

**Town of Spring Lake  
Water and Sewer Rate Study  
Cumberland County, North Carolina**



**Project Number: A10006.00**

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**Technical Specifications Prepared By:**

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**MacConnell & Associates, P.C. (“M&A”)**  
**and**  
**Town of Spring Lake (“Client”)**  
**For**  
**Water and Sewer Rate Study**  
**Spring Lake, North Carolina**

**1.0 EXECUTIVE SUMMARY**

**1.1 BACKGROUND**

MacConnell & Associates, PC was contracted by the Town of Spring Lake to develop recommended water and sewer rates. Previous financial reports, current water and sewer rates, rates from other municipalities, and proposed development within the Town related to the water and sewer systems were evaluated to determine the rates best suited for Spring Lake. MacConnell & Associates, PC has worked on numerous projects in Spring Lake related to water and wastewater upgrades, repairs, and preliminary engineering reports throughout the Town. Using this background knowledge and working with Town staff has allowed MacConnell & Associates, PC to have a comprehensive understanding of the needs of the water and wastewater systems.

The Town of Spring Lake’s Water and Sewer system has an estimated service population of 10,332 based on the NC Water and Wastewater Rates Dashboard created by The University of North Carolina. An estimated 4,068 service connections provide the population with access to water and sewer throughout the Town. Water is purchased from Fayetteville PWC and Harnett County. The Town has a 1.5 MGD wastewater treatment plant that currently handles the treatment of all local wastewater.

**1.2 METHODOLOGY**

Various factors that would affect water and sewer usage in Spring Lake were analyzed to determine the needs of the systems. Historic population, commercial businesses, housing units, and industrial growth were evaluated to determine projected demand on the water and sewer systems over the next ten years. Industrial demands were determined to potentially have the most significant impact on demands followed by population growth. The number of commercial businesses in the Town has declined in recent years but is expected to resume growth as the Town’s population increases and new industries relocate to Spring Lake. The number of occupied and newly constructed housing units were used to approximate the increases of active connections and new water/sewer connections. The revenues and expenditures of the Town’s water and sewer fund were analyzed to determine the current ability of the fund to be self-sufficient and finance future projects.

Planned and recommended upgrades to the water and sewer systems were evaluated to determine the projected debt services. The base fees provided took into account current debt service, projected debt service, and potential funding to recommend incremental increases to the existing flat fee. These incremental increases raise the fees to cover the required upgrades for the Town’s water and sewer systems that are two to three years from construction. Projected usage, operating costs, operating revenues, and analysis of surrounding municipalities’ rates were used to recommend increases to the rate for each tier of usage for the next ten years.

### 1.3 RECOMMENDATIONS

MacConnell & Associates recommends water and sewer rates as shown in Tables 1-1 and 1-2. The recommended connections fees are shown in Table 1-3. MacConnell & Associates, PC believes that the increases recommended are in line with water and sewer fees of North Carolina municipalities similar in size and/or close in proximity.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Flat Fee</b>	\$3.42	\$4.45	\$5.78	\$7.51	\$8.27	\$9.09	\$9.55	\$10.02	\$10.52	\$11.05	\$11.60
<b>0-3,000</b>	\$6.31	\$6.63	\$6.96	\$7.30	\$7.67	\$8.05	\$8.46	\$8.88	\$9.32	\$9.79	\$10.28
<b>3,001-6,000</b>	\$7.10	\$7.46	\$7.83	\$8.22	\$8.63	\$9.06	\$9.51	\$9.99	\$10.49	\$11.01	\$11.57
<b>6,001-9,000</b>	\$7.89	\$8.28	\$8.70	\$9.13	\$9.59	\$10.07	\$10.57	\$11.10	\$11.66	\$12.24	\$12.85
<b>9,001+</b>	\$8.68	\$9.11	\$9.57	\$10.05	\$10.55	\$11.08	\$11.63	\$12.21	\$12.82	\$13.47	\$14.14

Table 1-1: Recommended Water Rates

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Flat Fee</b>	\$9.25	\$11.10	\$13.32	\$15.98	\$16.78	\$17.29	\$17.81	\$18.34	\$18.89	\$19.46	\$20.04
<b>0-3,000</b>	\$5.65	\$6.38	\$6.70	\$7.04	\$7.39	\$7.76	\$8.15	\$8.56	\$8.98	\$9.43	\$9.90
<b>3,001-6,000</b>	\$6.40	\$7.17	\$7.53	\$7.90	\$8.30	\$8.71	\$9.15	\$9.61	\$10.09	\$10.59	\$11.12
<b>6,001-9,000</b>	\$7.15	\$7.72	\$8.11	\$8.51	\$8.94	\$9.39	\$9.86	\$10.35	\$10.87	\$11.41	\$11.98
<b>9,001+</b>	\$7.90	\$8.53	\$8.96	\$9.41	\$9.88	\$10.37	\$10.89	\$11.43	\$12.01	\$12.61	\$13.24

Table 1-2: Recommended Sewer Rates

	Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water	<b>3/4" Fee</b>	\$900	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159	\$1,194	\$1,230	\$1,267	\$1,305
	<b>1" Fee</b>	\$950	\$1,100	\$1,133	\$1,167	\$1,202	\$1,238	\$1,275	\$1,313	\$1,353	\$1,393	\$1,435
Sewer	<b>4" Fee</b>	\$1,050	\$1,125	\$1,200	\$1,236	\$1,273	\$1,311	\$1,351	\$1,391	\$1,433	\$1,476	\$1,520
	<b>6" Fee</b>	\$1,750	\$1,803	\$1,857	\$1,912	\$1,970	\$2,029	\$2,090	\$2,152	\$2,217	\$2,283	\$2,352

Table 1-3: Recommended Water and Sewer Connection Fees

## 2.0 PROJECTED WATER AND SEWER USAGE

### 2.1 POPULATION GROWTH

Historically the Town's population has gone through a period of stagnant or slight decline preceded by a period of consistent growth. These periods of growth and stagnation appear to happen in 10 to 20-year periods. Operations at Fort Bragg and Poe Airforce Base have an impact on Spring Lake's population and can cause an increase or decrease in the Town's population. Currently, the Town is expected to be starting a period of population growth. The Town of Spring Lake is expected to continue its positive population growth naturally, increasing usage of the water and sewer systems. Table 2-1 shows historic population and water usage data from 2013 to 2019.

<b>Year</b>	<b>Total Population</b>	<b>Avg. Daily Water Use (gal)</b>	<b>GPCD</b>
2013	12,904	806,621	62.5
2014	12,842	856,000	66.7
2015	12,631	857,411	67.9
2016	12,670	862,168	68
2017	12,580	962,097	76.5
2018	12,593	985,692	78.3
2019	13,405	929,570	69.3

Table 2-1: Historic Population Growth and Water Usage

Spring Lake's population was estimated by Esri Demographics to be 13,405 in 2019 with projections of 0.37% annual growth over the next five years. A 1.19% annual growth rate was experience in the Town between 2010 and 2019. Esri Demographics uses data from the US Census Bureau, USPS postal delivery counts, IRS migration patterns, building permits, housing starts, and local sources to provide an accurate estimate of demographics in an area. The planned economic development within the Town is expected to have a positive impact on the annual growth rate leading to growth greater than the current estimate. Figure 2-1 shows a range of projected populations using the estimated growth percentage for projected growth.

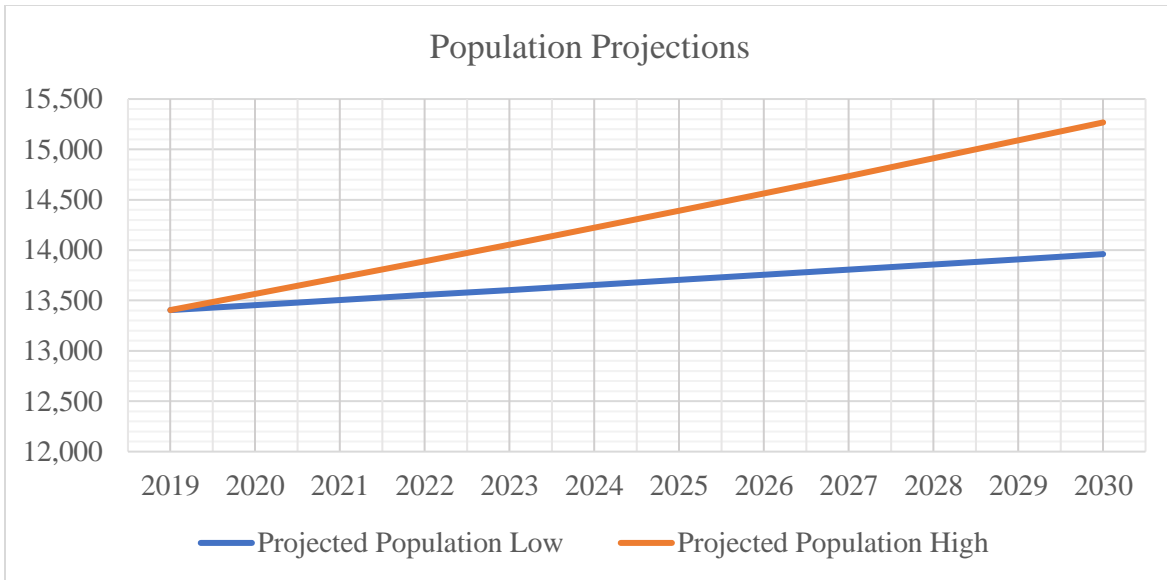


Figure 2-1: Spring Lake’s Projected Population

## 2.2 COMMERCIAL GROWTH

The projected commercial growth in the Town of Spring Lake was analyzed to determine the impact of future growth on water and sewer usage. Growth of commercial businesses was determined by using data from the U.S. Census Bureau. Table 2-2 and Figure 2-2 show the number of businesses for various categories in 2002, 2007, 2012, and 2017. Some categories decreased, but overall commercial industry grew 30% from 2002 to 2012. The number of commercial business between 2012 and 2017 show a decrease of total establishments. The number of establishments within the Town follow a similar trend in the population estimates during this timeframe. With the expected population growth, commercial business is also expected to resume growth in the coming years. Positive growth would result in an increased usage of the water and sewer systems.

Purpose	Type of Operation	Number of Establishments			
		2002	2007	2012	2017
Manufacturing	Total	0	0	3	0
Wholesale trade	Merchant wholesalers	2	1	6	5
Retail Trade	Total	49	46	50	49
Real Estate/Rental/Leasing	Total	18	18	15	11
Professional, Scientific, and Technical Services	All establishments	4	5	14	15
Administrative, Support, Waste Management, and Remediation Services	Total	2	4	5	5
Educational Services	All establishments	3	2	2	0
Health Care and Social Assistance	All establishments	9	11	10	16
Arts, Entertainment, & Recreation	All establishments	1	0	0	0
Accommodation & Food Services	Total	29	45	49	49
Other Services (Except Public Admin.)	All establishments	19	26	23	21
<b>Total Number of Businesses</b>		<b>136</b>	<b>158</b>	<b>177</b>	<b>171</b>

Table 2-2: Number of Commercial Businesses

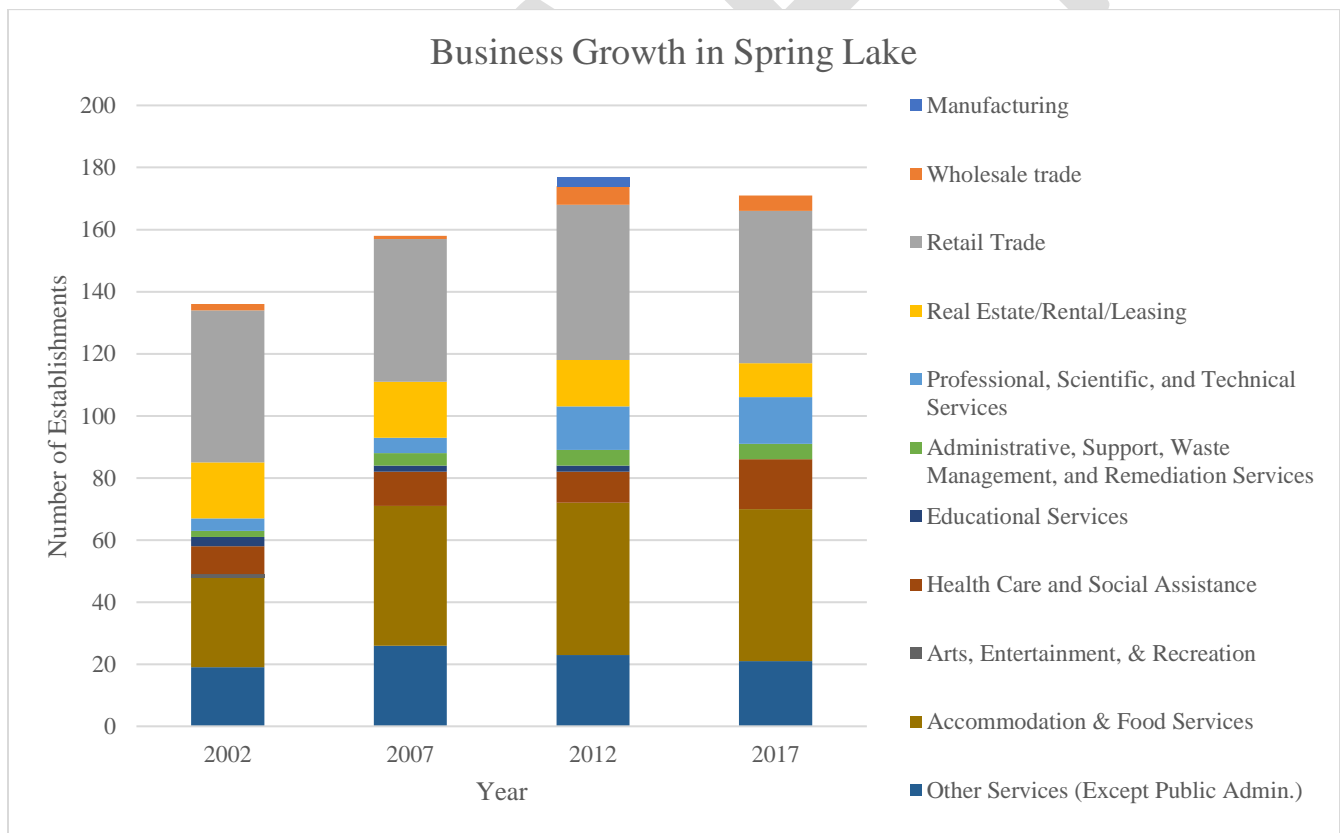


Figure 2-2: Commercial Business Growth

## 2.3 HOUSING GROWTH

Table 2-3 and Figure 2-3 shows the housing statistics for Spring Lake from 2000, 2010, and 2019. The table provides data from total housing units, occupied units, and vacant units. The increase of total housing units indicates additional usage of water and sewer systems and increase in service connection/service population within the Town. The number of occupied housing units continues to grow increasing the service population and more vacant houses are also available providing the Town capacity for additional population growth.

<b>Housing Census Data</b>		
<b>2000 Occupancy Status</b>	<b>Number</b>	<b>Percent</b>
Total Housing Units	3,623	100%
Occupied Housing Units	3,109	85.80%
Vacant Housing Units	514	14.20%
<b>2010 Occupancy Status</b>	<b>Number</b>	<b>Percent</b>
Total Housing Units	4,855	100%
Occupied Housing Units	4,202	86.50%
Vacant Housing Units	653	13.50%
<b>2019 Occupancy Status</b>	<b>Number</b>	<b>Percent</b>
Total Housing Units	5,280	100%
Occupied Housing Units	4,489	85.0%
Vacant Housing Units	790	15.00%

Table 2-3: Housing Statistics for 2000, 2010, and 2019

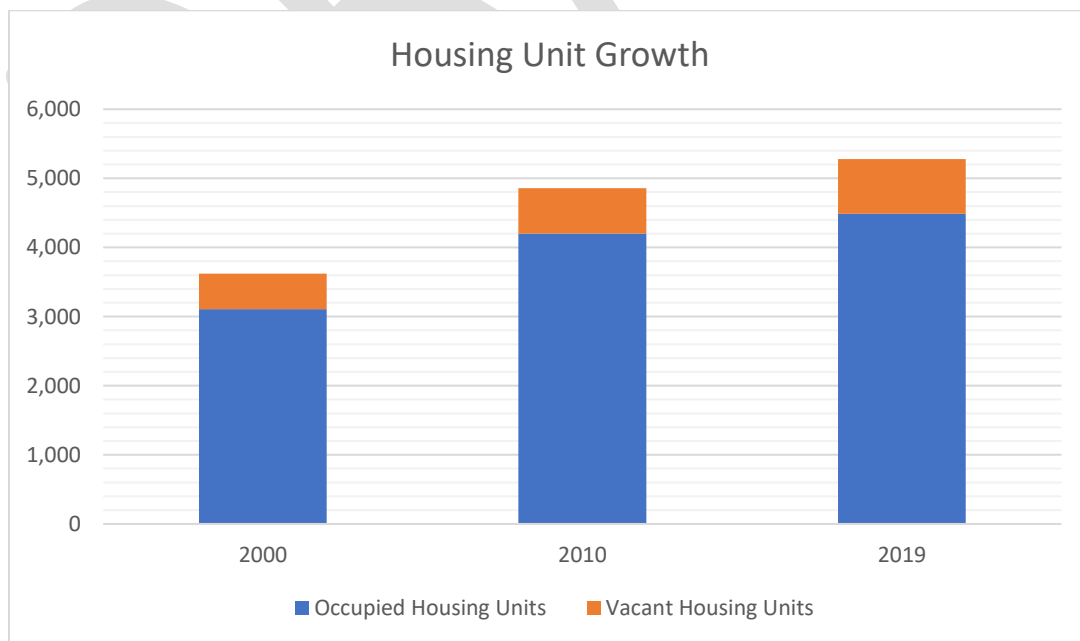


Figure 2-3: Housing Unit Census Data



It is expected that the number of occupied houses will continue to grow, especially with the interest in recruiting manufacturing and commercial growth to the Town. Growth of occupied households is expected to be representative of the increase in active service connections and overall growth of new housing units was used to estimate new water and sewer connections. Esri Demographics lists the annual growth of households between 2010 to 2019 at 0.66% annually and projects growth to continue at 0.52% each year for the next five years. The projected number of active service connections and water/sewer taps are shown in Table 2-4.

<b>Year</b>	<b>Active Service Connections</b>	<b>New Water &amp; Sewer Taps</b>
2020	4,068	51
2021	4,099	52
2022	4,130	52
2023	4,161	53
2024	4,193	53
2025	4,225	54
2026	4,257	54
2027	4,289	55
2028	4,322	55
2029	4,354	56
2030	4,387	57

Table 2-4: Projected Active Service Connections and New Water/Sewer Taps

## 2.4 INDUSTRIAL GROWTH

Proposed economic development within the Town of Spring Lake is expected to attract a large number of industries in the future. Potential industries and their water and sewer requirements were analyzed to determine potential impacts to the Town’s water and sewer systems. Impacts included the cost of required upgrades to provide water and sewer on-site as well as the expected water and sewer usage. Out of the industries currently in discussion with the Town, seven industries with an expected flow around 560,000 GPD were determined to be more than likely to locate themselves in Spring Lake by the Town’s economic developer. Three of these industries are expected to be heavy water users with demand expected to be 100,000 GPD or greater. Three of the remaining four industries will also be classified as heavy industrial users with predicate demands of approximately 50,000 GPD. Types of industry range from manufacturing and distribution to food processing.

### 3.0 WATER AND SEWER FUND ANALYSIS

The cash flow for the water and sewer fund was determined by reviewing the audited financial statements for 2014-2015, 2015-2016, 2016-2017, and 2017-2018. The statements are for fiscal year periods from the first of July to the end of June. Table 3-1 shows an overview of the combined water and sewer fund from the financial statements analyzed. 2015-2016, 2016-2017, and 2017-2018 show revenue greater than expenditures and represents a positive cash flow for the water and sewer enterprise fund. Revenue and expenditures fell short of the budgeted amounts for 2014-2015 and the replacement of the screw pumps at the WWTP led to expenditures greater than the revenue raised. A \$575,000 Installment Purchase was made to cover the cost of the screw pump installation and brings the revenue vs expenditure for 2014-2015 to \$179,401. 2015-2016, 2016-2017, and 2017-2018 had actual revenues close to the amount in the yearly budgets and expenditures under the budgeted amounts.

Financial statements beyond 2018 are currently not available for evaluation. The budget for 2018-2019 is similar to the budgets for 2016-2017 and 2017-2018. With consistent water demand and sewer usage over these years, it is expected that the actual revenue vs expenditures will continue experiencing positive cash flow. The budget for 2019-2020 has an increase in the revenue and expenditure from previous years to account for increased usage from a growing population. Table 3-1 provides the data from the financial statements evaluated. Additional financing sources and uses are shown in Table 3-2 and show different transfers between funds.

Transfers into and out of the water and sewer fund are shown in Table 3-2. The majority of transfers are to the General Fund and consisted of \$236,114 to \$430,600 annually between 2014 to 2018. The Town has since stopped transfers to the General Fund in response to state funding requirements. Transfers from the water and sewer fund moving forward are expected to account for salaries and time spent on water and sewer projects by staff from different divisions. Additional transfers for 2014 to 2018 include transfers to the post retirement fund, stormwater fund, and fleet maintenance. The 2014-2015 statement included a small transfer from the general fund and an installment purchase proceeds to cover the replacement of the screw pumps at the wastewater treatment facility.

<b>Revenues</b>	2014-15	2015-16	2016-17	2017-18
<b>Operating Revenues:</b>				
Water & Sewer Charges	\$2,899,574	\$3,162,057	\$3,172,487	\$3,247,047
Service Charge & Late Fees	\$112,112	\$136,603	\$138,786	\$197,585
<b>Water &amp; Sewer Taps</b>				
Other Operating Revenues	\$26,844	\$25,800	\$28,965	\$29,080
<b>Total</b>	<b>\$3,038,530</b>	<b>\$3,324,460</b>	<b>\$3,340,238</b>	<b>\$3,473,712</b>
<b>Non-Operating Revenue:</b>				
Interest	\$299	\$4,548	\$9,826	\$18,798
Sale of Materials	\$5,410	\$562	\$316	\$6,068
Insurance Settlement	\$0	\$0	\$146,504	\$0
Other	\$19,216	\$20,868	\$21,589	\$110,214
<b>Total</b>	<b>\$24,925</b>	<b>\$25,978</b>	<b>\$178,235</b>	<b>\$135,080</b>
<b>Total Revenues</b>	<b>\$3,063,455</b>	<b>\$3,350,438</b>	<b>\$3,518,473</b>	<b>\$3,608,792</b>
<b>Expenditures</b>	2014-15	2015-16	2016-17	2017-18
<b>Revenue Collections</b>				
Salaries & Employee Benefits	\$92,473	\$92,036	\$127,890	\$137,152
Water Purchases	\$780,258	\$816,380	\$900,158	\$1,020,754
Other Operating Expenditures	\$53,535	\$46,463	\$36,861	\$67,378
Capital Outlay	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$926,266</b>	<b>\$954,879</b>	<b>\$1,064,909</b>	<b>\$1,225,284</b>
<b>Revenue Billing</b>				
Salaries & Employee Benefits	\$308,522	\$283,339	\$262,320	\$261,825
Other Operating Expenditures	\$95,624	\$105,103	\$47,418	\$50,592
Capital Outlay	\$0	\$0	\$9,675	\$0
<b>Total</b>	<b>\$404,146</b>	<b>\$388,442</b>	<b>\$319,413</b>	<b>\$312,417</b>
<b>Water and Sewer Operation</b>				
Salaries & Employee Benefits	\$307,523	\$333,033	\$343,323	\$298,697
Repairs & Maintenance	\$297,049	\$114,723	\$125,168	\$216,159
Other Operating Expenditures	\$155,163	\$101,298	\$153,426	\$64,725
Capital Outlay	\$0	\$0	\$63,744	\$51,445
<b>Total</b>	<b>\$759,735</b>	<b>\$549,054</b>	<b>\$685,661</b>	<b>\$631,026</b>
<b>Wastewater Treatment Plant</b>				
Salaries & Employee Benefits	\$146,145	\$148,943	\$179,632	\$170,144
Electricity	\$91,036	\$71,598	\$90,216	\$81,750
Repairs & Maintenance	\$31,473	\$47,885	\$24,397	\$87,778
Contracted Services	\$53,635	\$76,360	\$87,775	\$120,858
Other Operating Expenditures	\$51,075	\$51,052	\$93,159	\$85,905
Capital Outlay	\$587,580	\$0	\$49,400	\$0
<b>Total</b>	<b>\$960,944</b>	<b>\$395,838</b>	<b>\$524,579</b>	<b>\$546,435</b>
<b>Debt Service</b>				
Principal Payments	\$325,305	\$357,868	\$613,662	\$697,516
Interest	\$82,658	\$95,278	\$100,439	\$72,207
<b>Total</b>	<b>\$407,963</b>	<b>\$453,146</b>	<b>\$714,101</b>	<b>\$769,723</b>
<b>Total Expenditures</b>	<b>\$3,459,054</b>	<b>\$2,741,359</b>	<b>\$3,308,663</b>	<b>\$3,484,885</b>
<b>Excess Revenue over Expenditures</b>	<b>-\$395,599</b>	<b>\$609,079</b>	<b>\$209,810</b>	<b>\$123,907</b>

Table 3-1: Water and Sewer Fund Financial Statements

<b>Transfers Out of Water and Sewer Fund</b>				
<b>Financing Uses</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
General Fund	\$236,114	\$430,600	\$415,500	\$400,000
Post Retirement Fund	-	\$11,772	\$11,772	\$15,090
Stormwater Fund	\$14,219	\$24,376	\$8,596	\$8,596
Fleet Maintenance Fund	-	\$131,000	\$52,639	\$52,639
<b>Total</b>	<b>\$250,333</b>	<b>\$597,748</b>	<b>\$488,507</b>	<b>\$476,325</b>
<b>Transfers into Water and Sewer Fund</b>				
<b>Financing Sources</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
General Fund	\$12,289	-	-	-
Installment Purchase Proceeds	\$575,000	-	-	-
<b>Total</b>	<b>\$587,289</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Revenue Vs Expenditure</b>	<b>\$336,956</b>	<b>-\$597,748</b>	<b>-\$488,507</b>	<b>\$476,325</b>

Table 3-2: Other Financing Sources and Uses

## 4.0 WATER RATE ANALYSIS

### 4.1 FINANCIAL PLANNING AND REVENUE

The water and sewer fund from Spring Lake's audited financial statements covering 2014 to 2018 were evaluated. The statements provided insight on the operating costs related to the water and sewer systems as well as annual revenues. Planned upgrades were evaluated alongside the financial statements to determine the additional burden on the water and sewer fund through increased operating costs and debt service as well as the impact of additional revenue.

#### 4.1.1 Capital Improvement Plan

Significant upgrades to the Town's water system will be required in the near future based on proposed economic development within the Town of Spring Lake. To maintain adequate supply of water for proposed industry, a new elevated water storage tank and water main extension are recommended for construction. These upgrades were accounted for when evaluating the new water rates for the Town. The water main extension would connect the new elevated storage tank to Fayetteville PWC and a second water main extension connecting to Harnett County was considered when evaluating potential impacts to residential water rates.

The upgrades related to industrial growth included an 750,000-gallon elevated storage tank (EST) near Lucas Road, a 12-inch water main along Bragg Boulevard connecting the EST to Fayetteville PWC, and potentially a second 12-inch water main connecting the EST to Harnett County. The line from Fayetteville PWC is expected to consist of approximately 18,000 linear feet of 12-inch pipe. Construction is expected to cost approximately \$3.1 million for the water line extension along Bragg Boulevard. The water main connecting to Harnett County, if constructed, would likely be installed along Manchester Road and connect to the proposed water main from Fayetteville PWC at the intersection of North Bragg Boulevard and Manchester Road. This would provide some redundancy in the system for a situation in which Fayetteville PWC is not able to supply water to the Town. This water line is expected to consist of around 13,000 linear feet of 12-inch pipe and to cost approximately \$2.2 million. Potential high demands from the area surrounding the new EST have the possibility to exceed the daily limit of 500,000 gallons of water from Harnett County. Without Harnett County raising this limit, a line from Fayetteville PWC would need to supply the EST.

The new EST estimate was based on the existing Poe Avenue EST and is expected to cost \$1,250,000. This estimate includes the foundation (assuming spread footer type foundation for 4,000 psi soil) for a 150 foot by 150-foot area, factory primer paint, field epoxy/urethane paint, and tank construction. Additional factors that would increase the cost of construction include accommodations for high wind or seismic loading, poor site conditions, containment and field

blasting, rock excavation, electrical, telecommunication provisions, fluoroethane paint, cathodic protection, yard piping, mixing systems, dewatering, and valve vaults. Based on a previous project for the EST on Poe Avenue, the estimated cost for an EST mixing system is \$75,000 making the estimated cost for a second EST in Spring Lake approximately \$1,325,000.

Depending on the amount and location of residential and commercial growth throughout the Town, various pipes and valves may need to be upsized to provide additional capacity and meet increasing demands on the distribution system.

#### 4.1.2 Projected Revenues

Revenue from the water system is primarily raised through operating fees with a large portion specifically for charges for water. Non-operating revenue is typically a small fraction of total revenue and had a boost for the period of 2016 to 2017 because of insurance settlements.

#### 4.1.3 Debt Service

Spring Lake’s current debt service budget for water and sewer is shown in Table 4-1 and amounts to an annual total of \$450,237. The majority of debt service covers loans for upgrades to the sewer system and wastewater treatment plant. Current low amounts of debt service for the water system has allowed for a low residential flat fee for water. Planned economic development is expected to add between \$180,000 and \$350,000 to the annual debt service for water over the next 30 years. This debt service covers the elevated water tower, water line from Fayetteville PWC, and a new wastewater treatment facility. The optional water line from Harnett County is expected to add between \$70,481 to \$106,314 to the debt service for a thirty-year period. The amount of debt service depends on if grants are awarded to help fund the project. The debt service for each upgrade is shown in Table 4-2.

<b>Debt Service</b>	<b>Cost</b>
<b>Principal</b>	
USDA Water	\$14,000.00
NC 210 Water	\$40,142.00
<b>Bond Principal</b>	\$54,142.00
<b>Interest</b>	
USDA Water	\$32,052.00
<b>Bond Interest</b>	\$32,052.00
<b>Total Debt Service</b>	\$86,194.00

Table 4-1: Current Annual Debt Service for Water System

<b>Upgrades to Water System</b>	<b>Low End Cost</b>	<b>High End Cost</b>
Elevated Storage Tank	\$67,366.00	\$90,300.00
Water Line Fayetteville PWC	\$112,349.00	\$148,182.00
Water Line Harnett County	\$70,481.00	\$106,314.00
<b>Total:</b>	<b>\$250,196.00</b>	<b>\$344,796.00</b>

Table 4-2: Estimated Annual Debt Service over 30 Year for Water System Upgrades

#### 4.2 COST OF SERVICE

Water purchases is consistently the largest portion of expenditures for the water and sewer fund typically costing around \$800,000 to \$900,000 annually. The current rates sufficiently offset the cost of water from Fayetteville PWC and Harnett County, but should be raised consistently to cover increases to Fayetteville PWC's prices. Total annual expenditures have been between \$2,700,000 and \$3,500,000 in the past six years. The cost of water from Fayetteville PWC and Harnett County as of July 1, 2019 are displayed in Tables 4-3 and 4-4 respectively.

<b>Amount of Water</b>	<b>Cost Per 1,000 Gallons</b>
13-20 MG	\$2.91
20-24 MG	\$3.90
24+ MG	\$4.25

Table 4-3: Fayetteville PWC Water Cost per Thousand Gallons

<b>Cost of Water</b>	<b>Cost Per 1,000 Gallons</b>
Water Charge	\$2.20
Pump Cost	\$0.18
<b>Total Monthly</b>	<b>\$2.38</b>

Table 4-4: Harnett County Water Cost per Thousand Gallons

Water purchased from Fayetteville PWC and Harnett County was analyzed from January 2013 to December 2019. The amount of water purchased between 2014 to 2016 was fairly consistent overall and increased in 2017 and 2018. Water purchased in 2019 has slightly decreased from 2017-2018 amounts but remains higher than water purchased between 2013-2016. Table 4-5 shows monthly water usage from 2013 to 2019. With an increasing population and industrial growth, the amount of water purchased will continue to increase.



<b>Total</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Jan	27,696,334	26,780,886	21,913,320	25,373,159	30,107,664	38,419,377	28,909,782
Feb	25,297,589	24,677,927	24,776,126	23,407,306	23,781,731	27,450,543	23,569,905
Mar	24,770,191	26,333,985	26,120,750	26,451,370	27,368,277	27,623,831	27,104,300
Apr	25,083,859	23,987,544	25,535,129	23,284,886	27,580,698	29,633,692	25,527,028
May	23,244,537	25,456,418	23,819,364	24,344,148	29,839,186	27,509,789	26,961,556
Jun	24,563,097	29,127,676	30,317,556	27,948,873	30,908,002	29,537,897	31,415,063
Jul	24,601,537	30,612,567	29,880,756	26,915,186	35,362,448	29,038,538	29,286,236
Aug	24,921,652	27,829,533	29,368,765	28,473,403	34,385,986	32,302,700	33,146,905
Sep	24,406,488	27,060,827	29,276,373	28,640,621	28,328,255	32,222,217	27,771,508
Oct	23,705,486	26,070,199	24,725,832	28,163,988	27,982,729	29,716,840	29,278,456
Nov	23,113,311	21,913,320	22,691,274	26,415,244	28,555,280	29,633,931	29,467,695
Dec	23,012,525	22,589,249	24,529,927	25,273,000	26,965,120	26,688,228	26,204,410
<b>Total</b>	<b>294,416,606</b>	<b>312,440,131</b>	<b>312,955,172</b>	<b>314,691,184</b>	<b>351,165,376</b>	<b>359,777,583</b>	<b>338,642,844</b>
<b>Avg Daily</b>	<b>806,621</b>	<b>856,000</b>	<b>857,411</b>	<b>862,168</b>	<b>962,097</b>	<b>985,692</b>	<b>927,789</b>
<b>Avg Month</b>	<b>24,534,717</b>	<b>26,036,678</b>	<b>26,079,598</b>	<b>26,224,265</b>	<b>29,263,781</b>	<b>29,981,465</b>	<b>28,220,237</b>

Table 4-5: Water Purchased from Fayetteville PWC and Harnett County

The cost for continuing to purchase water from Fayetteville PWC and Harnett County was analyzed. Shown in Table 4-6 is a range of projected annual water use and the corresponding estimated cost for 2020 to 2030. Low-water use is based only on the project residential growth within the Town and the high-water use takes into account proposed industrial users as well as increased residential growth resulting from new industries coming into Spring Lake. The cost per thousand was based on Fayetteville PWC rates and their recent annual increases. This provides a larger estimated cost since the majority of water purchased is from Fayetteville PWC and their rates are currently higher than Harnett County. Figures 4-1 and 4-2 show a visual representation of the projected water use and revenue, respectively.

<b>Year</b>	<b>Avg. Water Use GPD</b>			<b>Annual Cost</b>			<b>Cost per Thousand Gallons</b>
	<b>Low</b>	<b>High</b>	<b>Including Industry</b>	<b>Low</b>	<b>High</b>	<b>Including Industry</b>	
2020	901,485	908,855	908,855	\$1,599,144	\$1,612,218	\$1,612,218	\$4.86
2021	904,768	919,642	919,642	\$1,717,250	\$1,745,481	\$1,745,481	\$5.20
2022	908,118	930,630	980,630	\$1,842,935	\$1,888,621	\$1,990,091	\$5.56
2023	911,468	941,685	1,091,685	\$1,979,481	\$2,045,104	\$2,370,867	\$5.95
2024	914,885	952,874	1,252,874	\$2,127,153	\$2,215,480	\$2,912,995	\$6.37
2025	918,235	964,264	1,414,264	\$2,285,762	\$2,400,342	\$3,520,527	\$6.82
2026	921,652	975,721	1,525,721	\$2,452,378	\$2,596,247	\$4,059,715	\$7.29
2027	925,069	987,312	1,537,312	\$2,633,671	\$2,810,877	\$4,376,727	\$7.80
2028	928,486	999,037	1,549,037	\$2,829,793	\$3,044,815	\$4,721,078	\$8.35
2029	931,903	1,010,963	1,560,963	\$3,037,491	\$3,295,183	\$5,087,881	\$8.93
2030	935,387	1,022,956	1,572,956	\$3,263,939	\$3,569,503	\$5,488,673	\$9.56

Table 4-6: Projected Water Use and Cost for 2013-2025



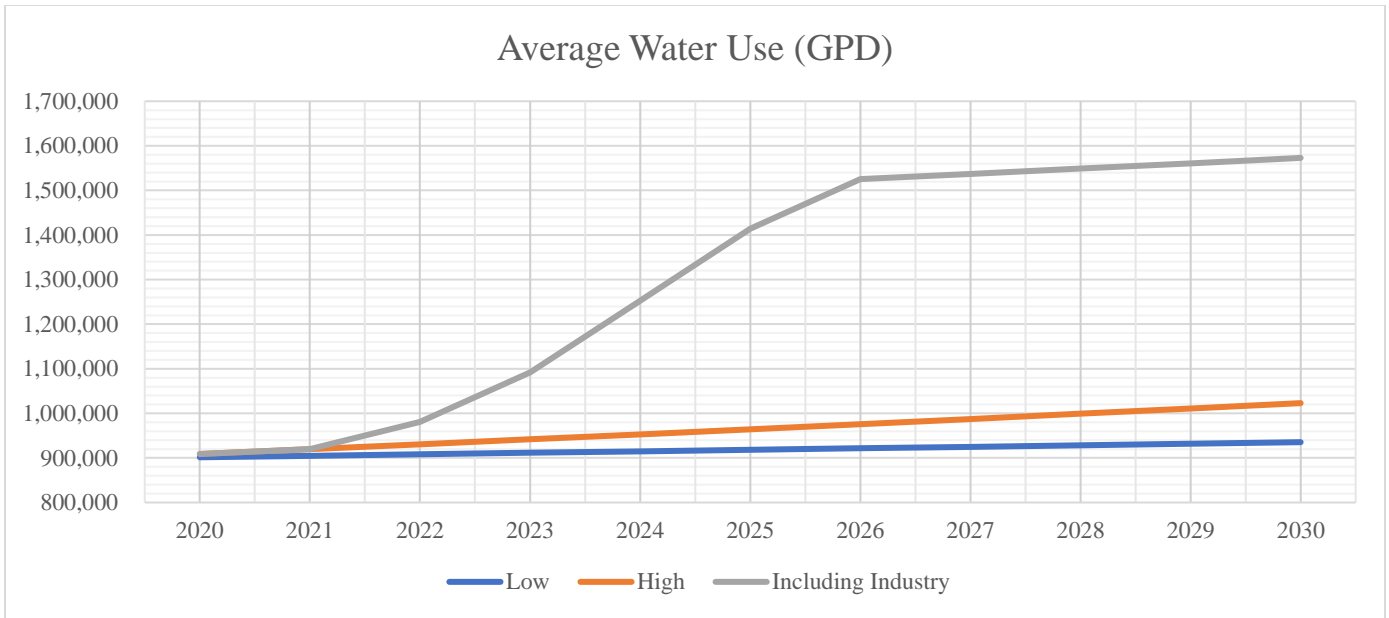


Figure 4-1: Projected Water Use

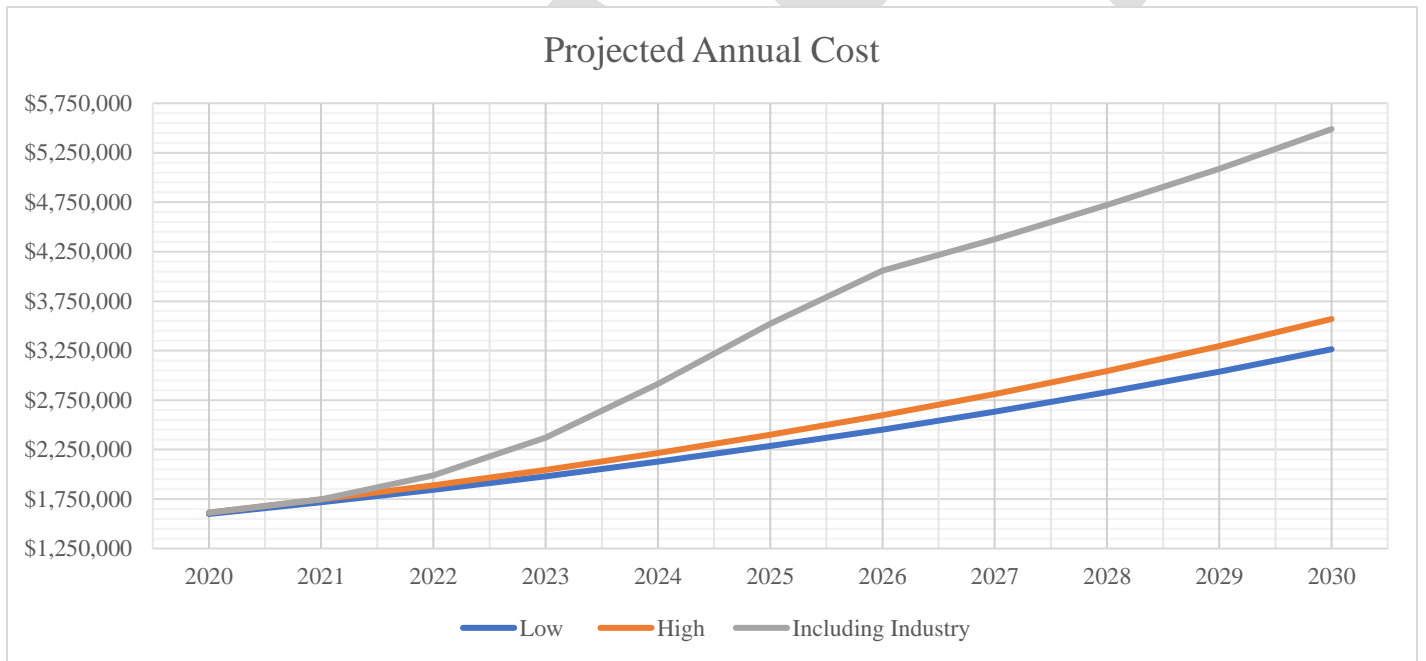


Figure 4-2: Projected Expenditures on Water Purchases

### 4.3 RATE DESIGN

#### 4.3.1 Current Rates and Fees

Spring Lake’s current rate schedule has a flat fee and a cost per thousand gallons based on increasing tiers of usage. Each tier of additional water usage has an increased rate per thousand

gallons. This is to promote water conservation among the service population. The flat fee is set up to cover the debt service so that if water and sewer is not used by a portion of the population, the Town can continue to make the annual payments on its debt. The Town’s current rates are shown in Table 4-7.

	<b>Flat Fee</b>	<b>0-3,000 gal</b>	<b>3,001-6,000 gal</b>	<b>6,001-9,000 gal</b>	<b>9,000+ gal</b>
<b>Water</b>	\$3.42	\$6.31	\$7.10	\$7.89	\$8.68

Table 4-7: Spring Lake’s Current Water Rates

#### 4.3.2 Water Rates Calculation

The recommended flat fee for water was determined by evaluating the current debt service as well as projected debt service for future upgrades to the water system throughout the Town. Potential funding for the projects was estimated based on several potential funding agencies. After the total cost for debt service was determined for the next five years, annual fees were calculated for the service population of 10,332 to cover the increase in debt service. Rates for the different tiers of water usage were determined by analyzing the rates of municipalities with similar service populations and those located near Spring Lake. Increasing cost of water from Fayetteville PWC and Harnett County were also considered when determining the recommended rates over the next five years. The State Drinking Water Reserve Programs, Community Development Block Grant, Economic Infrastructure Program, and Industrial Development Fund Utility Account are potential sources for funding and should be pursued on future water system projects.

The impact to monthly costs for the residential population was analyzed with and without assistance from industrial growth expected within the Town of Spring Lake. Table 4-8 shows a range of recommended flat fees based on various contributions toward debt service.

<b>Year</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
<b>Flat Fee</b>	\$4.45	\$5.78	\$7.51	\$8.27	\$9.09	\$9.55	\$10.02	\$10.52	\$11.05	\$11.60
<b>% Increase</b>	30%	30%	30%	10%	10%	5%	5%	5%	5%	5%

Table 4-8: Calculated Water Fees

#### 4.4 COMPARISON TO SURROUNDING MUNICIPALITIES’ RATES

Water rates for various municipalities across North Carolina were evaluated when determining the new recommended rates for Spring Lake. MacConnell & Associates, PC believes that the rates recommended are in line with municipalities similar in size and close in proximity. Spring Lake’s current flat fee for water is significantly lower than the majority of municipalities similar in size and location. Municipalities that were evaluated are shown in Table 4-10 and had flat fees between \$5.74 and \$30.00 with an average of \$13.26. After evaluating various municipalities rates for each tier of usage, Spring Lake was determined to have rates slightly above average. Since Spring Lake

purchases water from Fayetteville PWC and Harnett County, these rates are justified and should be increased 7% annually to cover both inflation and the increasing cost of purchasing water. Table 4-9 shows the recommended rates for each tier of usage for the next 10 years.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>0-3,000</b>	\$6.31	\$6.63	\$6.96	\$7.30	\$7.67	\$8.05	\$8.46	\$8.88	\$9.32	\$9.79	\$10.28
<b>3,001-6,000</b>	\$7.10	\$7.46	\$7.83	\$8.22	\$8.63	\$9.06	\$9.51	\$9.99	\$10.49	\$11.01	\$11.57
<b>6,001-9,000</b>	\$7.89	\$8.28	\$8.70	\$9.13	\$9.59	\$10.07	\$10.57	\$11.10	\$11.66	\$12.24	\$12.85
<b>9,001+</b>	\$8.68	\$9.11	\$9.57	\$10.05	\$10.55	\$11.08	\$11.63	\$12.21	\$12.82	\$13.47	\$14.14

Table 4-9: Recommended Water Tier Rates

Residential Water Rates at Various Usage Amounts							
Municipality	Service Population	Zero Gallons	3,000 Gallons	4,000 Gallons	5,000 Gallons	10,000 Gallon	15,000 Gallons
Aberdeen	10,380	\$7.00	\$3.49	\$3.68	\$3.68	\$4.04	\$4.84
Dunn	12,334	\$14.75	\$1.50	\$4.50	\$4.60	\$4.66	\$4.70
Edgecombe Water and Sewer District	12,700	\$30.00	\$5.75	\$5.75	\$5.75	\$6.25	\$6.75
Elon	11,400	\$8.34	\$2.78	\$5.56	\$5.56	\$5.56	\$5.56
Fayetteville Public Works Commission	217,948	\$16.50	\$2.74	\$3.07	\$3.07	\$4.17	\$4.99
Fork Township Sanitary District	9,324	\$14.00	\$2.67	\$8.00	\$8.00	\$8.00	\$10.50
Fuquay-Varina	30,474	\$10.23	\$5.17	\$5.17	\$5.17	\$5.17	\$5.17
Gates County	11,621	\$12.00	\$2.00	\$3.00	\$3.00	\$3.00	\$3.00
Holly Springs	36,500	\$12.50	\$4.26	\$5.01	\$5.01	\$6.35	\$7.40
Lillington	2,550	\$12.65	\$1.45	\$4.36	\$4.36	\$4.36	\$4.36
Morehead City	9,420	\$17.29	\$2.88	\$8.65	\$8.65	\$8.65	\$8.65
Nashville	8,800	\$5.74	\$2.79	\$4.18	\$4.18	\$4.18	\$4.18
Northampton County	12,759	\$19.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.50
Oxford	8,819	\$6.24	\$6.79	\$6.79	\$7.47	\$7.47	\$7.47
Sanford	41,831	\$15.05	\$1.54	\$6.10	\$6.09	\$6.10	\$6.10
Smithfield	13,060	\$10.42	\$4.16	\$4.16	\$4.91	\$4.91	\$5.67
<b>Average</b>		\$13.26	\$3.44	\$5.19	\$5.28	\$5.49	\$5.93
<b>Largest</b>		\$30.00	\$6.79	\$8.65	\$8.65	\$8.65	\$10.50
<b>Smallest</b>		\$5.74	\$1.45	\$3.00	\$3.00	\$3.00	\$3.00

Table 4-10: North Carolina Municipalities' Water Rates

## 5.0 SEWER RATE ANALYSIS

### 5.1 FINANCIAL PLANNING AND REVENUE

Currently the wastewater system adequately serves the Town of Spring Lake with flows averaging around 1 MGD. This is approximately 67% of the 1.5 MGD design capacity for the existing wastewater treatment plant. The system experiences higher flows in colder months and has reached flows near 80% of the design capacity. Several months have had flows over 90% of design capacity; however, these are attributed to a high amount of infiltration into the system. The Town is currently recruiting industry that will significantly increase the demand on the wastewater treatment plant. Current estimates place the demand of new industries at near 2 MGD for all of the potential industries and 660,000 GPD for industries labeled as likely to locate in Spring Lake in the near future. Looking strictly at the industries likely to have an impact to the capacity of the WWTP in the near future puts the total flow of wastewater over the capacity of the facility. Not only does the capacity of the facility need to be upsized but so will the sewer lines throughout the Town.

#### 5.1.1 Capital Improvements Needed

Wastewater system expansions will be necessary to provide the required capacity for industries seeking to locate within the Town of Spring Lake. The current wastewater treatment plant will need to be upsized or replaced to provide a larger capacity allowing the Town to continue to grow and expand residential, commercial, and industrial sectors. An upgraded capacity of 3 MGD is currently under consideration. Currently, the sewer system consists of pipe sizes ranging from 8 inches to 30 inches throughout the Town. With residential and commercial growth, various sewer lines will likely need to be upsized in the future and revenue from the water and sewer fund should be increased to finance these upgrades. Industrial growth would likely have a more immediate impact on the sewer system and may require a line installed from an industrial site to the wastewater treatment plant. A portion of industrial upgrades are expected to be funded through grants for job creation and infrastructure improvement. Grants are further discussed in section 5.1.3.

#### 5.1.2 Projected Revenues

As demand for potable water increases, so does the amount of wastewater that will be flowing into the Town's sewer system and wastewater treatment plant. Flow data from January 2014 to December 2019 for the wastewater treatment plant is shown in Table 5-1. Based on this, the facility currently operates on average around 62% to 68% capacity which is approximately 0.94 to 1.02 million gallons out of a total plant capacity of 1.5 million gallons a day. The wastewater treatment plant will require capacity upgrades to accommodate the projected residential and

industrial growth. Flow data is not available for September and October of 2018 due to damages caused by Hurricane Florence.

	2014		2015		2016		2017		2018		2019	
	Avg MGD	% capacity	Avg MGD	% capacity	Avg MGD	% capacity	Avg MGD	% capacity	Avg MGD	% capacity	Avg MGD	% capacity
January	0.93	62.11%	1.09	72.35%	1.17	77.86%	1.07	71.66%	0.84	56.15%	1.21	80.92%
February	1.00	66.46%	1.06	70.75%	1.24	82.85%	0.87	57.97%	0.92	61.32%	1.05	69.86%
March	1.08	72.28%	1.17	78.18%	0.98	65.48%	0.92	61.46%	0.97	64.43%	1.09	72.50%
April	1.05	69.86%	0.95	63.40%	0.88	58.82%	1.01	67.22%	0.96	63.81%	1.08	71.74%
May	1.00	67.00%	0.85	56.37%	0.84	56.29%	0.97	64.88%	0.86	57.32%	0.84	55.84%
June	0.82	54.67%	0.81	54.25%	0.85	56.88%	1.05	69.77%	0.78	52.31%	0.83	56.56%
July	0.76	50.35%	0.80	53.35%	0.89	59.00%	1.00	66.48%	0.85	56.74%	0.78	51.91%
August	0.74	49.21%	0.74	49.62%	0.90	60.12%	1.04	69.03%	1.19	79.66%	0.83	55.30%
September	0.78	52.16%	0.85	56.45%	1.03	68.66%	0.87	57.76%	N/A	N/A	0.90	59.83%
October	0.75	50.15%	0.99	65.70%	1.65	109.84%	0.80	53.51%	N/A	N/A	0.85	56.42%
November	0.95	63.30%	1.22	81.65%	0.92	61.45%	0.92	61.59%	1.38	92.15%	0.89	59.57%
December	0.90	60.18%	1.14	75.79%	0.90	60.18%	0.76	50.45%	1.44	96.08%	1.03	68.65%
<b>Averages</b>	<b>0.90</b>	<b>59.94%</b>	<b>0.97</b>	<b>64.98%</b>	<b>1.02</b>	<b>68.30%</b>	<b>0.94</b>	<b>62.83%</b>	<b>1.02</b>	<b>68.25%</b>	<b>0.95</b>	<b>63.33%</b>

Table 5-1: Wastewater Treatment Plant Daily Capacity 2014-2018

An analysis was conducted to show the impact of the Town’s growth on its wastewater treatment plant. Table 5-2 shows the historic wastewater flows from 2014 to 2019. Table 5-3 and Figure 5-1 present the projected flows for 2020 to 2030 based on the projected population increase, as well as potential residential, commercial, and industrial development. Using the plant information from 2014 to 2018, the gallons per capita per day (gpcd) was determined to be on average 65.7 gpcd, with a maximum of 81 gpcd.

Year	Population	Annual Daily Flow (gal)
2014	12,842	899,041
2015	12,631	974,652
2016	12,670	1,024,468
2017	12,580	942,458
2018	12,593	1,020,416
2019	13,405	942,500

Table 5-2: Historic Wastewater Treatment Plant Flows

Year	Population		Average Daily Flow (gal)		
	Low	High	Low	High	Including Industry
2020	13,455	13,565	982,215	990,245	990,245
2021	13,504	13,726	985,792	1,001,998	1,001,998
2022	13,554	13,890	989,442	1,013,970	1,063,970
2023	13,604	14,055	993,092	1,026,015	1,176,015
2024	13,655	14,222	996,815	1,038,206	1,338,206
2025	13,705	14,392	1,000,465	1,050,616	1,500,616
2026	13,756	14,563	1,004,188	1,063,099	1,613,099
2027	13,807	14,736	1,007,911	1,075,728	1,625,728
2028	13,858	14,911	1,011,634	1,088,503	1,638,503
2029	13,909	15,089	1,015,357	1,101,497	1,651,497
2030	13,961	15,268	1,019,153	1,114,564	1,664,564

Table 5-3: Projected Wastewater Treatment Plant Flows

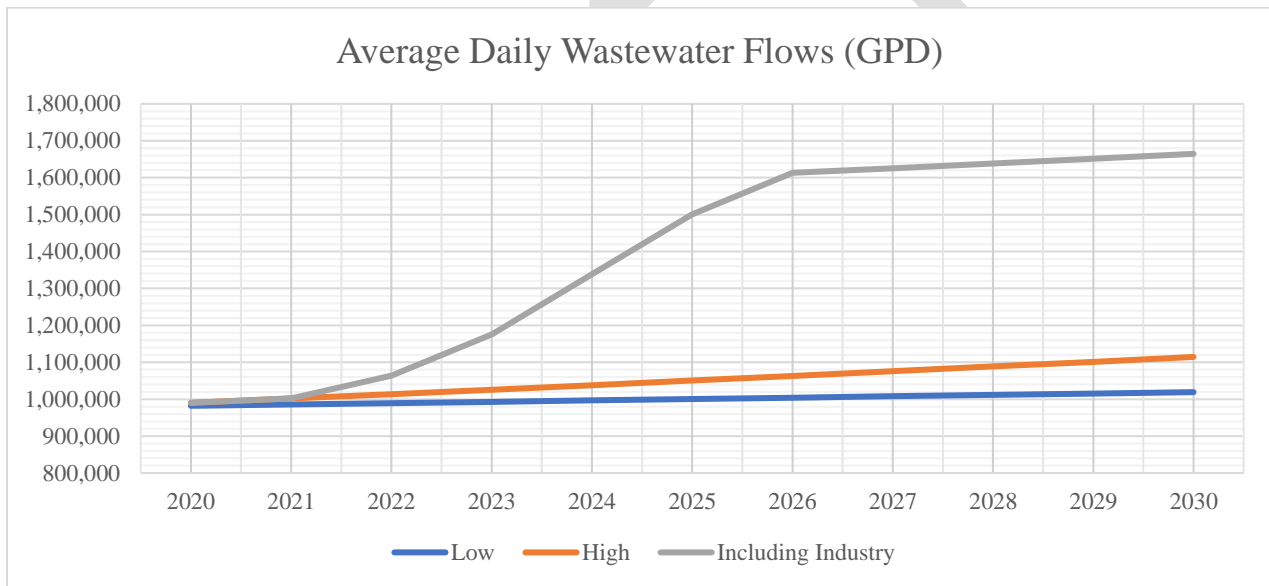


Figure 5-1: Projected Daily Wastewater Flows

### 5.1.3 Sources of Funding

FEMA has provided a fixed cost offer to the Town to cover damages to the wastewater treatment plant resulting from Hurricane Florence. Excess funding not used to repair the facility can be used toward an alternate project such as a new wastewater treatment plant. The impact on the sewer rates was evaluated with this funding as well as potential funds from Golden Leaf and EDA. Additional funding sources should be evaluated for each project such as Clean Water State Revolving Fund, State Wastewater Reserve Programs, CDBG Grant, and Industrial Development Fund Utility Account. Industrial growth in the Town was approximated to determine the potential impact on residential sewer rates.

#### 5.1.4 Debt Service

Current debt service for projects related to sewer system projects are shown in Table 5-4. The estimated annual debt service for a new 3 MGD wastewater treatment plant is expected to be between \$150,000 and \$400,000 for a period of 30 years. These are preliminary estimates using approximations for the cost of the plant as well as potential financing from a variety of funding agencies.

<b>Debt Service</b>	<b>Cost</b>
<b>Principal</b>	
USDA Sewer	\$9,000.00
Lower Little River	\$33,636.00
WWTP Modification	\$89,679.00
NCDOT U4444B	\$211,100.00
<b>Bond Principal</b>	<b>\$343,415.00</b>
<b>Interest</b>	
USDA Sewer	\$20,628.00
<b>Bond Interest</b>	<b>\$20,628.00</b>
<b>Total Debt Service</b>	<b>\$364,043.00</b>

Table 5-4: Debt Service

## 5.2 COST OF SERVICE

Expenditures related to revenue collections, revenue billing, operation, and debt service are combined in the water and sewer fund financial statements. The wastewater treatment plant does have expenditures listed in the financial statements and covers salaries, employee benefits, electricity, repairs, maintenance, contracted services, capital outlay, and other miscellaneous costs incurred. The expenditures for the WWTP varied considerable over the three financial statements available with the amounts for 2014-2015 totaling \$960,944, 2015-2016 totaling \$395,838, and 2016-2017 totaling \$524,579. Capital outlay consisted of \$587,580 of the total expenditures for the WWTP in 2014-2015 and is believed to be the cost related to replacing the screw pumps at the facility. The expenditures without capital outlay show more consistent growth of expenditures related to the WWTP.

## 5.3 RATE DESIGN

### 5.3.1 Current Rates and Fees

Spring Lake's current rate schedule has a flat fee and a cost per thousand gallons based on increasing tiers of usage. Each tier of additional sewer usage has an increased rate per thousand gallons. The rates are doubled for users located outside of the Town. The flat fee is setup to cover



the debt service so that the Town can continue to make annual payments even if sewer usage is reduced. The Town’s current rates are shown in Table 5-5.

	<b>Flat Fee</b>	<b>0-3,000 gal</b>	<b>3,001-6,000 gal</b>	<b>6,001-9,000 gal</b>	<b>9,000+ gal</b>
<b>Sewer</b>	\$9.25	\$5.65	\$6.40	\$7.15	\$7.90

Table 5-5: Spring Lake’s Current Sewer Rates

### 5.3.2 Sewer Rates Calculation

The flat fee for sewer was calculated based on the upgrades listed in the capital improvement plan for the Town. A variety of potential funding was evaluated with the approximate costs for the upgrades to determine a range of expect debt service amounts. To cover debt services moving forwards, MacConnell & Associates, PC recommends increasing the flat fee as shown in Table 5-6. Starting to raise fees now will allow for smaller incremental increases to get to the fee required to cover debt services for the wastewater treatment plant construction in two to three years. The plant will have to be designed and permitted which is expected to take two to three years before construction can begin.

<b>Year</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
<b>Flat Fee</b>	\$11.10	\$13.32	\$15.98	\$16.78	\$17.29	\$17.81	\$18.34	\$18.89	\$19.46	\$20.04
<b>% Increase</b>	20%	20%	20%	5%	3%	3%	3%	3%	3%	3%

Table 5-6: Recommended Sewer Flat Fee

## 5.4 COMPARISON TO SURROUNDING MUNICIPALITIES’ RATES

Sewer rates for North Carolina municipalities with similar service populations were evaluated to determine the sewer rates best suited for Spring Lake. The rates recommended and annual percentage increase are in line with municipalities similar in size as well as those located in the surrounding area. Spring Lake’s current flat fee for sewer is 58% of the average of the municipalities evaluated. Municipalities evaluated are shown in Table 5-8 and had fees between \$7 and \$30 with an average of \$15.75. Spring Lake’s tiered rates are lower than a majority of similar sized Towns and should be increase as shown in Table 5-7. The rates for tiers 1 and 2 were proportionally lower to the averages evaluated than tiers 3 and 4. Because of this the rates for 2021 were increased as follows; tier 1 increased by 13%, tier 2 increased by 12%, tier 3 increased by 8%, and tier 4 increased by 8%. The rate for all tiers is increased by 5% annually for 2022 onward to cover inflation.



Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>0-3,000</b>	\$5.65	\$6.38	\$6.70	\$7.04	\$7.39	\$7.76	\$8.15	\$8.56	\$8.98	\$9.43	\$9.90
<b>3,001-6,000</b>	\$6.40	\$7.17	\$7.53	\$7.90	\$8.30	\$8.71	\$9.15	\$9.61	\$10.09	\$10.59	\$11.12
<b>6,001-9,000</b>	\$7.15	\$7.72	\$8.11	\$8.51	\$8.94	\$9.39	\$9.86	\$10.35	\$10.87	\$11.41	\$11.98
<b>9,001+</b>	\$7.90	\$8.53	\$8.96	\$9.41	\$9.88	\$10.37	\$10.89	\$11.43	\$12.01	\$12.61	\$13.24

Table 5-7: Recommended Sewer Tier Rates

Residential Wastewater Rates at Various Usage Amounts							
Utility / Rate Structure	Service Population	Zero Gallons	3,000 Gallons	4,000 Gallons	5,000 Gallons	10,000 Gallon	15,000 Gallons
Aberdeen	10,380	\$7.00	\$3.98	\$4.50	\$4.50	\$5.76	\$7.32
Brevard	10,686	\$13.65	\$6.76	\$8.11	\$8.11	\$8.11	\$8.11
Dunn	12,334	\$13.75	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00
Edgecombe Water and Sewer District	12,700	\$30.00	\$8.00	\$8.00	\$8.00	\$8.50	\$9.00
Elon	11,400	\$15.39	\$5.13	\$10.26	\$10.26	\$10.26	\$10.26
Fayetteville Public Works Commission	217,948	\$15.50	\$5.28	\$5.28	\$5.28	\$5.28	\$5.28
Fork Township Sanitary District	9,324	\$29.00	\$5.33	\$16.00	\$16.00	\$16.00	\$16.00
Fuquay-Varina	30,474	\$14.20	\$6.08	\$6.08	\$6.08	\$6.08	\$6.08
Gates County	11,621	\$24.00	\$4.00	\$6.00	\$6.00	\$6.00	\$6.00
Gibsonville	7,129	\$18.11	\$6.04	\$12.07	\$12.07	\$12.07	\$12.07
Holly Springs	36,500	\$12.50	\$4.26	\$5.01	\$5.01	\$6.35	\$7.40
Lillington	2,550	\$14.51	\$2.07	\$6.21	\$6.21	\$6.21	\$6.21
Mebane - Efland	10,484	\$13.12	\$8.75	\$13.12	\$13.12	\$13.12	\$13.12
Morehead City	9,420	\$20.37	\$3.40	\$10.19	\$10.19	\$10.19	\$10.19
Nashville	8,800	\$13.91	\$9.53	\$9.53	\$9.53	\$9.53	\$9.53
Northampton County	12,759	\$15.00	\$5.50	\$5.50	\$5.50	\$5.50	\$5.60
Oxford	8,819	\$10.61	\$8.62	\$8.62	\$8.62	\$8.62	\$8.62
Sanford	41,831	\$16.08	\$1.81	\$7.16	\$7.17	\$7.17	\$7.17
Smithfield	13,060	\$12.63	\$8.43	\$8.43	\$8.43	\$8.43	\$8.43
<b>Average</b>		\$16.28	\$5.73	\$8.21	\$8.21	\$8.38	\$8.55
<b>Largest</b>		\$30.00	\$9.53	\$16.00	\$16.00	\$16.00	\$16.00
<b>Smallest</b>		\$7.00	\$1.81	\$4.50	\$4.50	\$5.28	\$5.28

Table 5-8: North Carolina Municipalities' Wastewater Rates

## 6.0 WATER AND SEWER TAP FEES

### 6.1 INTRODUCTION

Connecting to the Town of Spring Lake’s water and/or sewer systems has a set fee related to the size of the connection required. Front footage is charged per foot when it is required and has different fees depending on if it is a water or sewer connection. A \$50.00 inspection fee is also charged as part of water and sewer connections. Table 6-1 provides the expected water and sewer connections each year based on projected housing unit growth.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Water &amp; Sewer Taps</b>	51	52	52	53	53	54	54	55	55	56	57

Table 6-1: Projected Water & Sewer Taps

### 6.2 WATER TAP FEE

Residential Water Taps are currently \$900.00 for ¾” tap and \$950.00 for a 1” tap. A charge of \$8.00 per foot is issued for when front footage of a lot is covered to install a water tap. Based on an evaluation of municipalities similar in size, MacConnell & Associates, PC recommends that these fees be increased to \$1,000.00 for a ¾” tap and \$1,100.00 for a 1” tap for the 2021 fee schedule. In the following years, these fees should be increase 3% annually to offset inflation. Table 6-2 shows the recommended water connection fees going forward until 2030 and includes estimated revenue based on the lower of the two fees.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>3/4" Fee</b>	\$900	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159	\$1,194	\$1,230	\$1,267	\$1,305
<b>1" Fee</b>	\$950	\$1,100	\$1,133	\$1,167	\$1,202	\$1,238	\$1,275	\$1,313	\$1,353	\$1,393	\$1,435
<b>Revenue</b>	\$45,900	\$52,000	\$53,560	\$56,228	\$57,915	\$60,777	\$62,601	\$65,673	\$67,643	\$70,939	\$74,372

Table 6-2: Recommended Water Connection Fees and Projected Revenue

### 6.3 SEWER TAP FEE

Fees for residential sewer connections are assessed at \$1,050.00 for a 4-inch connection and \$1,750.00 for a 6-inch connection. Sewer front footage is charged at \$12.00 per foot. The majority of existing fees for a 4-inch connection in North Carolina are between \$700 to \$1,500. Spring Lake’s fee is currently toward the lower end of the range. MacConnell & Associates, PC recommends increasing the connection fee to \$1,125 in 2021 and \$1,200 in 2022 to provide increased revenue in the water and sewer fund to cover future sewer system upgrades. Starting in 2023 the fee should be increased by 3% to cover inflation. The 6-inch connection fee is currently in line with other municipalities and should be increase 3% annually to cover inflation. The

recommended fees for 2021 to 2030 are shown in Table 6-3 along with a conservative estimate for revenue.

<b>Year</b>	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>4" Fee</b>	\$1,050	\$1,125	\$1,200	\$1,236	\$1,273	\$1,311	\$1,351	\$1,391	\$1,433	\$1,476	\$1,520
<b>6" Fee</b>	\$1,750	\$1,803	\$1,857	\$1,912	\$1,970	\$2,029	\$2,090	\$2,152	\$2,217	\$2,283	\$2,352
<b>Revenue</b>	\$53,550	\$58,500	\$62,400	\$65,508	\$67,473	\$70,809	\$72,933	\$76,512	\$78,807	\$82,648	\$86,647

Table 6-3: Recommended Sewer Connection Fees and Projected Revenue

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## 7.0 CONCLUSION AND RECOMMENDATIONS

Based on planned infrastructure upgrades, MacConnell & Associates recommends raising water and sewer rates as shown in Tables 7-1 and 7-2. Water and sewer rates should continue to be raised each year to cover inflations and water price increases from Fayetteville PWC and Harnett County. Table 7-3 shows the recommended connections fees for water and sewer over the next 10 years. MacConnell & Associates, PC believes that the increases recommended are in line with water and sewer fees of municipalities similar in size to Spring Lake’s service population.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Flat Fee</b>	\$3.42	\$4.45	\$5.78	\$7.51	\$8.27	\$9.09	\$9.55	\$10.02	\$10.52	\$11.05	\$11.60
<b>0-3,000</b>	\$6.31	\$6.63	\$6.96	\$7.30	\$7.67	\$8.05	\$8.46	\$8.88	\$9.32	\$9.79	\$10.28
<b>3,001-6,000</b>	\$7.10	\$7.46	\$7.83	\$8.22	\$8.63	\$9.06	\$9.51	\$9.99	\$10.49	\$11.01	\$11.57
<b>6,001-9,000</b>	\$7.89	\$8.28	\$8.70	\$9.13	\$9.59	\$10.07	\$10.57	\$11.10	\$11.66	\$12.24	\$12.85
<b>9,001+</b>	\$8.68	\$9.11	\$9.57	\$10.05	\$10.55	\$11.08	\$11.63	\$12.21	\$12.82	\$13.47	\$14.14

Table 7-1: Recommended Water Rates

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Flat Fee</b>	\$9.25	\$11.10	\$13.32	\$15.98	\$16.78	\$17.29	\$17.81	\$18.34	\$18.89	\$19.46	\$20.04
<b>0-3,000</b>	\$5.65	\$6.38	\$6.70	\$7.04	\$7.39	\$7.76	\$8.15	\$8.56	\$8.98	\$9.43	\$9.90
<b>3,001-6,000</b>	\$6.40	\$7.17	\$7.53	\$7.90	\$8.30	\$8.71	\$9.15	\$9.61	\$10.09	\$10.59	\$11.12
<b>6,001-9,000</b>	\$7.15	\$7.72	\$8.11	\$8.51	\$8.94	\$9.39	\$9.86	\$10.35	\$10.87	\$11.41	\$11.98
<b>9,001+</b>	\$7.90	\$8.53	\$8.96	\$9.41	\$9.88	\$10.37	\$10.89	\$11.43	\$12.01	\$12.61	\$13.24

Table 7-2: Recommended Sewer Rates

	Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water	<b>3/4" Fee</b>	\$900	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159	\$1,194	\$1,230	\$1,267	\$1,305
	<b>1" Fee</b>	\$950	\$1,100	\$1,133	\$1,167	\$1,202	\$1,238	\$1,275	\$1,313	\$1,353	\$1,393	\$1,435
Sewer	<b>4" Fee</b>	\$1,050	\$1,125	\$1,200	\$1,236	\$1,273	\$1,311	\$1,351	\$1,391	\$1,433	\$1,476	\$1,520
	<b>6" Fee</b>	\$1,750	\$1,803	\$1,857	\$1,912	\$1,970	\$2,029	\$2,090	\$2,152	\$2,217	\$2,283	\$2,352

Table 7-3: Recommended Water and Sewer Connection Fees