

R E P O R T

Report on

Water Rate and Fee Study

Completed for
Town of Southampton Water Department
8 Fomer Road
Southampton, MA 01073

Completed by
Resilient Civil Engineering, P.C.
P.O. Box 659
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May 1, 2020

ResilientCE
Resilient Civil Engineering, P.C.

May 1, 2020

Board of Water Commissioners
Town of Southampton, Water Department
8 Fomer Road
Southampton, MA 01073

RE: Town of Southampton
Water Rate and Fee Study

Dear Sirs:

Resilient Civil Engineering, P.C. (ResilientCE) has prepared this final report summarizing findings for the Town of Southampton water rate and fee study. This rate study was completed in accordance with industry standards and the latest edition of the American Water Works Association (AWWA) Manual M1 – Principles of Water Rates, Fees and Charges. The study accounts for the anticipated budget needs for the future five-year planning period. This rate study presents a rational basis for establishing a rate increase from the current rates commensurate with pending budget increases.

I look forward to working with the Town on future projects.

Sincerely,
Resilient Civil Engineering, P.C.



Kristen M. Berger, P.E.
President

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Section 1.0 - Introduction

1.1 Overview

The Town of Southampton Water Department required the completion of a water rate study to review the current rate structure, recognizing that the Town is constructing a new booster pumping station and interconnection and will incur debt payments associated with these capital improvements. The existing rate structure was implemented in the first quarter of 2017 based on findings of a water rate study conducted in 2016. The goals of this water rate study are to review the previously completed rate study and current rate structure with consideration of ongoing and future capital improvement projects. This water rate study was conducted in accordance with the latest edition (seventh edition published in 2017) of the American Water Works Association (AWWA) Manual M1 – Principles of Water Rates, Fees and Charges.

1.2 Water Rate Development

The objection of appropriately established water rates is for them to be cost-based rates that generate revenue from each class of customer in proportion to the cost to serve each class of customer. Cost-based rate analyses can be divided into three main categories (1) analysis of revenue requirements, (2) analysis of cost-of-service, and (3) analysis of rate-designs. The revenue requirement analysis is used to establish the operation, maintenance and capital costs that must be recovered. The cost-of-service analysis is used to equitably distribute revenue requirements amongst the various customer classes. The rate-design analysis is used to ascertain the appropriate levels of cost to recover from each customer class.

In accordance with industry standards, this analysis was completed with a five-year planning period to consider near-term financial planning. Planning periods beyond five years are considered speculative and yield questionable results. Additionally, the Town should assess the results of this study annually to incorporate changed conditions.

Section 2.0 – Revenue Requirement Analysis

2.1 Overview

The revenue requirement analysis is used to establish the operation, maintenance and capital costs that must be recovered through rates. Costs are accumulated by the Town using a cash-needs approach with the objective to provide sufficient revenues to cover total cash requirements each year. Revenue requirement components of the cash-needs approach include operation and maintenance (O&M) expenses, debt-service payments, contributions to specified reserves and cost of capital expenditures that are not debt financed or contributed (depreciation expenses are not included). O&M expenses include salaries and wages, fringe benefits, purchased power, purchased water, other purchased services, chemicals, other supplies and small equipment, general overhead expenses, cost of support services by other Town departments such as accounting, water bill processing and collecting. The debt services component of the cash-needs approach consists of principal and interest payments on bonds or other debt instruments. The rate funded capital expenditure component is the portion of capital expenditures to be paid during the fiscal year. These capital expenditures may include routine replacement of existing facilities, normal annual improvements to the system, and major capital replacements and improvements.

2.2 Town's Revenue Requirement

The Town's required revenue for the water department is to pay for staff salaries, operating expenses, capital projects and debt service payment for larger capital projects. **Table 2-1** summarizes the Draft Fiscal Year (FY) 2020 Water Department Budget. The estimated required budget for FY 2020 totals \$806,760.69.

Table 2-1. Draft FY 2020 Water Department Budget

Salaries		Budget
	Superintendent	76,021.42
	Water Technician 40hr.	63,138.00
	Water Technician 18hr.	21,762.00
	Other wages Highway/Admin	39,000.00
	<i>Subtotal</i>	<i>199,921.42</i>
Operating Expenses		
	Bills & Invoicing	8,400.00
	Building Maintenance	12,360.00
	Communications	6,792.00
	Uniform Allowance	1,200.00
	Education/Travel	5,150.00
	Electrical	49,500.00
	Fuel (vehicles)	4,635.00
	Natural Gas	1,591.00
	Office & Misc.	3,090.00
	Postage	4,635.00
	Purchased Water	50,000.00
	Treatment Supplies	6,180.00
	Testing, Lab & X-conn	12,360.00
	Vehicle Maintenance	3,000.00
	<i>Subtotal</i>	<i>168,893.00</i>
Capital Outlay		
	Contract services- Engineering/Legal/System	50,000.00
	Equipment rental	10,000.00
	Water System Repairs & Improvements	70,000.00
	<i>Subtotal</i>	<i>130,000.00</i>
Debt Service		
	Principal & Interest	214,000.00
	Indirect Cost	93,946.00
	<i>Subtotal</i>	<i>307,946.00</i>
TOTAL BUDGET		806,760.69

Most of these line items are anticipated to remain steady over the next five years with the exception of the debt service items which include bond and loan payments. The Town is in the process of borrowing and refinancing some loans for the Water Department at lower interest rates. During this process, one loan will be retired, a new loan will be added and others will be refinanced. The \$214,000 shown for this line item

in **Table 2-1** is estimated to increase to \$294,000 next year due to the addition of the State Revolving Fund (SRF) loan for the interconnection and pump station project and remain approximately at this amount for the next five years.

The indirect cost is a fringe benefit allocation for the portion of personnel time and insurance of Town staff to Water Department operations. These Town staff include the accountant, treasurer, collector and highway personnel. The amount of time anticipated to be required is estimated for the budget. At the end of the fiscal year the time for the Town staff on Water Department operations is reviewed and the indirect costs billed to the Water Department are adjusted accordingly. Actual cost for this line item are typically less than the budget carried. The indirect cost includes post retirement benefits which may increase about \$1,000 per year. For budgeting purposes, this line item is anticipated to remain steady for the next five years.

Upon completion of the interconnection and pump station project, the transfer of water from Easthampton will be more controllable. Before this permanent interconnection, the Water Department supplemented supply in the summer to a portion of its system using water from Easthampton through an un-metered interconnection. Since the interconnection was not metered and due to hydraulic restrictions, could only supply a small area of the system, the Water Department would close valves to isolate that area of the system and track water use by customer meters. It is anticipated that water from Easthampton will continue to be a supplemental water supply to meet peak demands. The new interconnection is a metered connection with booster pumping and automation which eliminates the need to isolate an area of the system for the entire summer. There may be times during the summer when supplemental water is not required and will not be purchased. For the purposes of budget planning, the purchase of water from Easthampton is estimated to remain steady for the five-year planning period. The Water Department should monitor this and adjust use or re-visit the rates as needed.

The estimated budget for FY 2021 through FY 2025 is the FY 2020 draft budget plus the increase to the debt service. Therefore, the anticipated budget used for planning purpose in evaluating the water rates is approximately \$887,000.00.

Section 3.0 – Revenues

3.1 Overview

Revenue sources include both operating revenues and nonoperating revenues. Operating revenues include water use charges and other charges or fees for associated services. Nonoperating revenues include interest income, gains or losses from the sale of property, other items not directly related to the day-to-day operations in providing water service and, in some communities, transfers from the general fund which are sometimes used to fund debt service and capital outlays. A third category of revenues is contributions to capital which can come in the form of system development charges (connection fees), grants or developer contributions.

3.2 Town's Revenue Sources

The Town's Water Department is operated on a cash basis of accounting. Since cash revenues can lag, this must be taken into account when establishing water rates. For the Town, revenue sources include the following:

- Water use charges
- New service connection fees
- Meter replacement fees
- Fire demand and device fees
- Backflow prevention testing fees
- Hydrant use permit fees
- Final read fee
- Service turn off/on fee
- Frozen meter repair fee
- Meter tampering fee
- Interest and penalties
- Investment income
- Retained earnings
- WPAT subsidies

Revenues are directly related to the amount of water used by customers. During wet years, outdoor water use is lower, which can create a revenue deficit. Similarly, dry years can create a revenue surplus. It is

important for the Water Department to have a stabilization fund to be drawn on to fund the balance during revenue shortfalls that result from lower than expected consumption.

3.3 Water Use Charges - Current Rate Structure

The Town’s current rates use an increasing block structure designed to encourage conservation. The increasing block structure charge increasing volumetric rates for increasing consumption. The first tier is a minimum charge that includes up to 12,000 gallons of water use. The second tier charge is for consumption between 12,001 to 24,000 gallons. The third tier use is for consumption greater than or equal to 24,001 gallons. **Table 3-1** presents the current rate structure for water consumption.

Table 3-1. Current Rate Structure for Water Consumption

Consumption amount	Rate
0 – 12,000 gallons	\$50.00 (minimum charge)
12,001 – 24,000 gallons	\$4.00 per 1,000 gallons
Greater than 24,001 gallons	\$7.00 per 1,000 gallons

The minimum charge is intended to include water use that corresponds to winter water demands, recognizing that this is the necessary water use. In the summer water use increases due to outdoor water uses such as for irrigation and pool filling which are considered to be non-essential water uses.

3.4 Current Additional Fees

The Water Department charges fees in addition to the water use charges. Additional fees include the following (fee amounts shown are the fees in place at the time of this study):

- Meter Replacement Fee
 - 5/8 inch meter: \$8.00 quarterly
 - 1 inch meter: \$9.65 quarterly
 - 1 ½ inch meter: \$15.52 quarterly
 - 2 inch or greater meter: \$17.21 quarterly
- Fire Demand Fee (if fire protection equipment is present)
 - Service less than 2 inch: \$200 annually
 - Service 2 inch: \$400 annually
 - Service 4 inch: \$600 annually
 - Service 6 inch: \$800 annually

- Backflow Prevention Testing (if fire protection equipment is present)
 - Reduced pressure device: \$130 twice per year
 - Double check valve: \$80 once per year
 - Installation permit: \$50 per device
- New Service Connection Fees
 - 1 inch service: \$3,000
 - 1 1/2 inch service: \$6,000
 - 2 inch service: \$12,000
 - 3 inch or greater service: Charge calculated based on Water Department time, materials, expenses and overhead plus a capacity fee
- Hydrant Use Permit Fees
 - \$150 per occasion
 - \$7.00 per 1,000 gallons consumption
 - \$100 for private hydrant flushing and inspection fee per hydrant
- Other Fees
 - Final read: \$100 plus water use
 - Service turn off/on: \$100 (\$200 after hours)
 - Frozen meter repair: \$100 (\$200 after hours)
 - Meter tampering: \$150

3.5 Prior Revenues

The water revenues vary year to year primarily based on the water consumption and new service connection fees. **Figure 3-1** provides a graphical representation of the total revenues for the fiscal years FY 14 through FY 19. The rates changed from FY 16 to FY 17. The revenues increased in FY 17 due to the increased rates and increased water consumption resulting from a decrease in precipitation.

The water revenues ranged from 74% to 84% of the total annual revenues for FY 14 through FY 19. The new service connection charges also called hook up fees and charges have ranged from 3% to 15% of the total annual revenues which contributed about \$17,000 to \$106,000 to the revenues.

For FY 19, the majority (83%) of the revenues were from water usage charges and hook up fees and charge were 5% of the total revenues as shown in **Figure 3-2**.

Figure 3-1. Water Revenues FY 14 through FY 19

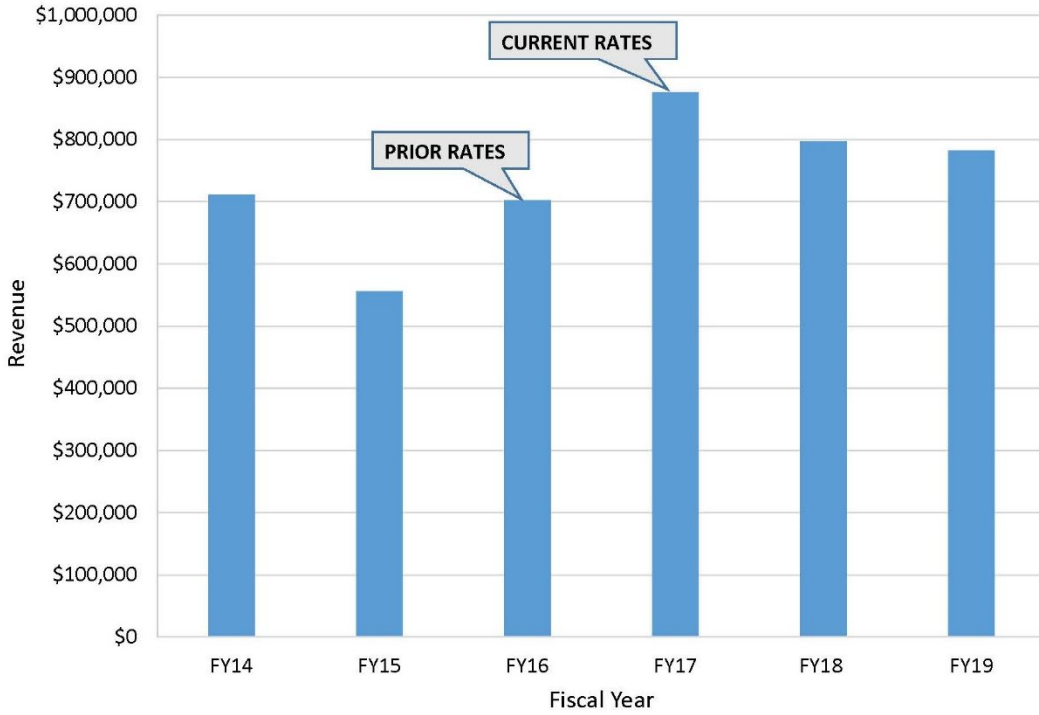
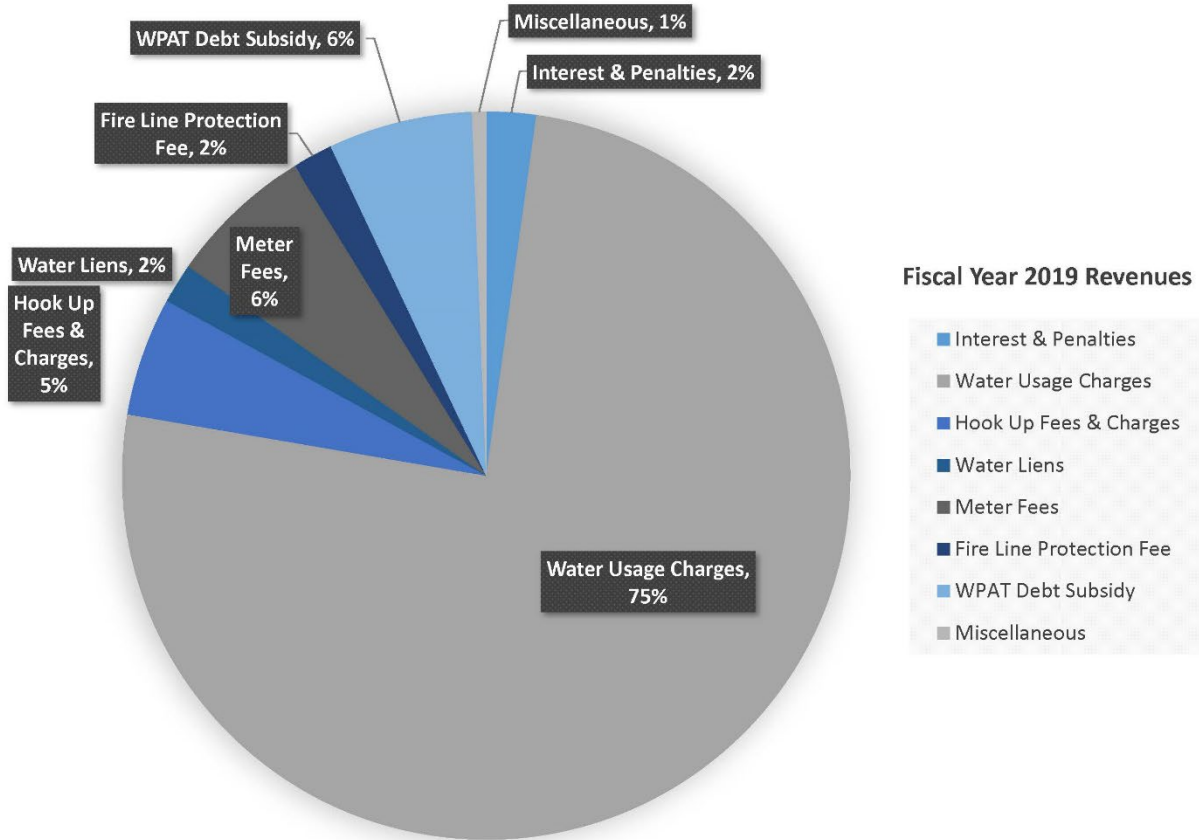


Figure 3-2. Fiscal Year 2019 Revenues



3.6 Fiscal Year 2020 Anticipated Revenues

The Water Department anticipates revenues for FY 2020 to satisfy the estimated budget needs. For FY 2020, the Water Department drafted a budget of \$806,760.42 as presented in **Section 2.2**. **Table 3-2** provides a summary of the anticipated FY 2020 revenues to meet the draft budget.

Table 3-2. Anticipated FY 2020 Revenues

Revenue Category	Anticipated Revenue	Percentage of Total
Water usage charges	\$635,000.00	78.7%
Hook up charges and fees	\$63,000.00	7.8%
Fire demand and device fees	\$15,400.00	1.9%
Interest and penalties	\$25,000.00	3.1%
Investment income	\$3,000.00	0.4%
Retained earnings	\$19,754.42	2.4%
WPAT subsidies	\$45,606.00	5.7%
Total	\$806,760.42	100%

3.7 Future Revenues

Revenues for the five-year planning period will need to account for the additional \$80,000 per year to the debt service budget item. The anticipated budget used for planning purpose in evaluating the water rates is approximately \$887,000.00. The anticipated revenues for FY 2020 would not meet that budget therefore the intent is to achieve the required revenues through increasing the water usage charges.

Section 4.0 – Rate Analysis

4.1 Overview

The purpose of a water rate analysis is to evaluate the ability of the current and alternative rate structures to meet revenue requirements. Since revenues are largely obtained through water use charges, the impacts of weather impacts must be considered. For the Town, water use and revenues are higher on years with dry summers in comparison with wet summers when use and revenues are lower. This variation in discretionary water use for outdoor watering prompted the Massachusetts Department of Environmental Protection (MassDEP) to encourage water suppliers to implement increasing block rates to prompt water conservation. Those that wish to keep their water bill lower may curb their outdoor water use. The weather related variations also prompted many water supplier to implement minimum charges as the base tier to help achieve a more reliable minimum revenue.

The goal is to determine a rate structure that helps to achieve the following:

- Yields total revenues in a stable and predictable manner,
- Minimizes unexpected changes to customers,
- Discourages wasteful use and promotes efficient use,
- Promotes fairness and equity,
- Avoids unjust discrimination,
- Maintains simplicity, certainty, convenience, feasibility and freedom from controversy,
- Complies with applicable laws.

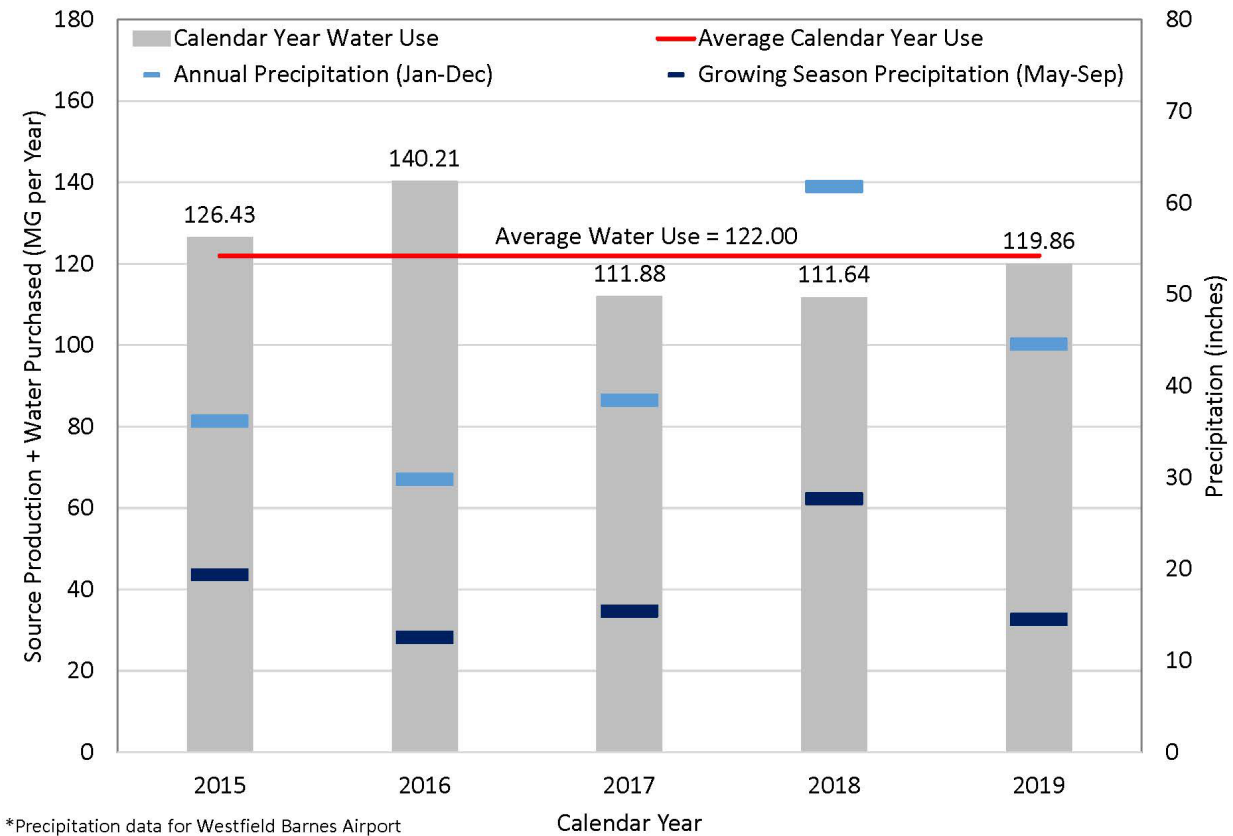
4.2 Impacts of Weather

The Town uses water from its primary source, the Glendale Well, and supplements with water purchased from Easthampton. Data on the total volume of water used by the Town, which includes both metered and unmetered uses, was examined to understand the recent variations in annual water use. Weather conditions can impact water consumption. Dry summers result in greater water use than wet summers. Consideration of this variation in water consumption is necessary to achieve revenue stability.

The Town reports its annual water use to the MassDEP based on the calendar year, January through December. **Figure 4-1** shows the annual water production by calendar year for the years 2015 through 2019 (total includes both water from the source and purchased). Notably, 2016 was a dry year and the water consumption increased. The annual precipitation and the growing season precipitation (period from

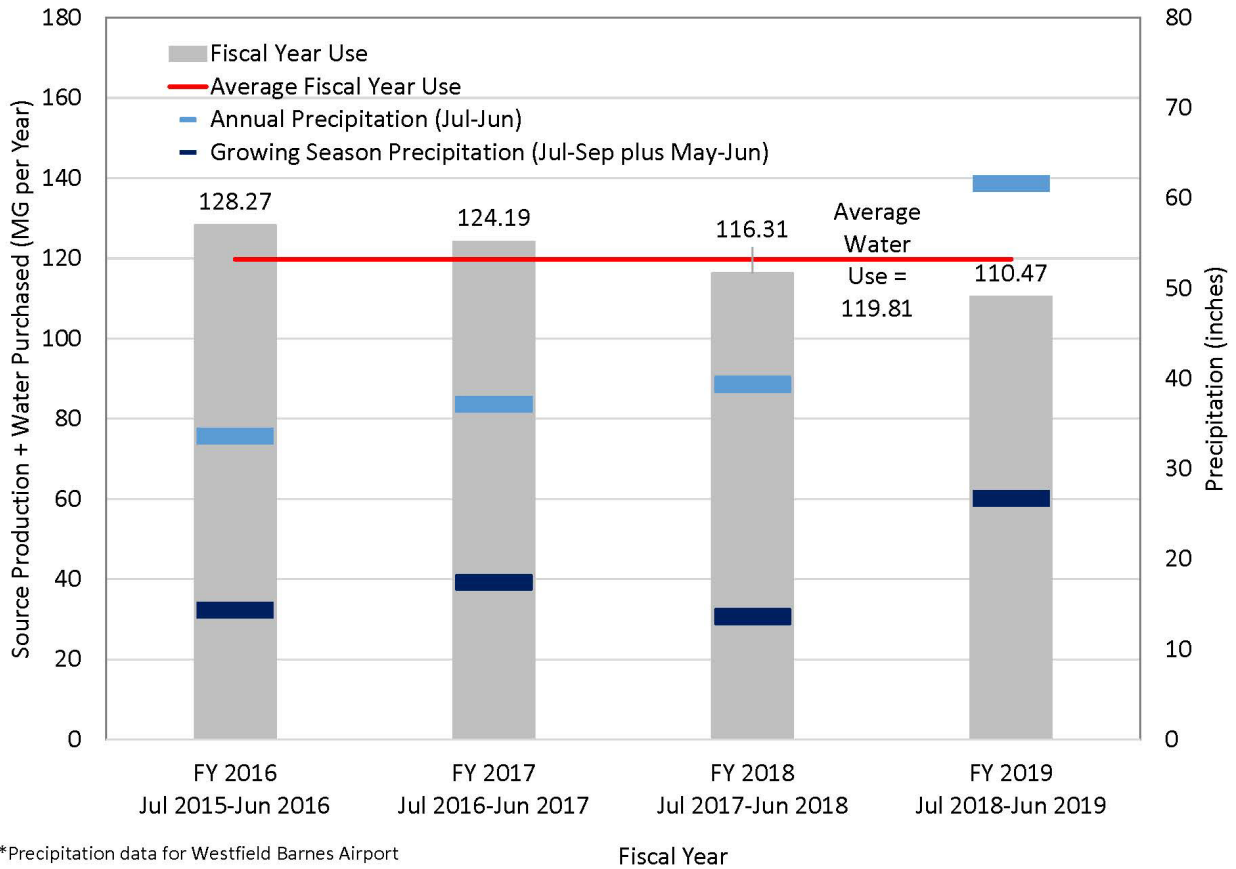
May 1st through September 30th) are also shown on this graph. Water use and precipitation are inversely proportional to each other. For years with lower precipitation, such as in 2016, the water use increases. For years with higher precipitation, such as in 2018, water use decreases.

Figure 4-1. Calendar Year Water Production



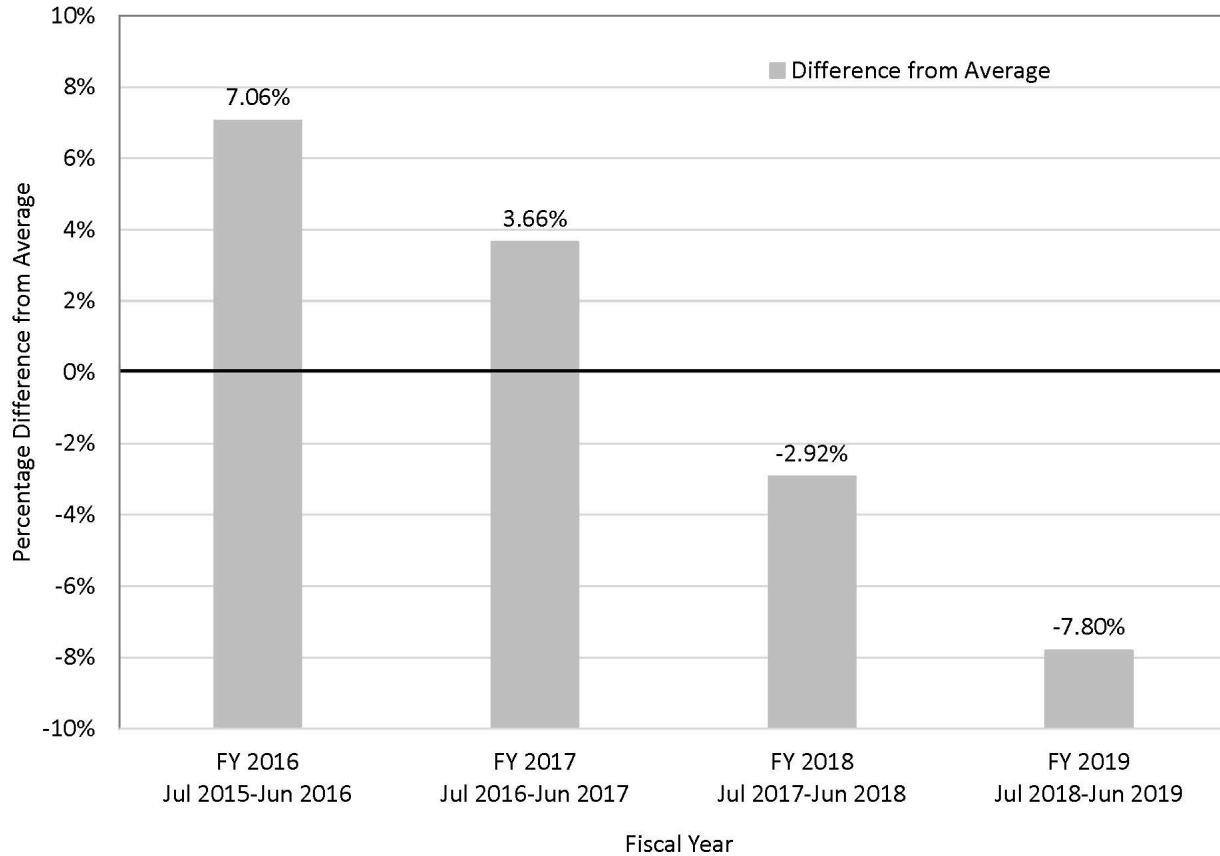
While tracking of the annual water production and use according to calendar year is necessary for MassDEP reporting, it is also necessary to examine the water use by fiscal year for more appropriate understanding on the revenue impacts. **Figure 4-2** shows the annual water production by fiscal year (FY) for the fiscal years 2016 through 2019 (total includes both water from the source and purchased). This figure shows that the dry period of calendar year 2016 impacted both FY 2016 and FY 2017. The more recent FY 2018 and FY 2019 resulted in decreased water production and use which will result in lower revenues. The precipitation occurring during the fiscal year (July 1st through June 30th) is shown as the annual precipitation. The precipitation occurring during the growing season is more complicated and was calculated as the precipitation occurring over the fiscal year during the period July 1st through September 30th plus the following calendar year period of May 1st through June 30th. The graph shows that years with higher precipitation result in lower water use and years with lower precipitation result in higher water use.

Figure 4-2. Fiscal Year Water Production



The potential impact to revenues that weather related consumption can have is a complicated issue. **Figure 4-3** presents the percent difference of the fiscal year production from the average of those four years. The variation ranges from about 7.8% less than average to 7% greater than average. This does not mean that revenues will be that same percentage less than or greater than the average but is meant to convey the magnitude in variation of weather related water use. This figure further emphasizes the need for revenue stability to account for the variation in water consumption.

Figure 4-3. Fiscal Year Water Production – Percent Difference from Average



4.3 Consumption Data and Rate Model

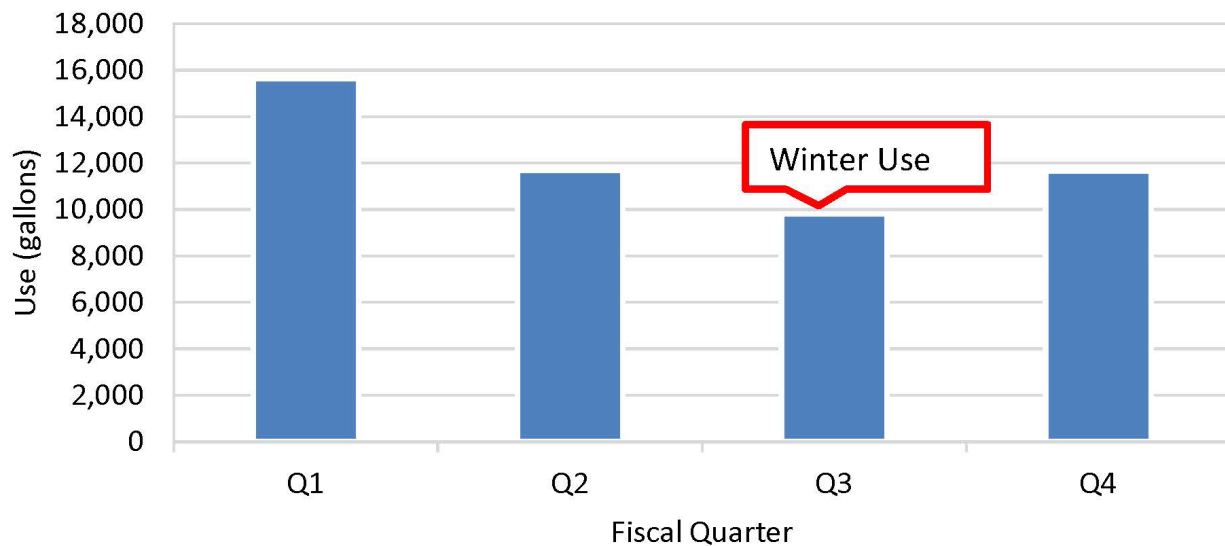
The Town changed to a new billing software mid-way through FY 2016. Consumption data for Quarters 3 and 4 of FY 2016 through Quarters 1 and 2 of FY 2020 was exported from the billing software to Excel for use in developing the rate model used for this study. Data including account number, billing name, meter read and use in gallons was provided for each account for each quarter. The data was reviewed, formatted and compared with the Use Reports provided to the Water Department. The rate model was then constructed using the current billing rates presented in **Section 3** to validate the data and calculations (the prior billing rates were used for Quarters 3 and 4 of FY 2016). The calculated billing totals per quarter were also compared with the Use Reports and the data validated within acceptable ranges. This provides a full three years of validated data for FY 2017, FY 2018 and FY 2019. As is shown in **Figure 4-3**, FY 2017 and 2018 are the years closest to average and the data for those years can be used to simulate alternate rate structures and resulting impact on revenues.

The minimum charge is often used as a way to achieve rate stability. The minimum charge is intended to include water use that corresponds to winter water demands, recognizing that this is the necessary water use. In the summer water use increases due to outdoor water uses such as for irrigation and pool filling which are considered to be non-essential water uses. The minimum charge is typically established to:

- (1) capture a defined percentage of the annual number of bills such as the median number of all single-family residential bills or
- (2) correspond to winter water demands which provide an indication of indoor water use considered to be essential use.

The quarterly data for FY 2017 and 2018 (years closest to average) was evaluated to determine the median use per quarter. The average of the medians for FY 2017 and 2018 was used to estimate the median use for each of the four quarters as shown in **Figure 4-4**. The figure shows that Quarter 3 has a median use of just under 10,000 gallons which would be considered the winter use or essential indoor use. Note that the Town’s current minimum charge provides for use up to 12,000 gallons which accommodates the median use for the off-season (winter) in Quarter 3 and border-seasons in Quarter 2 and Quarter 4. The peak growing season use occurs in Quarter 1 (July 1st through September 30th) during which the median use increases to nearly 16,000 gallons.

Figure 4-4. Median Use Based on Average Year



Prior to adjusting the current minimum charge consumption threshold, review of the number of accounts and potential impacts is required. **Figure 4-5** presents the number of accounts in each consumption block

for each quarter, this data is an average of the average years, FY 17 and FY 18. **Figure 4-6** presents this data for an alternate structure with lower consumption thresholds based on the median use. These two figures clarify the number of accounts that would be affected by decreasing the consumption thresholds. The model can be used to simulate different consumption thresholds and resulting impact on number of accounts and revenues.

Figure 4-5. Number of Accounts per Consumption Tier – Current Structure

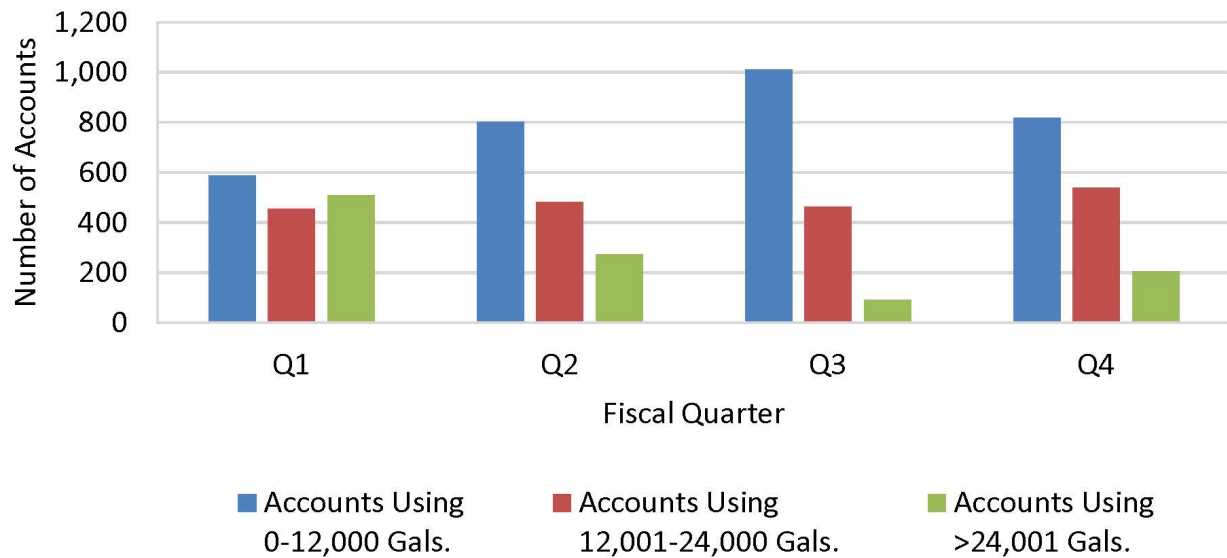
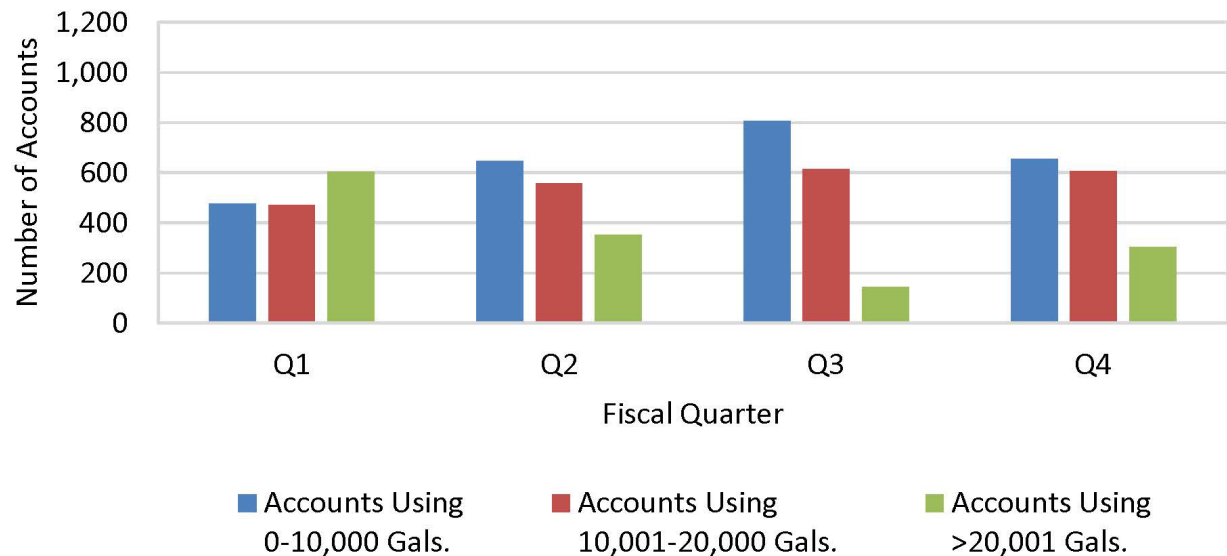


Figure 4-6. Number of Accounts per Consumption Tier – Alternate Structure with Lower Consumption Thresholds Based on Median Use



The model is also designed to estimate the revenues for different rates per tier or block. The user of the model can try out different rates for each tier and observe the estimated revenues for the average year. **Table 4-1** presents the scenarios evaluated for this rate study. The table shows the charge per tier, the use cutoffs for the first and second tiers, the average year total revenue and the increase in that revenue from the average year with the current rates. When reviewing the increase from the average year using the current rates it is important to remember that the annual budget is anticipated to increase by approximately \$80,000 when compared with the current budget for the five-year planning period. The average year revenues will need to increase proportionately to account for the increased budget. It is also important to consider the portion of revenues obtained from the minimum charge in addition to the total for the year. The portion from the minimum charge is a reliable base of the revenue while the use for Tier 2 and Tier 3 is variable depending on weather conditions. **Table 4-1** also presents the revenues estimated for each tier and the estimated increase from the revenues obtained from the current rates for the average year.

When reviewing **Table 4-1**, keep the following factors in mind:

1. Rates need to be sufficient to achieve at least an additional \$80,000 to the annual total for the average year.
2. Currently, the minimum charge represents about 40% of the total revenues obtained from rates, fees, etc. To maintain revenue stability, approximately 40% of the required \$80,000 increase or an additional \$32,000 should be obtained through increase to the minimum charge.
3. The revised rate structure must be a true increasing tier rate structure. Currently the minimum charge cost per 1,000 gallons (\$4.17 per 1,000 gal) is greater than the second tier cost per 1,000 gallons (\$4.00 per 1,000 gal).

Providing graphical representations of the data, **Figure 4-7** shows the increase in average year annual revenue as compared with current rates and **Figure 4-8** shows the increase in average year minimum charge as compared with the current rate.

Table 4-1. Summary of Rate Scenarios Tested

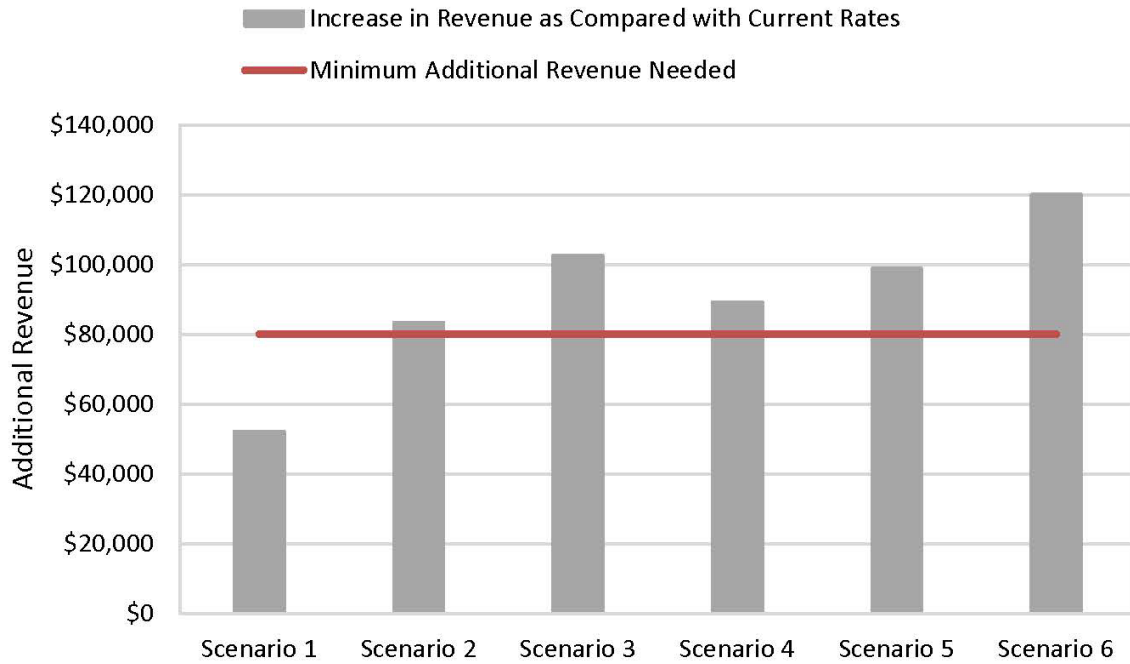
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Scenario	Tier 1 (Min) Charge	Tier 1 (Min) Use (Gal)	Tier 1 (Min) Rate per 1,000 gal	Tier 2 Charge Rate per 1,000 gal	Tier 2 Cutoff (Gal)	Tier 3 Charge Rate per 1,000 gal	Average Year Total Revenue	Increase from Average Year using Current Rates	Average Year Tier 1 (Min) Charge Total Revenue	Increase from Average Year using Current Rates	Average Year Tier 2 Charge Total Revenue	Increase from Average Year using Current Rates	Average Year Tier 3 Charge Total Revenue	Increase from Average Year using Current Rates
Current	\$50.00	12,000	\$4.17	\$4.00	24,000	\$7.00	\$665,600	--	\$310,000	--	\$86,200	--	\$268,200	--
Scenario 1	\$50.00	12,000	\$4.17	\$5.50	24,000	\$7.50	\$717,800	\$52,200	\$312,000	\$2,000	\$118,500	\$32,300	\$287,300	\$19,100
Scenario 2*	\$55.00	12,000	\$4.58	\$5.50	24,000	\$7.50	\$749,000	\$83,400	\$343,200	\$33,200	\$118,500	\$32,300	\$287,300	\$19,100
Scenario 3*	\$55.00	12,000	\$4.58	\$5.50	24,000	\$8.00	\$768,200	\$102,600	\$343,200	\$33,200	\$118,500	\$32,300	\$306,500	\$38,300
Scenario 4	\$45.00	10,000	\$4.50	\$5.50	20,000	\$8.00	\$754,900	\$89,300	\$280,800	-\$29,200	\$128,400	\$42,200	\$345,700	\$77,500
Scenario 5	\$50.00	10,000	\$5.00	\$5.50	20,000	\$7.50	\$764,500	\$98,900	\$312,000	\$2,000	\$128,400	\$42,200	\$324,100	\$55,900
Scenario 6*	\$55.00	10,000	\$5.50	\$6.00	20,000	\$7.00	\$785,700	\$120,100	\$343,200	\$33,200	\$140,000	\$53,800	\$302,500	\$34,300

*Scenarios 2, 3 and 6 are the revised rate structures that could:

1. Achieve at least an additional \$80,000 in annual total revenue for the average year.
2. Achieve at least an additional \$32,000 in the minimum charge to provide revenue stability.
3. Achieve an increasing tier rate structure.

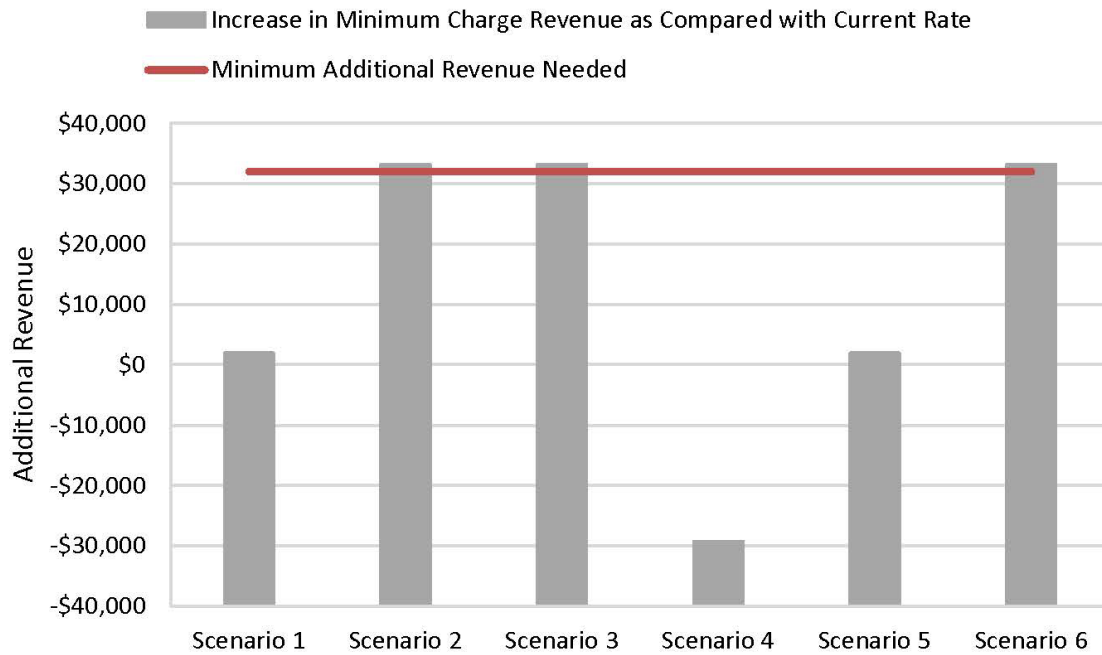
Refer to **Figures 4-7** and **4-8** for graphical representations of the above.

Figure 4-7. Increase in Average Year Annual Revenue as Compared with Current Rates



Note: Goal to achieve at least an additional \$80,000 in annual total revenue for the average year.

Figure 4-8. Increase in Average Year Minimum Charge as Compared with Current Rate



Note: Goal to achieve at least an additional \$32,000 in the minimum charge to provide revenue stability.

The following observations are offered:

1. Scenario 1. Maintaining the minimum charge at \$50.00 per 12,000 gallons and moderately increasing the Tier 2 and Tier 3 to \$5.50 and \$7.50 per 1,000 gallons respectively does not achieve the goal of \$80,000 additional revenue for the average year or the goal of \$32,000 additional from the minimum charge revenues. This scenario is not viable.
2. Scenario 2. Increasing the minimum charge to \$55.00 per 12,000 gallons and Tier 2 and Tier 3 to \$5.50 and \$7.50 per 1,000 gallons respectively achieves the goals of \$80,000 additional revenue with \$32,000 additional revenue from the minimum charge and providing an increasing tier rate structure. This rate structure just meets the minimum goals without providing much buffer to account for unforeseen circumstances.
3. Scenario 3. Increasing the minimum charge to \$55.00 per 12,000 gallons and Tier 2 and Tier 3 to \$5.50 and \$8.00 per 1,000 gallons respectively achieves the goals of \$80,000 additional revenue with \$32,000 additional revenue from the minimum charge and providing an increasing tier rate structure, however. Note that the total revenue increases by about \$100,000 for the average year which provides a small buffer when compared with revenues estimated for Scenario 2.
4. Scenario 4. A decrease in the charge for this tier to \$45.00 for 10,000 gallons, results in a decrease in revenues obtained from the minimum charge. The goals are to achieve at least \$80,000 additional to the total and \$32,000 additional from the minimum charge. This scenario is not viable.
5. Scenario 5. Maintaining the minimum charge of \$50.00 coupled with decreasing the tier cutoff to 10,000 gallons and Tier 2 and Tier 3 to \$5.50 and \$7.50 per 1,000 gallons respectively achieves the goals of \$80,000 additional revenue but the increase to the minimum charge is only \$2,000. This scenario is not viable.
6. Scenario 6. Increasing the minimum charge to \$55.00 per 10,000 gallons and Tier 2 and Tier 3 to \$6.00 and \$7.00 per 1,000 gallons respectively achieves the goals of \$80,000 additional revenue with \$32,000 additional revenue from the minimum charge and providing an increasing tier rate structure. However, this scenario would require decreasing the volume of use included in the minimum charge, shifting a greater amount of the cost burden to the lower water users which is not the intent with an increasing tier rate to encourage conservation of non-essential water consumption.

Based on this analysis Scenario 3 is the recommended revised rate structure to:

1. Achieve at least an additional \$80,000 in annual total revenue for the average year with a small buffer to provide for unforeseen circumstances.
2. Achieve at least an additional \$32,000 in the minimum charge to provide revenue stability.
3. Achieve an increasing tier rate structure.

4.4 Revenue from Other Fees

Water utilities obtain revenues from water usage rates and other fees which is industry standard practice. The primary principle is for the rates and fees to be based on costs incurred by the utility. The rates and fees must follow rate-making cornerstones including:

1. Compliance with legal authority
2. Rational basis of the rates adopted
3. Pricing principles used to determine revenue requirements
4. Rate methodology used in establishment of the rates and fees

For the Town, water charges and fees include the following:

- Water use charges
- New service connection and system development charge fees
- Meter replacement fees
- Fire demand and device fees
- Backflow prevention testing fees
- Hydrant use permit fees
- Final read fee
- Service turn off/on fee
- Frozen meter repair fee
- Meter tampering fee

The focus of this study was to provide a rational basis for the recommended revised water use rates. However, as part of this project the fees were generally reviewed and discussed. The Water Department reviewed its documentation in establishment of the other fees to verify a rational basis was followed in establishing these fees. The guidelines are that fees should be set such that they recover the designated

revenue requirements in proportion to the cost incurred and follow proper pricing theory. The methodology followed in establishing the fees must be documented and justifiable.

The Water Department had the new service connection fee reviewed in 2018 by Comprehensive Environmental Inc. This evaluation examined the depreciated value of the water system assets and adjusted to deduct outstanding debt (remaining principal balance on loans) to calculate the average net equity investment per standard service size. It was determined that the Town could justify a system connection or development charge (in addition to the actual costs of the service installation) of \$12,631.50 per 5/8-inch metered customer with larger meters assessed at a higher charge based on the ratio of the meter's maximum flow capacity relative to a standard 5/8-inch meter.

ResilientCE reviewed the fees with the Board of Water Commissioners and Superintendent with regards to current materials and labor costs. It was determined that many of the fees could remain unchanged. However, the new service connection fees required adjustment to account for increases in materials and labor costs. Additionally, the title of the fee was changed to "New Service Connection and System Development Charge" to account for the need for this fee to include both the costs of installation and impact on the system. The following are the revised fees amounts that resulted from this review:

- New Service Connection and System Development Charge
 - 1-inch service: Fee \$3,700
 - 1-1/2-inch service: Fee \$6,700
 - 2-inch and above services: Charge calculated based on Water Department Time, Materials, Expenses and Overhead, plus a capacity fee, plus system development charge based on maximum flow capacity

The 1-inch and 1-1/2-inch service lines include a system development charge of \$1,500. For service lines that are 2-inch and greater, the system development charge will be charged \$1,500 plus an addition cost multiplier determined by the ratio of the maximum flow capacity relative to a 5/8-inch meter flow capacity.

If the service size at the water main is to accommodate fire flow plus domestic water use, the multiplier will be based on the maximum flow capacity relative to the domestic water use meter.

A copy of the revised water consumption rates and fees is provided in **Appendix A**.

4.5 Impact to Water Bills

The impact to customer water bills depends on the water use for each quarter. For the average year use, the median customer uses less than 12,000 gallons for Quarters 2, 3 and 4 and uses about 15,625 gallons during Quarter 1. The median customer water use during the average year and estimated water bill for the recommended rate adjustments are shown in **Table 4-2**.

Table 4-2. Estimated Median Use Water Bill

Quarter	Average Year Median Customer Use (gal)	Current Use Rates (established in 2016)	Scenario 3 Use Rates
Quarter 1	15,625	\$64.50	\$74.94
Quarter 2	11,700	\$50.00	\$55.00
Quarter 3	9,825	\$50.00	\$55.00
Quarter 4	11,650	\$50.00	\$55.00
TOTAL	48,800	\$214.50	\$239.94

Customers with a median use rate will experience an increase in the annual cost of water by about \$25.44 or 12% when compared with the current rates. Since rates have remained unchanged since 2016, this increase averages about 3% per year since the time of the prior rate adjustment.

4.6 Annual Percentage Increases

Water utilities are encouraged to implement annual percentage increase to water rates commensurate with increases in material and labor costs. This practice is implemented by other utility providers as a means to maintain the revenue-cost balance. Historically, the Water Department increased rates in large amounts after holding the rates steady for several years. It is recommended that the Water Department increase rates annually by a minimum of 3% each year to account for material and labor cost increases. The amount of increase should be evaluated each year to verify that the 3% increase will be appropriate to cover those costs.

4.7 Summary and Recommendations

This rate study presents a rational basis for establishing a rate increase from the current rates commensurate with pending budget increases. This study was completed in accordance with industry standards. Based on this analysis Scenario 3 is the recommended revised rate structure as summarized in **Table 4-3**.

Table 4-3. Current and Recommended Rate Structures for Water Consumption

Consumption amount	Current Rate	Recommended Rate
0 – 12,000 gallons	\$50.00 (minimum charge)	\$55.00 (minimum charge)
12,001 – 24,000 gallons	\$4.00 per 1,000 gallons	\$5.50 per 1,000 gallons
Greater than 24,001 gallons	\$7.00 per 1,000 gallons	\$8.00 per 1,000 gallons

Adoption of the recommended rate increase will meet the goals to:

1. Achieve at least an additional \$80,000 in annual total revenue for the average year with a small buffer to provide for unforeseen circumstances.
2. Achieve at least an additional \$32,000 in the minimum charge to provide revenue stability.
3. Achieve an increasing tier rate structure.

This study was completed with a five-year planning period to consider near-term financial planning. Planning periods beyond five years are considered speculative and yield questionable results. The rates must be re-evaluated in five years. The Town should assess the results of this study annually to incorporate changed conditions. As recommended, the Water Department should increase rates annually by a minimum of 3% each year to account for material and labor cost increases. The amount of increase should be evaluated each year to verify that the 3% increase will be appropriate to cover those costs.

Appendix A
Revised Water Rate and Fee Structure
Modifications



TOWN OF SOUTHAMPTON
 Southamptn, Massachusetts 01073

BOARD OF WATER COMMISSIONERS

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watersuper@townofsouthampton.org

Commissioners
 Matthew N. Christy
 James Walunas
 Joseph Slattery

Thomas Gaughan, Superintendent

The Board of Water Commissioners voted to modify the existing rate and fee structure for water use and Water Department services starting with third billing quarter of Fiscal Year 2021 (January - March) billing period. The adopted increases are based on a Water Rate and Fee Study conducted in 2020 which forecasted the financial obligations, water consumption (water demand), and capital needs to maintain the system. Copies of the study are available at www.townofsouthampton.org.

Water Rate and Fee Structures Modifications

Quarterly Fees

Water Consumption Fees

<u>Consumption</u>	<u>Fee</u>
0-12,000 gallons:	\$55.00
12,001-24,000 gallons:	\$5.50/1,000 gallons
Greater than 24,001 gallons	\$8.00/1,000 gallons

Meter Replacement Fee

<u>Meter Size</u>	<u>Fee/quarterly billing</u>
5/8 inch	\$8.00 (most residential accounts)
1 inch	\$9.65
1½ inch	\$15.52
2 inch or greater	\$17.21

Annual Fees

(If fire protection equipment is present)

Fire Demand(Cumulative if more than one fire protection service line is required)

<u>Size of Service</u>	<u>Fee</u>
Less Than 2 inch	\$200
2 inch	\$400
4 inch	\$600
6 inch	\$800

Backflow Prevention Testing

<u>Device</u>	<u>Fee</u>
Reduced Pressure (Twice/Year)	\$130.00
Double Check Valve (Once/Year)	\$80.00
Installation Permit Per Device	\$50.00

Miscellaneous Fees

The following fees shall apply as needed and to be paid in full at the time of requested service:

New Service Connection and System Development Charge

<u>Size of Service</u>	<u>Fee</u>
1 inch	\$3,700
1½inch	\$6,700
2 inch & above	Charge calculated based on Water Department Time, Materials, Expenses and Overhead, plus a capacity fee, plus system development charge based on maximum flow capacity

Hydrant Use Permit

Fee Per Occasion	\$150.00
Water Consumption per 1,000 Gallons	\$8.00
Private Hydrant flushing & Inspection Fee (per hydrant)	\$100.00

Other

Final Reading:	\$100.00 + water usage
Service Turn Off/On:	\$100.00 (\$200.00 after hours)
Frozen Meter Repair:	\$100.00 (\$200.00 after hours)
Meter Tampering	\$150.00

NOTE: The Water Department reserves the right to bill for services requested on an Expenses, Time, & Materials basis for those services not listed.