"	6	\$ 25.88	\$ 28.48	\$ 31.81	\$ 35.49	\$ 39.65	\$ 44.26	\$ 2.60	\$ 3.33	\$ 3.69	\$ 4.16	\$ 4.62	10%	12%	12%	12%	12%
1"	8	\$ 35.08	\$ 39.04	\$ 43.61	\$ 48.65	\$ 54.35	\$ 60.68	\$ 3.96	\$ 4.57	\$ 5.05	\$ 5.70	\$ 6.34	11%	12%	12%	12%	12%
1"	10	\$ 44.28	\$ 49.60	\$ 55.41	\$ 61.81	\$ 69.05	\$ 77.10	\$ 5.32	\$ 5.81	\$ 6.41	\$ 7.24	\$ 8.06	12%	12%	12%	12%	12%
1"	12	\$ 53.48	\$ 60.16	\$ 67.21	\$ 74.97	\$ 83.75	\$ 93.52	\$ 6.68	\$ 7.05	\$ 7.77	\$ 8.78	\$ 9.78	12%	12%	12%	12%	12%
1"	15	\$ 67.28	\$ 76.00	\$ 84.91	\$ 94.71	\$ 105.80	\$ 118.15	\$ 8.72	\$ 8.91	\$ 9.81	\$ 11.09	\$ 12.36	13%	12%	12%	12%	12%
1"	20	\$ 90.28	\$ 102.40	\$ 114.41	\$ 127.61	\$ 142.55	\$ 159.20	\$ 12.12	\$ 12.01	\$ 13.21	\$ 14.94	\$ 16.66	13%	12%	12%	12%	12%
CLCIAWA Service Areas																	
1"	0	\$ 11.44	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (4.16)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18	-36%	12%	12%	12%	12%
1"	1	\$ 11.44	\$ 10.36	\$ 11.22	\$ 12.17	\$ 13.24	\$ 14.42	\$ (1.08)	\$ 0.86	\$ 0.96	\$ 1.07	\$ 1.19	-9%	8%	9%	9%	9%
1"	2	\$ 11.44	\$ 13.44	\$ 14.31	\$ 15.27	\$ 16.35	\$ 17.54	\$ 2.00	\$ 0.87	\$ 0.97	\$ 1.08	\$ 1.20	17%	6%	7%	7%	7%
1"	3	\$ 17.47	\$ 19.72	\$ 20.97	\$ 22.35	\$ 23.90	\$ 25.62	\$ 2.25	\$ 1.25	\$ 1.39	\$ 1.55	\$ 1.73	13%	6%	7%	7%	7%
1"	4	\$ 23.50	\$ 26.00	\$ 27.63	\$ 29.43	\$ 31.45	\$ 33.70	\$ 2.50	\$ 1.63	\$ 1.81	\$ 2.02	\$ 2.26	11%	6%	7%	7%	7%
1"	5	\$ 29.53	\$ 32.28	\$ 34.29	\$ 36.51	\$ 39.00	\$ 41.78	\$ 2.75	\$ 2.01	\$ 2.23	\$ 2.49	\$ 2.79	9%	6%	6%	7%	7%
1"	6	\$ 35.56	\$ 38.56	\$ 40.95	\$ 43.59	\$ 46.55	\$ 49.86	\$ 3.00	\$ 2.39	\$ 2.65	\$ 2.96	\$ 3.32	8%	6%	6%	7%	7%
1"	8	\$ 48.22	\$ 52.38	\$ 55.61	\$ 59.17	\$ 63.17	\$ 67.64	\$ 4.16	\$ 3.23	\$ 3.57	\$ 4.00	\$ 4.48	9%	6%	6%	7%	7%
1"	10	\$ 60.88	\$ 66.20	\$ 70.27	\$ 74.75	\$ 79.79	\$ 85.42	\$ 5.32	\$ 4.07	\$ 4.49	\$ 5.04	\$ 5.64	9%	6%	6%	7%	7%
1"	12	\$ 73.54	\$ 80.02	\$ 84.93	\$ 90.33	\$ 96.41	\$ 103.20	\$ 6.48	\$ 4.91	\$ 5.41	\$ 6.08	\$ 6.80	9%	6%	6%	7%	7%
1"	15	\$ 92.53	\$ 100.75	\$ 106.92	\$ 113.70	\$ 121.34	\$ 129.87	\$ 8.22	\$ 6.17	\$ 6.79	\$ 7.64	\$ 8.54	9%	6%	6%	7%	7%
1"	20	\$ 124.18	\$ 135.30	\$ 143.57	\$ 152.65	\$ 162.89	\$ 174.32	\$ 11.12	\$ 8.27	\$ 9.09	\$ 10.24	\$ 11.44	9%	6%	6%	7%	7%
Hawthorn Woods Service Areas																	
1"	0	\$ 16.06	\$ 7.28	\$ 8.13	\$ 9.07	\$ 10.13	\$ 11.30	\$ (8.78)	\$ 0.85	\$ 0.95	\$ 1.06	\$ 1.18	-55%	12%	12%	12%	12%
1"	1	\$ 16.06	\$ 12.84	\$ 13.70	\$ 14.65	\$ 15.72	\$ 16.90	\$ (3.22)	\$ 0.86	\$ 0.96	\$ 1.07	\$ 1.19	-20%	7%	7%	7%	8%
1"	2	\$ 16.06	\$ 18.40	\$ 19.27	\$ 20.23	\$ 21.31	\$ 22.50	\$ 2.34	\$ 0.87	\$ 0.97	\$ 1.08	\$ 1.20	15%	5%	5%	5%	6%
1"	3	\$ 24.51	\$ 27.21	\$ 28.46	\$ 29.85	\$ 31.41	\$ 33.13	\$ 2.70	\$ 1.25	\$ 1.40	\$ 1.56	\$ 1.73	11%	5%	5%	5%	6%
1"	4	\$ 32.96	\$ 36.02	\$ 37.65	\$ 39.47	\$ 41.51	\$ 43.76	\$ 3.06	\$ 1.63	\$ 1.83	\$ 2.04	\$ 2.26	9%	5%	5%	5%	5%
1"	5	\$ 41.41	\$ 44.83	\$ 46.84	\$ 49.09	\$ 51.61	\$ 54.39	\$ 3.42	\$ 2.01	\$ 2.26	\$ 2.52	\$ 2.79	8%	4%	5%	5%	5%
1"	6	\$ 49.86	\$ 53.64	\$ 56.03	\$ 58.71	\$ 61.71	\$ 65.02	\$ 3.78	\$ 2.39	\$ 2.69	\$ 3.00	\$ 3.32	8%	4%	5%	5%	5%
1"	8	\$ 67.62	\$ 73.02	\$ 76.25	\$ 79.87	\$ 83.93	\$ 88.40	\$ 5.40	\$ 3.23	\$ 3.63	\$ 4.06	\$ 4.48	8%	4%	5%	5%	5%
1"	10	\$ 85.38	\$ 92.40	\$ 96.47	\$ 101.03	\$ 106.15	\$ 111.78	\$ 7.02	\$ 4.07	\$ 4.57	\$ 5.12	\$ 5.64	8%	4%	5%	5%	5%
1"	12	\$ 103.14	\$ 111.78	\$ 116.69	\$ 122.19	\$ 128.37	\$ 135.16	\$ 8.64	\$ 4.91	\$ 5.51	\$ 6.18	\$ 6.80	8%	4%	5%	5%	5%
1"	15	\$ 129.78	\$ 140.85	\$ 147.02	\$ 153.93	\$ 161.70	\$ 170.23	\$ 11.07	\$ 6.17	\$ 6.92	\$ 7.77	\$ 8.54	9%	4%	5%	5%	5%
1"	20	\$ 174.18	\$ 189.30	\$ 197.57	\$ 206.83	\$ 217.25	\$ 228.68	\$ 15.12	\$ 8.27	\$ 9.27	\$ 10.42	\$ 11.44	9%	4%	5%	5%	5%

Table 4-4: Commercial Typical Bill Impacts

Meter Size Inches	Monthly Water Use kgal	Current Rates \$/mo	Proposed Rates					Difference					Difference				
			2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
			\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$	\$	\$	\$	\$	%	%	%	%	%
General Service Areas																	
1.5"	30	\$ 132	\$ 152	\$ 170	\$ 190	\$ 212	\$ 237	\$ 21	\$ 18	\$ 20	\$ 22	\$ 25	16%	12%	12%	12%	12%
2"	60	\$ 263	\$ 299	\$ 333	\$ 372	\$ 416	\$ 464	\$ 35	\$ 35	\$ 39	\$ 44	\$ 49	13%	12%	12%	12%	12%
3"	110	\$ 483	\$ 557	\$ 622	\$ 694	\$ 775	\$ 865	\$ 74	\$ 65	\$ 72	\$ 81	\$ 91	15%	12%	12%	12%	12%
4"	180	\$ 790	\$ 899	\$ 1,004	\$ 1,121	\$ 1,252	\$ 1,398	\$ 109	\$ 105	\$ 116	\$ 131	\$ 146	14%	12%	12%	12%	12%
6"	500	\$ 2,195	\$ 2,451	\$ 2,737	\$ 3,054	\$ 3,411	\$ 3,809	\$ 256	\$ 286	\$ 317	\$ 357	\$ 398	12%	12%	12%	12%	12%
8"	500	\$ 2,195	\$ 2,469	\$ 2,757	\$ 3,076	\$ 3,436	\$ 3,837	\$ 274	\$ 288	\$ 319	\$ 360	\$ 401	12%	12%	12%	12%	12%
12"	1100	\$ 4,829	\$ 5,396	\$ 6,025	\$ 6,722	\$ 7,509	\$ 8,386	\$ 567	\$ 629	\$ 697	\$ 787	\$ 877	12%	12%	12%	12%	12%
CLCIAWA Service Areas																	
1.5"	30	\$ 181	\$ 197	\$ 209	\$ 223	\$ 238	\$ 255	\$ 16	\$ 12	\$ 14	\$ 15	\$ 17	9%	6%	7%	7%	7%
2"	60	\$ 362	\$ 387	\$ 411	\$ 438	\$ 468	\$ 501	\$ 26	\$ 24	\$ 27	\$ 30	\$ 34	7%	6%	6%	7%	7%
3"	110	\$ 663	\$ 720	\$ 765	\$ 815	\$ 870	\$ 933	\$ 56	\$ 45	\$ 50	\$ 56	\$ 63	8%	6%	7%	7%	7%
4"	180	\$ 1,085	\$ 1,166	\$ 1,238	\$ 1,319	\$ 1,408	\$ 1,509	\$ 80	\$ 73	\$ 80	\$ 90	\$ 101	7%	6%	6%	7%	7%
6"	500	\$ 3,015	\$ 3,191	\$ 3,387	\$ 3,604	\$ 3,846	\$ 4,119	\$ 176	\$ 196	\$ 217	\$ 242	\$ 273	6%	6%	6%	7%	7%
8"	500	\$ 3,015	\$ 3,209	\$ 3,407	\$ 3,626	\$ 3,871	\$ 4,147	\$ 194	\$ 198	\$ 219	\$ 245	\$ 276	6%	6%	6%	7%	7%
12"	1100	\$ 6,633	\$ 7,024	\$ 7,455	\$ 7,932	\$ 8,466	\$ 9,068	\$ 391	\$ 431	\$ 477	\$ 534	\$ 602	6%	6%	6%	7%	7%
Hawthorn Woods Service Areas																	
1.5"	30	\$ 254	\$ 273	\$ 285	\$ 299	\$ 314	\$ 332	\$ 19	\$ 12	\$ 14	\$ 16	\$ 17	7%	5%	5%	5%	5%
2"	60	\$ 507	\$ 539	\$ 563	\$ 590	\$ 621	\$ 654	\$ 32	\$ 24	\$ 27	\$ 30	\$ 34	6%	4%	5%	5%	5%
3"	110	\$ 930	\$ 998	\$ 1,043	\$ 1,094	\$ 1,151	\$ 1,214	\$ 68	\$ 45	\$ 51	\$ 57	\$ 63	7%	5%	5%	5%	5%
4"	180	\$ 1,521	\$ 1,621	\$ 1,694	\$ 1,776	\$ 1,867	\$ 1,968	\$ 100	\$ 73	\$ 82	\$ 92	\$ 101	7%	4%	5%	5%	5%
6"	500	\$ 4,225	\$ 4,456	\$ 4,652	\$ 4,874	\$ 5,121	\$ 5,394	\$ 231	\$ 196	\$ 222	\$ 247	\$ 273	5%	4%	5%	5%	5%
8"	500	\$ 4,225	\$ 4,474	\$ 4,672	\$ 4,896	\$ 5,146	\$ 5,422	\$ 249	\$ 198	\$ 224	\$ 250	\$ 276	6%	4%	5%	5%	5%
12"	1100	\$ 9,295	\$ 9,807	\$ 10,238	\$ 10,726	\$ 11,271	\$ 11,873	\$ 512	\$ 431	\$ 488	\$ 545	\$ 602	6%	4%	5%	5%	5%

4.4 Existing Sewer Rates

The current sewer rate schedule is shown in Table 4-5. Existing metered rates include a volumetric charge with a minimum billed usage level of 2 kgal per month. Unmetered sewer rates consist of a monthly charge differentiated by service area. Unmetered sewer service areas include the General Service area; Southeast Central – Libertyville; Northwest; Northeast Central; Ravenna, Royal Melbourne, Kildeer North, Kildeer Central, Kildeer South; and Riverside Preserve.

Lake County provides wholesale sewer service to multiple areas. Service levels vary to include conveyance, or treatment, or both. The existing wholesale sewer rate structure includes either a uniform rate per 1,000 gallons or an equivalent rate per residential customer equivalent. The RCE is based on an equivalency multiplier that varies from 7.5 to 8.0 by area.

4.5 Proposed Sewer Rates

Proposed rates have been designed in accordance with the existing rate structure to produce revenues indicated as necessary to fund future operating and capital requirements as detailed in Section 2 of this report. The existing rate structure is proposed to be maintained to mitigate the amount of change impacting customer bills.

Sewer rates have been developed for a 5-year period and are shown in Table 4-6. Rates include the pass-through wastewater treatment expense where applicable. To the extent these wastewater treatment providers increase the cost of treated flow, it is anticipated Lake County would adjust the rates shown in Table 4-6 to recover the incremental increase. As presented in Table 4-6, no increase in the pass-through wastewater treatment expense is assumed over the forecast period.

Unmetered sewer rates shown in Table 4-6 reflect residential customer equivalent multipliers of 8.0 for the General Service Area and the Southeast Central – Libertyville area; 7.5 for the Northwest and Northeast Central areas, and 10.0 for Ravenna, Royal Melbourne, Kildeer North, Kildeer Central and Kildeer South. These multipliers are applied to the GSA metered volume rate for the GSA, Northwest, and Ravenna, Royal Melbourne, Kildeer North, Kildeer Central and Kildeer South. The Southeast Central multiplier is applied against the Southeast Central metered volume rate, while the Northeast Central multiplier is applied against the Northeast Central – NSWRD Wildwood rate.

A bill comparison has been prepared for residential accounts reflecting the impact of rates proposed in Table 4-5 across a variety of residential customer profiles. Because sewer rates were generally increased uniformly in accordance with the revenue increases proposed in Section 2 and the rate structure is unchanged, no comparisons were prepared for commercial accounts.

Table 4-5: Existing Sewer Rates**Metered Sewer Volumetric Rates**

	<u>Existing FY 2019</u>
	(\$/1000 gal)
General Service Areas	\$5.57
Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire	\$6.56
Northeast Central - NSWRD Wildwood	\$8.08
Northeast Central - NSWRD Arbor Vista	\$10.20

Unmetered Sewer

	<u>Existing FY 2019</u>
	(\$/mo)
General Service Area	\$44.55
Southeast Central - Libertyville	\$48.39
Northwest	\$41.77
Northeast Central	\$53.70
Ravenna, Royal Melbourne, Kildeer North Kildeer Central, Kildeer South	\$55.73
Riverside Preserve	\$70.73

Wholesale Sewer

	<u>Existing FY 2019</u>	
	(\$/1000 gal)	(\$/RCE/Month)
Antioch	\$4.94	\$39.49
Buffalo Grove	\$4.08	\$30.60
Grayslake	\$3.44	\$25.78
Green Oaks	\$1.10	\$8.80
Gurnee	\$3.44	\$25.78
Hainesville (Northwest)	\$3.70	\$27.75
Hainesville (Northeast Central)	\$3.44	\$25.78
Harbor Ridge	\$5.57	\$41.78
Lakes Region Sanitary District	\$3.70	\$27.75
Lake Villa	\$3.70	\$27.75
Lake Zurich	\$4.08	\$30.60
Libertyville	\$1.10	\$8.80
Lincolnshire	\$4.08	\$30.60
Riverwoods	\$5.57	\$44.56
Round Lake	\$3.70	\$27.75
Round Lake Beach	\$3.70	\$27.75
Round Lake Park	\$3.70	\$27.75
Round Lake Heights	\$3.70	\$27.75
Waukegan	\$3.44	\$25.78

Table 4-6: Existing and Proposed Sewer Rates

	Existing	Proposed, Fiscal Year										
	FY 2019	2020	2021	2022	2023	2024						
Volumetric Rates												
Metered Sewer												
(1) General Service Areas	\$ 5.57	\$ 5.80	\$ 6.04	\$ 6.23	\$ 6.36	\$ 6.50						
(2) Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire	\$ 6.56	\$ 6.83	\$ 7.11	\$ 7.33	\$ 7.49	\$ 7.65						
(3) Northeast Central - NSWRD Wildwood	\$ 8.08	\$ 8.29	\$ 8.51	\$ 8.69	\$ 8.81	\$ 8.94						
(4) Northeast Central - NSWRD Arbor Vista	\$ 10.20	\$ 10.40	\$ 10.61	\$ 10.78	\$ 10.90	\$ 11.02						
Wholesale Sewer												
	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month	\$/1000 gal	\$/RCE/Month				
(1) Antioch	\$ 4.94	\$ 39.52	\$ 5.14	\$ 41.12	\$ 5.35	\$ 42.80	\$ 5.52	\$ 44.16	\$ 5.64	\$ 45.12	\$ 5.76	\$ 46.08
(2) Buffalo Grove	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(3) Grayslake	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(4) Green Oaks	\$ 1.10	\$ 8.80	\$ 1.15	\$ 9.20	\$ 1.20	\$ 9.60	\$ 1.24	\$ 9.92	\$ 1.27	\$ 10.16	\$ 1.30	\$ 10.40
(5) Gurnee	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(6) Hainesville (Northwest)	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(7) Hainesville (Northeast Central)	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
(8) Harbor Ridge	\$ 5.57	\$ 41.78	\$ 5.71	\$ 42.83	\$ 5.85	\$ 43.88	\$ 5.96	\$ 44.70	\$ 6.04	\$ 45.30	\$ 6.12	\$ 45.90
(9) Lakes Region Sanitary District	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(10) Lake Villa	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(11) Lake Zurich	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(12) Libertyville	\$ 1.10	\$ 8.80	\$ 1.15	\$ 9.20	\$ 1.20	\$ 9.60	\$ 1.24	\$ 9.92	\$ 1.27	\$ 10.16	\$ 1.30	\$ 10.40
(13) Lincolnshire	\$ 4.08	\$ 30.60	\$ 4.25	\$ 31.88	\$ 4.43	\$ 33.23	\$ 4.57	\$ 34.28	\$ 4.67	\$ 35.03	\$ 4.77	\$ 35.78
(14) Riverwoods	\$ 5.57	\$ 44.56	\$ 5.80	\$ 46.40	\$ 6.04	\$ 48.32	\$ 6.23	\$ 49.84	\$ 6.36	\$ 50.88	\$ 6.50	\$ 52.00
(15) Round Lake	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(16) Round Lake Beach	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(17) Round Lake Park	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(18) Round Lake Heights	\$ 3.70	\$ 27.75	\$ 3.76	\$ 28.20	\$ 3.82	\$ 28.65	\$ 3.87	\$ 29.03	\$ 3.90	\$ 29.25	\$ 3.94	\$ 29.55
(19) Waukegan	\$ 3.44	\$ 25.80	\$ 3.58	\$ 26.85	\$ 3.73	\$ 27.98	\$ 3.85	\$ 28.88	\$ 3.93	\$ 29.48	\$ 4.01	\$ 30.08
Unmetered Sewer												
(A) General Service Area	\$ 44.55	\$ 46.40	\$ 48.32	\$ 49.84	\$ 50.88	\$ 52.00						
(B) Southeast Central - Libertyville	\$ 48.39	\$ 54.64	\$ 56.88	\$ 58.64	\$ 59.92	\$ 61.20						
(C) Northwest	\$ 41.77	\$ 43.50	\$ 45.30	\$ 46.73	\$ 47.70	\$ 48.75						
(D) Northeast Central	\$ 53.70	\$ 62.18	\$ 63.83	\$ 65.18	\$ 66.08	\$ 67.05						
(E) Ravenna, Royal Melbourne, Kildeer North Kildeer Central, Kildeer South	\$ 55.73	\$ 58.00	\$ 60.40	\$ 62.30	\$ 63.60	\$ 65.00						
(F) Riverside Preserve	\$ 70.73	\$ 73.65	\$ 76.69	\$ 79.09	\$ 80.77	\$ 82.49						

Table 4-7: Residential Typical Bill Impacts

Meter Size Inches	Monthly Water Use kgal	Current Rates \$/mo	Proposed Rates					Difference					Difference					
			2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	
			\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$	\$	\$	\$	\$	%	%	%	%	%	
(1) General Service Areas																		
1"	0	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28	4%	4%	3%	2%	2%
1"	1	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28	4%	4%	3%	2%	2%
1"	2	\$ 11.14	\$ 11.60	\$ 12.08	\$ 12.46	\$ 12.72	\$ 13.00	\$	0.46	\$ 0.48	\$ 0.38	\$ 0.26	\$ 0.28	4%	4%	3%	2%	2%
1"	3	\$ 16.71	\$ 17.40	\$ 18.12	\$ 18.69	\$ 19.08	\$ 19.50	\$	0.69	\$ 0.72	\$ 0.57	\$ 0.39	\$ 0.42	4%	4%	3%	2%	2%
1"	4	\$ 22.28	\$ 23.20	\$ 24.16	\$ 24.92	\$ 25.44	\$ 26.00	\$	0.92	\$ 0.96	\$ 0.76	\$ 0.52	\$ 0.56	4%	4%	3%	2%	2%
1"	5	\$ 27.85	\$ 29.00	\$ 30.20	\$ 31.15	\$ 31.80	\$ 32.50	\$	1.15	\$ 1.20	\$ 0.95	\$ 0.65	\$ 0.70	4%	4%	3%	2%	2%
1"	6	\$ 33.42	\$ 34.80	\$ 36.24	\$ 37.38	\$ 38.16	\$ 39.00	\$	1.38	\$ 1.44	\$ 1.14	\$ 0.78	\$ 0.84	4%	4%	3%	2%	2%
1"	8	\$ 44.56	\$ 46.40	\$ 48.32	\$ 49.84	\$ 50.88	\$ 52.00	\$	1.84	\$ 1.92	\$ 1.52	\$ 1.04	\$ 1.12	4%	4%	3%	2%	2%
1"	10	\$ 55.70	\$ 58.00	\$ 60.40	\$ 62.30	\$ 63.60	\$ 65.00	\$	2.30	\$ 2.40	\$ 1.90	\$ 1.30	\$ 1.40	4%	4%	3%	2%	2%
1"	12	\$ 66.84	\$ 69.60	\$ 72.48	\$ 74.76	\$ 76.32	\$ 78.00	\$	2.76	\$ 2.88	\$ 2.28	\$ 1.56	\$ 1.68	4%	4%	3%	2%	2%
1"	15	\$ 83.55	\$ 87.00	\$ 90.60	\$ 93.45	\$ 95.40	\$ 97.50	\$	3.45	\$ 3.60	\$ 2.85	\$ 1.95	\$ 2.10	4%	4%	3%	2%	2%
1"	20	\$ 111.40	\$ 116.00	\$ 120.80	\$ 124.60	\$ 127.20	\$ 130.00	\$	4.60	\$ 4.80	\$ 3.80	\$ 2.60	\$ 2.80	4%	4%	3%	2%	2%
(2) Southeast Central - Libertyville, Countryside Manor, North Libertyville Estates, Terre Faire																		
1"	0	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32	4%	4%	3%	2%	2%
1"	1	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32	4%	4%	3%	2%	2%
1"	2	\$ 13.12	\$ 13.66	\$ 14.22	\$ 14.66	\$ 14.98	\$ 15.30	\$	0.54	\$ 0.56	\$ 0.44	\$ 0.32	\$ 0.32	4%	4%	3%	2%	2%
1"	3	\$ 19.68	\$ 20.49	\$ 21.33	\$ 21.99	\$ 22.47	\$ 22.95	\$	0.81	\$ 0.84	\$ 0.66	\$ 0.48	\$ 0.48	4%	4%	3%	2%	2%
1"	4	\$ 26.24	\$ 27.32	\$ 28.44	\$ 29.32	\$ 29.96	\$ 30.60	\$	1.08	\$ 1.12	\$ 0.88	\$ 0.64	\$ 0.64	4%	4%	3%	2%	2%
1"	5	\$ 32.80	\$ 34.15	\$ 35.55	\$ 36.65	\$ 37.45	\$ 38.25	\$	1.35	\$ 1.40	\$ 1.10	\$ 0.80	\$ 0.80	4%	4%	3%	2%	2%
1"	6	\$ 39.36	\$ 40.98	\$ 42.66	\$ 43.98	\$ 44.94	\$ 45.90	\$	1.62	\$ 1.68	\$ 1.32	\$ 0.96	\$ 0.96	4%	4%	3%	2%	2%
1"	8	\$ 52.48	\$ 54.64	\$ 56.88	\$ 58.64	\$ 59.92	\$ 61.20	\$	2.16	\$ 2.24	\$ 1.76	\$ 1.28	\$ 1.28	4%	4%	3%	2%	2%
1"	10	\$ 65.60	\$ 68.30	\$ 71.10	\$ 73.30	\$ 74.90	\$ 76.50	\$	2.70	\$ 2.80	\$ 2.20	\$ 1.60	\$ 1.60	4%	4%	3%	2%	2%
1"	12	\$ 78.72	\$ 81.96	\$ 85.32	\$ 87.96	\$ 89.88	\$ 91.80	\$	3.24	\$ 3.36	\$ 2.64	\$ 1.92	\$ 1.92	4%	4%	3%	2%	2%
1"	15	\$ 98.40	\$ 102.45	\$ 106.65	\$ 109.95	\$ 112.35	\$ 114.75	\$	4.05	\$ 4.20	\$ 3.30	\$ 2.40	\$ 2.40	4%	4%	3%	2%	2%
1"	20	\$ 131.20	\$ 136.60	\$ 142.20	\$ 146.60	\$ 149.80	\$ 153.00	\$	5.40	\$ 5.60	\$ 4.40	\$ 3.20	\$ 3.20	4%	4%	3%	2%	2%
(3) Northeast Central - NSWRD Wildwood																		
1"	0	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26	3%	3%	2%	1%	1%
1"	1	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26	3%	3%	2%	1%	1%
1"	2	\$ 16.16	\$ 16.58	\$ 17.02	\$ 17.38	\$ 17.62	\$ 17.88	\$	0.42	\$ 0.44	\$ 0.36	\$ 0.24	\$ 0.26	3%	3%	2%	1%	1%
1"	3	\$ 24.24	\$ 24.87	\$ 25.53	\$ 26.07	\$ 26.43	\$ 26.82	\$	0.63	\$ 0.66	\$ 0.54	\$ 0.36	\$ 0.39	3%	3%	2%	1%	1%
1"	4	\$ 32.32	\$ 33.16	\$ 34.04	\$ 34.76	\$ 35.24	\$ 35.76	\$	0.84	\$ 0.88	\$ 0.72	\$ 0.48	\$ 0.52	3%	3%	2%	1%	1%
1"	5	\$ 40.40	\$ 41.45	\$ 42.55	\$ 43.45	\$ 44.05	\$ 44.70	\$	1.05	\$ 1.10	\$ 0.90	\$ 0.60	\$ 0.65	3%	3%	2%	1%	1%
1"	6	\$ 48.48	\$ 49.74	\$ 51.06	\$ 52.14	\$ 52.86	\$ 53.64	\$	1.26	\$ 1.32	\$ 1.08	\$ 0.72	\$ 0.78	3%	3%	2%	1%	1%
1"	8	\$ 64.64	\$ 66.32	\$ 68.08	\$ 69.52	\$ 70.48	\$ 71.52	\$	1.68	\$ 1.76	\$ 1.44	\$ 0.96	\$ 1.04	3%	3%	2%	1%	1%
1"	10	\$ 80.80	\$ 82.90	\$ 85.10	\$ 86.90	\$ 88.10	\$ 89.40	\$	2.10	\$ 2.20	\$ 1.80	\$ 1.20	\$ 1.30	3%	3%	2%	1%	1%
1"	12	\$ 96.96	\$ 99.48	\$ 102.12	\$ 104.28	\$ 105.72	\$ 107.28	\$	2.52	\$ 2.64	\$ 2.16	\$ 1.44	\$ 1.56	3%	3%	2%	1%	1%
1"	15	\$ 121.20	\$ 124.35	\$ 127.65	\$ 130.35	\$ 132.15	\$ 134.10	\$	3.15	\$ 3.30	\$ 2.70	\$ 1.80	\$ 1.95	3%	3%	2%	1%	1%
1"	20	\$ 161.60	\$ 165.80	\$ 170.20	\$ 173.80	\$ 176.20	\$ 178.80	\$	4.20	\$ 4.40	\$ 3.60	\$ 2.40	\$ 2.60	3%	3%	2%	1%	1%
(4) Northeast Central - NSWRD Arbor Vista																		
1"	0	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24	2%	2%	2%	1%	1%
1"	1	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24	2%	2%	2%	1%	1%
1"	2	\$ 20.40	\$ 20.80	\$ 21.22	\$ 21.56	\$ 21.80	\$ 22.04	\$	0.40	\$ 0.42	\$ 0.34	\$ 0.24	\$ 0.24	2%	2%	2%	1%	1%
1"	3	\$ 30.60	\$ 31.20	\$ 31.83	\$ 32.34	\$ 32.70	\$ 33.06	\$	0.60	\$ 0.63	\$ 0.51	\$ 0.36	\$ 0.36	2%	2%	2%	1%	1%
1"	4	\$ 40.80	\$ 41.60	\$ 42.44	\$ 43.12	\$ 43.60	\$ 44.08	\$	0.80	\$ 0.84	\$ 0.68	\$ 0.48	\$ 0.48	2%	2%	2%	1%	1%
1"	5	\$ 51.00	\$ 52.00	\$ 53.05	\$ 53.90	\$ 54.50	\$ 55.10	\$	1.00	\$ 1.05	\$ 0.85	\$ 0.60	\$ 0.60	2%	2%	2%	1%	1%
1"	6	\$ 61.20	\$ 62.40	\$ 63.66	\$ 64.68	\$ 65.40	\$ 66.12	\$	1.20	\$ 1.26	\$ 1.02	\$ 0.72	\$ 0.72	2%	2%	2%	1%	1%
1"	8	\$ 81.60	\$ 83.20	\$ 84.88	\$ 86.24	\$ 87.20	\$ 88.16	\$	1.60	\$ 1.68	\$ 1.36	\$ 0.96	\$ 0.96	2%	2%	2%	1%	1%
1"	10	\$ 102.00	\$ 104.00	\$ 106.10	\$ 107.80	\$ 109.00	\$ 110.20	\$	2.00	\$ 2.10	\$ 1.70	\$ 1.20	\$ 1.20	2%	2%	2%	1%	1%
1"	12	\$ 122.40	\$ 124.80	\$ 127.32	\$ 129.36	\$ 130.80	\$ 132.24	\$	2.40	\$ 2.52	\$ 2.04	\$ 1.44	\$ 1.44	2%	2%	2%	1%	1%
1"	15	\$ 153.00	\$ 156.00	\$ 159.15	\$ 161.70	\$ 163.50	\$ 165.30	\$	3.00	\$ 3.15	\$ 2.55	\$ 1.80	\$ 1.80	2%	2%	2%	1%	1%
1"	20	\$ 204.00	\$ 208.00	\$ 212.20	\$ 215.60	\$ 218.00	\$ 220.40	\$	4.00	\$ 4.20	\$ 3.40	\$ 2.40	\$ 2.40	2%	2%	2%	1%	1%

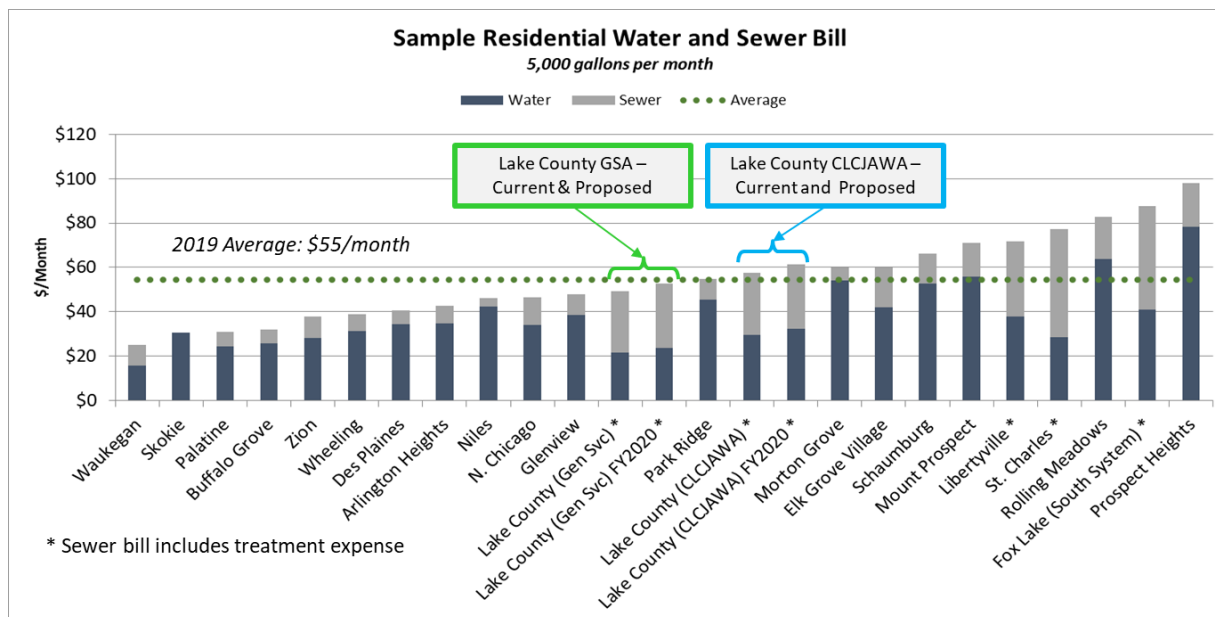
4.6 Regional Comparison of Combined Water and Sewer Bills

Figure 4-1, shows a regional comparison of combined water and sewer bills, demonstrating the impact of proposed 2020 rates on a GSA water and sewer customer and a CLCJAWA water and GSA sewer customer using 5,000 gallons a month. Lake County's bills shown in Figure 4-1 are in the middle of the surveyed communities and are fairly close to the regional average of \$55 per month. It is important to note that some communities fund a portion of their utility bills through taxes or pay other providers for certain aspects of service such as sewage treatment.

Proposed 2020 rates are not anticipated to materially impact Lake County's position and for a 5,000

gallon per month customer will increase Lake County water and sewer bills about \$3 to \$4 a month in the GSA and CLCJAWA service areas. It is important to note that rates for other communities will likely be increasing in the future.

Figure 4-1: Regional Comparison of Combined Water and Sewer Bills



4.7 Summary

The financial and rate plans described in this report represent a roadmap the utilities may follow to fund future operating and capital costs. As with any financial plan, conditions and events may change in the future. Lake County has a robust budgeting and planning process, as time passes, we recommend plans and rates presented herein be adjusted to reflect the most recent information available. Such information may include revised capital plans, updated wholesale water purchase or sewerage treatment costs, changes account growth or billed volume, or other key assumptions.

4.8 Statement of Limitations

In preparation of the Lake County Water and Sewer Rate Study (Study), Burns & McDonnell relied upon information provided by Lake County. The information included various analyses, computer-generated information and reports, audited financial reports, and other financial and statistical information, as well as other documents such as operating budgets, billing data and current rate schedules. In addition, input to key assumptions regarding expected future levels of revenue, sales, and expenditures was provided by Lake County staff to Burns & McDonnell. While Burns & McDonnell has no reason to believe that the information provided, and upon which Burns & McDonnell has relied, is inaccurate or incomplete in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness.

Estimates and projections prepared by Burns & McDonnell relating to financial forecasting and costs are based on Burns & McDonnell's experience, qualifications, and judgment as a professional consultant. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, contractors' procedures and methods, unavoidable delays, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding, and market conditions or other factors affecting such estimates or projections, Burns & McDonnell does not guarantee the accuracy of its estimates or predictions.



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