

Technical Report

CITY OF NASSAU BAY

COST OF SERVICE AND RATE DESIGN STUDY

MAY 24, 2018

Nelisa Heddin Consulting, LLC
P.O. Box 341855
Lakeway, TX 78734
(512) 589-1028
nheddin@nelisaheddinconsulting.com



COST OF SERVICE ANALYSIS

Nelisa Heddin Consulting, LLC (NH Consulting) is pleased to present the City of Nassau Bay (City) with the results of an update of a cost of service and rate design study performed for the City's water and wastewater utility.

The City retained NH Consulting to perform a cost of service and rate design study for the City's water and wastewater utility. The study's intent is to achieve a water and wastewater rate structure that will assure equitable and adequate revenues for operations, debt service retirement, capital improvements and bond covenant requirements. Therefore ensuring the utility operates on a self-sustaining basis while considering the economic impact on the City's customers.

The project team has worked closely with City staff to develop revenue requirements and determine the cost of providing service to each of the City's customers. The project team identified that in order to meet future revenue requirements, the City needs to implement future water and wastewater rate increases. The analysis examined revenue requirements for a five-year study period, FYE2018-FYE2022 and recommended rates sufficient to meet revenue requirements for the five-year study period. The recommended rates are outlined in Tables 1 through 3.

Executive Summary





Table 1: Recommended Water Rates, Minimum Bill

Water Base Fee	Current	2018	2019	2020	2021	2022
Fee per Apartment Unit	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
All Other Customer Classes						
5/8" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
3/4" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
1" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
1 1/2" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$17.25
2" Meter	\$14.00	\$14.00	\$15.75	\$15.91	\$16.07	\$27.79
3" Meter	\$14.00	\$18.96	\$59.74	\$60.34	\$60.96	\$105.41
4" Meter or Greater	\$14.00	\$24.14	\$76.04	\$76.80	\$77.59	\$134.16

Table 2: Recommended Water Rates, Volumetric Rate

Water Volumetric Rate	Current	2018	2019	2020	2021	2022
<u>Residential</u>						
0-5000	\$2.40	\$2.40	\$2.50	\$2.61	\$2.71	\$2.81
5001-10000	\$2.40	\$2.40	\$2.63	\$2.86	\$3.08	\$3.31
10001-15000	\$2.40	\$2.40	\$2.75	\$3.11	\$3.46	\$3.81
15,001-20,000	\$2.60	\$2.60	\$3.03	\$3.46	\$3.88	\$4.31
20,001 and above	\$2.60- \$2.65	\$3.10	\$3.53	\$3.96	\$4.38	\$4.81
<u>Commercial/Government</u>	\$2.40- 2.65	\$3.07	\$3.50	\$3.60	\$3.70	\$4.13
<u>Multi-Family</u>	\$2.40	\$2.40	\$2.50	\$2.61	\$2.71	\$2.81

Table 3: Recommended Wastewater Rates

Wastewater	Current	2018	2019	2020	2021	2022
Base Fee	\$14.00	\$14.00	\$14.75	\$15.49	\$16.24	\$16.98
Volumetric Fee	\$2.50 - \$2.75	\$2.57	\$2.66	\$2.76	\$2.86	\$2.95

COST OF SERVICE ANALYSIS

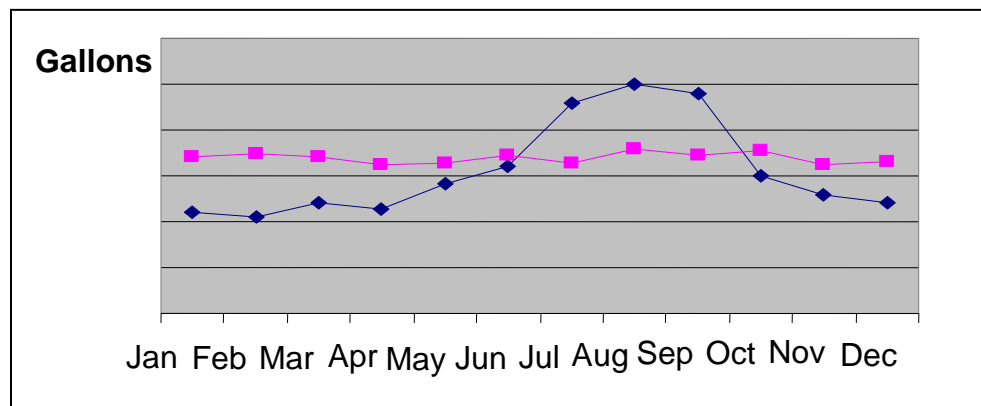
RATE SETTING THEORY

The American Water Works Association (AWWA) sets forth a methodology for rate setting based on cost-of-service principles. The premise of this methodology is to require users to pay the cost incurred by the utility to provide that user with water service.

The water utility infrastructure is created to meet times of peak demand. Although on an annual basis, the average usage of water is at a lower level, the system must meet times of peak usage, such as irrigation in summer months or early mornings when residents are showering, doing laundry and washing dishes. Chapter 290 of the Texas Administrative Code outlines strict guidelines that the water utility must abide by while providing retail water services. These guidelines outline specific requirements for items such as minimal system capacities, to meet these times of peak usage. Thus, the water utility must maintain the infrastructure to meet these requirements. To determine the utilities capacity requirements, one must factor in the number of connections served, the size of each connection, in addition to the usage patterns of those customers. Therefore, even though the utility may have average usage at a certain level, it must have the capacity to serve customers at a greater level in order to meet peaking demands.

Different customer classes utilize water in different manners, thus putting different strains on the utility. Examination of the utility's customer classes while applying a cost-of-service methodology recommended by the AWWA reveals the usage pattern of each class. Figure 1 exhibits different usage patterns for two different types of customers.

Figure 1: Usage Patterns





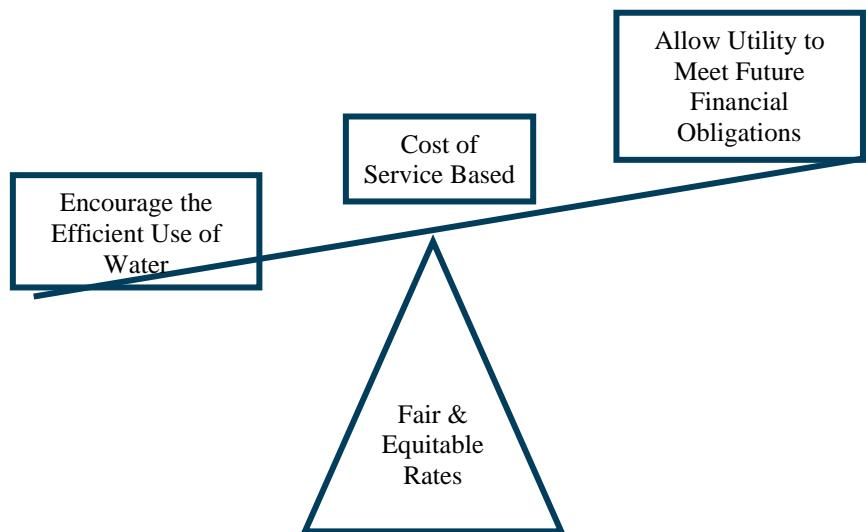
The customers represented by a blue line in Figure 1 show a dramatic peaking pattern in summer months. This peak pattern commonly occurs with customers who, for example irrigate during the summer. The customers represented by a pink line show very little deviation in their month-to-month usage. An example of a customer using water in this manner may be a commercial customer who uses water in a consistent pattern year round.

According to the AWWA, “A water utility is required to supply water in total amounts and at such rates of use desired by the customer. A utility incurs costs in relationship to the various expenditure requirements caused by meeting those customer demands. Since the needs for total volume of supply and peak rates of use vary among customers, the costs to the utility of providing service also vary among customers or classes of customers.” In other words, there are significant cost implications to the ability a utility system must have to meet peaking patterns.

The blue-line customer in Figure 1 has a higher peak to average ratio of water usage. Whereas the pink-line customer has a lower peak to average ratio, even though the total volume used is greater for this customer class. In this example, the utility has to maintain a total system capacity to serve the maximum (or peak) usage of all customers, even though the blue-line customer uses a peak amount of water for 3-months out of the year. There is a significant cost implication to this irregular usage pattern. The rates charged to customers should reflect this cost differential.

RATE DESIGN GENERAL COMPONENTS

During rate analysis, the primary consideration is to determine rates that are fair and equitable among all customers. Rates should recover the cost associated with providing service to each customer from that particular customer. Determining rates that fully achieve this goal involves a detailed analysis of each individual customer's consumption pattern. Since this is an impractical feat for most utility systems, a typical rate design establishment fits average conditions for groups of customers having similar service requirements. When grouping customer classes, one divides customers that utilize water in a similar pattern (such as residential, commercial, apartments and irrigation). Then, analysis of historical usage patterns for each customer grouping and assignment of costs accordingly.



The AWWA emphasizes, “Departure from rates based on cost of service is generally a decision made for political, legal or other reasons. Consideration of rates deviating from cost of service, therefore, is made by politicians, not the rate designer.” In addition, the AWWA states that “when a deviation from cost-related rates is made, the reason for such modification should be explicitly understood so that the responsibility for such deviation is placed on legal and policy-making factors, and the public is not misled into believing that the resulting rates are fully cost-related when they are not.”

It is important to consider when designing and implementing a new rate structure that, while the goal is to get as close as possible to cost of service based rates, with respect for each City's own political environment.

RATE COMPONENTS

Typically, billing of water services are in a structure that consists of a minimum bill and a volumetric component. The intention of the minimum bill is to recover the basic costs associated with providing service to the customer, regardless of the volume of the water utilized. The bill structure usually recovers a high percentage of the utility's fixed costs to ensure the utility some degree of revenue stability. Minimum bills are a fixed monthly fee. The second component of the rates is a volumetric charge. This charge is based on the amount of water utilized by the customer, and may fluctuate based on actual usage.

Minimum Bill

The AWWA provides guidelines for the determination of the minimum bill on a cost basis. Many utilities set their minimum bill based on policy initiatives. The utility may want to use the minimum charge to guarantee a certain percentage of revenue. Another strategy in setting a minimum bill involves providing lifeline rates for customers, where the customer receives a certain amount of water included in the base charge fee. This allows the customer a higher degree of control over their water bill.

There are two (2) primary options available regarding the structure of the minimum bill:

Meter Size – As previously described, the utility is obligated under State Law to maintain system capacity based on the number and size of connections the utility serves. The reasoning is that the larger the meter a customer has, the greater the ability to place a larger demand on the system. Thus, regardless of the amount of water that a customer actually uses, the utility is still required to maintain the capacity to serve that customer based on their meter size.

Accordingly, a minimum bill based on meter size, in which the larger the meter, the higher the bill, recovers the cost the utility incurs due to the potential increased demand placed on the system by that particular customer. The AWWA provides “meter size equivalency factors,” a scale of factors are applied to the base charge for a $\frac{5}{8}$ inch connection to determine the minimum that should be charged to larger connections.

NH Consulting recommends the City convert to billing on this basis.

Equalized Minimum Bill – The alternative minimum bill structure would be an equalized minimum bill in which all customers pay the same fee, regardless of meter size. This very simple fee structure is easy to understand by the utility’s customers. In addition, most billing systems are able to accommodate this fee structure. However, it may not be equitable among the utility’s customers, depending on that particular utility’s customer base.

Volumetric Rate

The second component of the fee structure is the volumetric rate. The basis for the volumetric fees is the actual volume of water each customer uses each month. The volumetric rates usually recover the variable costs associated with providing water to the utility’s customers as well as a portion of fixed costs. Utilities also use volumetric rates as a pricing signal to encourage the efficient usage of water. Below are some volumetric rate design options for consideration.

Customer Class – As previously described, different classes of customers utilize water in different ways. Some customers use large amounts of water seasonally for irrigation, while other customers’ monthly water use varies only slightly. There is a significant cost implication to different water usage patterns. Those customers who use water irregularly throughout the year, such as those who irrigate, cause the utility’s water system to have a higher peaking than those customers who use a consistent amount of water monthly. A case can be made that utilities should classify customers into like groupings (such as residential, commercial, apartments and



irrigation) and charge those customers different rates based on their relative usage patterns. The AWWA has outlined a methodology for determining these rates called the Base-Extra Capacity methodology. The basic premise of this methodology is to isolate usage patterns based on customer classifications and allocate costs to those customers based on peaking patterns. While this is a complex task, it is arguably the most equitable means of charging customers for water usage.

The drawback to this methodology is that it is a slightly more complex fee structure that some customers may have difficulty understanding. Prior to implementation, the utility's billing system requires examination to ensure that it is capable of charging customers based on this structure.

Equalized Rate – An alternative to varying volumetric rates based on customer class is to charge all customers the same volumetric rate. This is appropriate for utilities that have a relatively homogenous customer base in which most customers use water in a similar pattern. This rate structure is easy for customers to understand, and usually most billing systems can accommodate equalized rates. The industry recommends that each utility examine its customer base to determine if it is a homogenous group of customers, or if there are customers who use water in different patterns. If the latter is the case, then equalized rates may not be equitable to some customer classifications.

WATER PRODUCTION

In 2017, the City produced approximately 302 million gallons of water, with a peak day production of 1.271 MG.

Table 4: Historical Water Production (Gallons)

Water	2015	2016	2017
Total Production	312,921,000	312,538,000	302,310,000
Average Daily Demand	857,318	856,268	828,247
Peak Day Demand	2,037,000	1,610,000	1,271,000
Peak to Average Ratio	2.376	1.880	1.535

As emphasized in the previous section, there is a direct correlation between a system's production and peaking patterns and the system's costs. The City's peak to average ratio, as determined by dividing maximum daily production by the average daily production, was 1.535:1 for 2017.

WATER CONSUMPTION

As of December 2017, the City provides water services to 1,384 retail, potable water customers. The City meters all active potable water connections. Annual metered water consumption was approximately 277 million gallons in 2017.

Table 5: Historical Water Consumption and Customer Count

Year	Customer Count	Consumption (00's Gal)
2015	1,384	265,301,000
2016	1,373	280,087,000
2017	1,373	276,843,000





WORK PLAN

In determining water rates, NH Consulting relies upon a methodology described by the American Water Works Association called the Base-Extra Capacity methodology. This methodology approximates the cost associated with serving various classifications of customers.

Essentially, the methodology utilizes a five-step approach:

- Step 1: Revenue Requirement Determination
- Step 2: Cost Functionalization
- Step 3: Customer Cost Allocation
- Step 4: Customer Count and Billing Unit Determination
- Step 5: Rate Design

NH Consulting has performed each of these steps in coordination with City staff. The next sections describe each step along with the results.

STEP 1: REVENUE REQUIREMENT DETERMINATION

BASE YEAR REVENUE REQUIREMENT

WATER FUND

To account for the water utility operations, the City has an Enterprise Fund that accounts for water operational revenues and expenditures. To determine the water utility revenue requirements, NH Consulting relied on the City's budgeted and historical actual expenditures within the Water Enterprise Fund as a starting point.

SYSTEM EXPENDITURES

A base year estimate of costs helps to determine the City's future revenue requirements. This cost estimate is reflective of the normal operation of the water utility, and adjusted for known and measurable changes into the future. NH Consulting used the FYE2018 budget as the Test Year for the revenue requirement phase of the study. A comparison of the budget to the audited financial statements FYE2014, FYE2015, FYE2016 and estimated FYE2017 shows that the FYE2018 Budget provides a conservative estimate of the revenues and expenses associated with the operation of the water utility.

REVENUE OFFSETS

In order to isolate the revenues required by rates from all customers, it was necessary to capture all revenue offsets and remove the corresponding dollar amount from the gross revenue requirement to determine the net revenue requirement. Revenue offsets are items such as late fees and interest income that offset the City's expense.



BASE YEAR REVENUE REQUIREMENT

The base year total revenue requirement determined by the project team for the water utility for FYE 2018 was \$975,072

FIVE-YEAR REVENUE REQUIREMENT

INFLATION

NH Consulting accounted for inflationary influences on annual expenditures by applying a 3% annual inflation rate for most expenditure categories in developing the five-year revenue requirement.

VARIABLE COSTS

Water purchases, chemicals, and electricity expense was determined using a variable cost analysis. NH Consulting determined the actual cost per thousand gallons for the previous year, and applied that cost, plus inflation, to projected water production in the future.

CAPITAL IMPROVEMENT FUNDING

The analysis assumes the issuance of debt in FYE2019 and FYE2022 to fund future capital projects.

REVENUE OFFSETS

Revenue-offset projections remained constant throughout the study period, for the benefit of conservative estimations.

FIVE-YEAR REVENUE REQUIREMENT

Table 6 outlines the five-year revenue requirement for the Water Utility. Schedule 1 shows each line item with details.

Table 6: Water Utility Five-Year Revenue Requirement.

	2018	2019	2020	2021	2022
Revenue Requirements	\$975,072	\$1,127,368	\$1,157,778	\$1,189,100	\$1,355,183



STEP 2: COST FUNCTIONALIZATION

BACKGROUND ON COST FUNCTIONALIZATION

The American Water Works Association (“AWWA”) and the Texas Commission on Environmental Quality (“TCEQ”) have accepted the base-extra capacity methodology and it is commonly used in the water utility industry. This is a methodology of functionalization, allocating costs to service functions, and distributing costs to customer classes. It recognizes the differences in the cost of providing service due to variations in average rate of use and peak rate of use by a customer class. This method also distinguishes the effects of system diversity on costs. Generally, the three components of costs include:

- Base Costs
- Extra-Capacity Costs
- Customer Billing Costs

Base costs fluctuate with the total amount of water taken under average operating conditions. Extra-capacity costs are those costs incurred that are above the average operating conditions and are necessary to support peaking conditions. Customer billing costs are those costs associated with serving customers, such as meter reading and billing.

COST FUNCTIONALIZATION ANALYSIS

The project team thoroughly analyzed The City’s cost structure and functionalized the costs into appropriate categories. Table 7 presents the cost functionalization for the three-year study period.

Table 7: Cost Functionalization.

	2018	2019	2020	2021	2022
Base Costs	\$598,991	\$682,407	\$701,072	\$720,297	\$811,270
Extra-Capacity Costs	318,157	385,258	395,172	405,383	478,550
Customer Costs	57,924	59,702	61,533	63,420	65,363
Total	\$975,072	\$1,127,368	\$1,157,778	\$1,189,100	\$1,355,183



STEP 3: CUSTOMER COST ALLOCATION

CUSTOMER COST ALLOCATION BACKGROUND

The establishment of customer classes is important in setting equitable rates, so that costs designated for each class are appropriate. A customer class should include only those customers who:

- a. Are in similar location in relation to the utility;
- b. Use the same or similar facilities of the utility;
- c. Receive similar service from the utility;
- d. Place similar demands on the utility.

The objective of the distribution of costs to customer groups is to avoid cross-subsidization (inequities between customer classes). With this objective in mind, it is imperative to weigh all differences in service commitment and service requirements when determining the customer classes.

Once all appropriate customer classifications have been determined, the next step is to analyze usage patterns for each customer class. Usage analysis includes evaluating the average and peak usage for each customer class. Finally, the cost allocation to customer classes, based on relative usage patterns, is completed.

In analyzing the City's customers and historical use, NH Consulting recommends the City continue to utilize the customer class categories of residential, commercial and apartment.



STEP 4: CUSTOMER GROWTH AND BILLING UNITS

CUSTOMER GROWTH

Population projections for a City should reasonably reflect anticipated future conditions within the City. NH Consulting worked closely with City staff to make projections of future growth within the City.

Table 8: Projected Customer Count¹.

	2018	2019	2020	2021	2022
Total Customer Count	1,373	1,373	1,373	1,373	1,373

BILLING UNIT PROJECTION

To anticipate usage for each customer classification requires an examination of historical billing units, also known as water consumption, to find the “normal” pattern for each class. Through a “normalized” average usage, per connection, per month, then multiplying the usage by the projected customer count, results in the estimated billing units and consumption. NH Consulting reviewed the water consumption data for each customer class for the three years prior to 2017.

Table 9: Projected Water Consumption (Gallons).

	2018	2019	2020	2021	2022
Annual Consumption	260,618,899	260,618,899	260,618,899	260,618,899	260,618,899

STEP 5: RATE DESIGN

There are many different rate design options regarding water rate development, however, the goal is to provide a fair and equitable rate for all customer classes, mitigate “rate-shock” on the City’s customers and allow for the water utility to operate and remain self sufficient.

¹ Customer meter count. Does not include multi-family “apartment units.”



MINIMUM BILL

NH Consulting recommends that the City continue to bill water customers a minimum base charge which is based upon meter size. The recommended minimum bill for each customer class is outlined on Table 10 below.

VOLUMETRIC RATE

The volumetric rates for the City have been designed to recover revenue requirements not otherwise recovered through the base charge. The recommended volumetric rates are outlined on Table 11.

Table 10: Recommended Water Rates, Minimum Bill

Water Base Fee	Current	2018	2019	2020	2021	2022
Fee per Apartment Unit	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
All Other Customer Classes						
5/8" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
3/4" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
1" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
1 1/2" Meter	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$17.25
2" Meter	\$14.00	\$14.00	\$15.75	\$15.91	\$16.07	\$27.79
3" Meter	\$14.00	\$18.96	\$59.74	\$60.34	\$60.96	\$105.41
4" Meter or Greater	\$14.00	\$24.14	\$76.04	\$76.80	\$77.59	\$134.16

Table 11: Recommended Water Rates, Volumetric Rates

Water Volumetric Rate	Current	2018	2019	2020	2021	2022
Residential						
0-5000	\$2.40	\$2.40	\$2.50	\$2.61	\$2.71	\$2.81
5001-10000	\$2.40	\$2.40	\$2.63	\$2.86	\$3.08	\$3.31
10001-15000	\$2.40	\$2.40	\$2.75	\$3.11	\$3.46	\$3.81
15,001-20,000	\$2.60	\$2.60	\$3.03	\$3.46	\$3.88	\$4.31
20,001 and above	\$2.60- \$2.65	\$3.10	\$3.53	\$3.96	\$4.38	\$4.81
Commercial/Government	\$2.40- 2.65	\$3.07	\$3.50	\$3.60	\$3.70	\$4.13
Multi-Family	\$2.40	\$2.40	\$2.50	\$2.61	\$2.71	\$2.81

WASTEWATER SYSTEM

As of December 2017, the City had 1,281 wastewater connections. As wastewater is not typically metered, and for many residential customers, a portion of their water use is for outdoor irrigation purposes, their water use is not necessarily representative of what is coming back to the system as wastewater. As a result, it is necessary to employ a methodology for reasonably estimating wastewater use based on water consumption for residential customers.

For residential customers, a winter averaging methodology was utilized for estimating residential wastewater use.

Generally commercial customers are not irrigating, thus, their water use also comes back to the system as wastewater. For that reason, commercial customer billing uses water consumption as a foundation for wastewater billing.



WORK PLAN

The determination of wastewater rates is somewhat simpler as the wastewater utility is not subject to the same influences of peaking as the water utility.

NH Consulting utilized a three-step approach to determining the wastewater rates:

- Step 1: Revenue Requirement Determination
- Step 2: Customer Count and Billing Unit Determination
- Step 3: Rate Design

NH Consulting has performed each of these steps in coordination with City staff; below shows the description and results of each step.

STEP 1: REVENUE REQUIREMENT DETERMINATION

BASE YEAR REVENUE REQUIREMENT

WASTEWATER FUND

To account for the wastewater utility operations, the City has an Enterprise Fund that accounts for wastewater operational revenues and expenditures. NH Consulting relied on the City's budgeted and historical actual expenditures within the Enterprise Fund as a starting point for the determination of the Wastewater Utility Revenue Requirements.

SYSTEM EXPENDITURES

A base year estimate of costs helps to determine the City's future revenue requirements. This cost estimate is reflective of the normal operation of the water utility, and adjusted for known and measurable changes into the future. NH Consulting used the FYE2018 budget as the Test Year for the revenue requirement phase of the study. A comparison of the budget to the audited financial statements FYE2014, FYE2015, FYE2016 and estimated FYE2017 shows that the FYE2018 Budget provides a conservative estimate of the revenues and expenses associated with the operation of the wastewater utility.

REVENUE OFFSETS

In order to isolate the revenues required by rates from all customers, it was necessary to capture all revenue offsets and remove the corresponding dollar amount from the gross revenue requirement to determine the net revenue requirement. Revenue offsets are items such as late fees and interest income that offset the City's expense.

BASE YEAR REVENUE REQUIREMENT

The base year total revenue requirement determined by the project team for the wastewater utility for FYE 2018 was \$1,046,650.



FIVE-YEAR REVENUE REQUIREMENT

INFLATION

NH Consulting accounted for inflationary influences on annual expenditures by applying a 3% annual inflation rate for most expenditure categories in developing the five-year revenue requirement.

VARIABLE COSTS

Wastewater treatment costs were determined using a variable cost analysis. NH Consulting determined the actual cost per thousand gallons for the previous year, and applied that cost, plus inflation, to projected wastewater use in the future.

CAPITAL IMPROVEMENT FUNDING

The analysis assumes the issuance of debt in FYE2019 and FYE2022 to fund future capital projects.

REVENUE OFFSETS

Revenue-offset projections remained constant throughout the study period, for the benefit of conservative estimations.

FIVE-YEAR REVENUE REQUIREMENT

Table 12 outlines the five-year revenue requirement for the Wastewater Utility. The details of each line item are in Schedule 2.

Table 12: Wastewater Utility Five-Year Revenue Requirement.

	2018	2019	2020	2021	2022
Revenue Requirements	\$1,046,650	\$1,145,890	\$1,149,744	\$1,153,158	\$1,230,081

STEP 2: CUSTOMER GROWTH AND BILLING UNITS

CUSTOMER GROWTH

The project team worked with City staff to develop reasonable growth projections for the wastewater utility.



Table 13: Wastewater Customer Count Projection.

	2018	2019	2020	2021	2022
Total Customer Count	1,296	1,296	1,296	1,296	1,296

BILLING UNIT PROJECTION

To anticipate usage for each customer classification requires an examination of historical billing units, also known as water consumption, to find the “normal” pattern for each class. Through a “normalized” average usage, per connection, per month, then multiplying the usage by the projected customer count, results in the estimated billing units and consumption. Table 14 presents wastewater billing projections.

Table 14: Wastewater Usage (Gallons)

	2018	2019	2020	2021	2022
Wastewater Billing Projection	246,373,836	246,373,836	246,373,836	246,373,836	246,373,836

STEP 3: DETERMINATION OF WASTEWATER RATES

The recommended wastewater rates are presented on Table 15 below.

Table 15: Recommended Wastewater Rates

Wastewater	Current	2018	2019	2020	2021	2022
Base Fee	\$14.00	\$14.00	\$14.75	\$15.49	\$16.24	\$16.98
Volumetric Fee	\$2.50 - \$2.75	\$2.57	\$2.66	\$2.76	\$2.86	\$2.95

Nassau Bay
Water and Wastewater
Cost of Service and Rate Design Study



Schedule 1
Water Five-Year Revenue Requirement

	2018	2019	2020	2021	2022	Inflation	Notes
Expenses							
General & Administrative							
Dues , Fees & Subscriptions	\$ 197	\$ 203	\$ 209	\$ 215	\$ 221	3%	
Printing - Documents/Forms	246	253	261	269	277	3%	
Credit Card Program	7,993	8,232	8,479	8,734	8,996	3%	
License & Permit Fees	8,848	9,114	9,387	9,669	9,959	3%	
Contract Services - Engineering	7,500	7,725	7,957	8,195	8,441	3%	
Maintenance - Facilities	2,000	2,060	2,122	2,185	2,251	3%	
Maintenance - Vehicles	2,750	2,833	2,917	3,005	3,095	3%	
Supplies - Postage	10,990	11,320	11,659	12,009	12,369	3%	
Supplies - Uniforms	737	759	782	806	830	3%	
Supplies - Building	98	101	104	107	111	3%	
Supplies - Gas & Oil	1,966	2,025	2,086	2,149	2,213	3%	
Wages - On Call Duty Pay	3,171	3,266	3,364	3,465	3,569	3%	
Wages	336,310	346,399	356,791	367,495	378,520	3%	
Overtime	11,050	11,382	11,723	12,075	12,437	3%	
Accrued Vacation & Sick	-	-	-	-	-	3%	
Social Security	27,080	27,893	28,730	29,591	30,479	3%	
Phone Allowance	1,180	1,215	1,252	1,289	1,328	3%	
Insurance - General	17,868	18,404	18,957	19,525	20,111	3%	
Insurance - Medical & Dental	80,917	83,344	85,844	88,420	91,072	3%	
Insurance - Unemployment	-	-	-	-	-	3%	
Insurance - Workers' Comp	5,560	5,726	5,898	6,075	6,257	3%	
Retirement - Contribution	57,007	58,717	60,479	62,293	64,162	3%	
Insurance - LT Disability	1,544	1,590	1,638	1,687	1,737	3%	
Pension Expense	-	-	-	-	-	3%	
Utilities	5,000	5,150	5,305	5,464	5,628	3%	
Training & Travel	983	1,013	1,043	1,074	1,107	3%	
G&A Overhead	35,309	36,368	37,460	38,583	39,741	3%	
Bad Debt Expense	-	-	-	-	-	3%	
Water Department							
SEWPP Enhancements	\$ 75,000	\$ 77,250	\$ 79,568	\$ 81,955	\$ 84,413	3%	
Water Purchase	219,801	226,396	233,187	240,183	247,388	3%	Based on Variable Cost Analysis
Contract Services - Lab Services	1,900	1,957	2,016	2,076	2,138	3%	
Contract Services & Meter Reading	1,332	1,372	1,413	1,456	1,499	3%	
Maintenance - Equipment	2,500	2,575	2,652	2,732	2,814	3%	
Maintenance - Water Plant	8,000	8,240	8,487	8,742	9,004	3%	
Maintenance - Water Lines	20,000	20,600	21,218	21,855	22,510	3%	
Maintenance - Water Tower	2,000	2,060	2,122	2,185	2,251	3%	
Supplies - Tools/Safety	800	824	849	874	900	3%	

Nassau Bay
Water and Wastewater
Cost of Service and Rate Design Study



Schedule 1
Water Five-Year Revenue Requirement

	2018	2019	2020	2021	2022	Inflation	Notes
Supplies - Water Meters	2,997	3,087	3,180	3,275	3,373	3%	
Utilities - Plants	20,015	20,616	21,234	21,871	22,528		Based on Variable Cost Analysis
Training & Travel	3,500	3,605	3,713	3,825	3,939	3%	
Capital Outlays	-	-	-	-	-		Tied to CIP Analysis
Wastewater Department							
Contract Services - Lab Services	\$ -	\$ -	\$ -	\$ -	\$ -	3%	
Maintenance - Equipment	-	-	-	-	-	3%	
Maintenance - Sewer Lines	-	-	-	-	-	3%	
Maintenance - Sewer Plant	-	-	-	-	-	3%	
Maintenance - Chem/Lab Supply	-	-	-	-	-	3%	
Maintenance - Sludge Removal	-	-	-	-	-	3%	
Maintenance - Lift Stations	-	-	-	-	-	3%	
Supplies - Tools/Safety	-	-	-	-	-	3%	
Utilities - Plants	-	-	-	-	-	3%	
Capital Improvements	-	-	-	-	-		
Annual Debt Service	\$ -	\$ 122,771	\$ 122,771	\$ 122,771	\$ 256,592		Tied to Debt Service Analysis
Total Expense	\$ 984,150	\$ 1,136,445	\$ 1,166,856	\$ 1,198,178	\$ 1,364,261	\$ 1	
Revenues							
Water Sales	\$ -	\$ -	\$ -	\$ -	\$ -		Removed from analysis
Water Surcharge	-	-	-	-	-		
Sewer Service Charges	-	-	-	-	-		Removed from analysis
Penalties	7,216	7,216	7,216	7,216	7,216		
Interest on Investments	885	885	885	885	885		
Water Tap Fees	850	850	850	850	850		
Sewer Tap Fees	-	-	-	-	-		
Miscellaneous	127	127	127	127	127		
	\$ 9,078	\$ 9,078	\$ 9,078	\$ 9,078	\$ 9,078		
TOTAL REVENUE REQUIREMENT	\$ 975,072	\$ 1,127,368	\$ 1,157,778	\$ 1,189,100	\$ 1,355,183		TRUE

Nassau Bay
Water and Wastewater
Cost of Service and Rate Design Study



Schedule 2
Wastewater Five-Year Revenue Requirement

	2018	2019	2020	2021	2022	Inflation	Notes
Expenses							
General & Administrative							
Dues , Fees & Subscriptions	\$ 203	\$ 209	\$ 209	\$ 209	\$ 209	3%	
Printing - Documents/Forms	254	262	262	262	262	3%	
Credit Card Program	4,007	4,128	4,128	4,128	4,128	3%	
License & Permit Fees	9,152	9,426	9,426	9,426	9,426	3%	
Contract Services - Engineering	7,500	7,725	7,725	7,725	7,725	3%	
Maintenance - Facilities	2,000	2,060	2,060	2,060	2,060	3%	
Maintenance - Vehicles	2,750	2,833	2,833	2,833	2,833	3%	
Supplies - Postage	5,510	5,675	5,675	5,675	5,675	3%	
Supplies - Uniforms	763	786	786	786	786	3%	
Supplies - Building	102	105	105	105	105	3%	
Supplies - Gas & Oil	2,034	2,095	2,095	2,095	2,095	3%	
Wages - On Call Duty Pay	3,279	3,378	3,378	3,378	3,378	3%	
Wages	347,850	358,286	358,286	358,286	358,286	3%	
Overtime	11,430	11,772	11,772	11,772	11,772	3%	
Accrued Vacation & Sick	-	-	-	-	-	3%	
Social Security	28,010	28,850	28,850	28,850	28,850	3%	
Phone Allowance	1,220	1,257	1,257	1,257	1,257	3%	
Insurance - General	18,482	19,036	19,036	19,036	19,036	3%	
Insurance - Medical & Dental	83,693	86,204	86,204	86,204	86,204	3%	
Insurance - Unemployment	-	-	-	-	-	3%	
Insurance - Workers' Comp	5,750	5,923	5,923	5,923	5,923	3%	
Retirement - Contribution	58,963	60,732	60,732	60,732	60,732	3%	
Insurance - LT Disability	1,596	1,644	1,644	1,644	1,644	3%	
Pension Expense	-	-	-	-	-	3%	
Utilities	5,000	5,150	5,150	5,150	5,150	3%	
Training & Travel	1,017	1,047	1,047	1,047	1,047	3%	
G&A Overhead	36,521	37,616	37,616	37,616	37,616	3%	
Bad Debt Expense	-	-	-	-	-	3%	
Water Department							
SEWPP Enhancements	\$ -	\$ -	\$ -	\$ -	\$ -	3%	
Water Purchase	-	-	-	-	-	3%	
Contract Services - Lab Services	-	-	-	-	-	3%	
Contract Services & Meter Reading	688	688	688	688	688	3%	
Maintenance - Equipment	-	-	-	-	-	3%	
Maintenance - Water Plant	-	-	-	-	-	3%	
Maintenance - Water Lines	-	-	-	-	-	3%	
Maintenance - Water Tower	-	-	-	-	-	3%	
Supplies - Tools/Safety	-	-	-	-	-	3%	

Nassau Bay
Water and Wastewater
Cost of Service and Rate Design Study



Schedule 2
Wastewater Five-Year Revenue Requirement

	2018	2019	2020	2021	2022	Inflation	Notes
Supplies - Water Meters	1,503	1,548	1,548	1,548	1,548	3%	
Utilities - Plants	-	-	-	-	-	3%	
Training & Travel	-	-	-	-	-	3%	
Capital Outlays	-	-	-	-	-	103%	
Wastewater Department							
Contract Services - Lab Services	\$ 36,000	\$ 37,080	\$ 37,080	\$ 37,080	\$ 37,080	3%	
Maintenance - Equipment	4,500	4,635	4,635	4,635	4,635	3%	
Maintenance - Sewer Lines	20,000	20,600	20,600	20,600	20,600	3%	
Maintenance - Sewer Plant	15,000	15,450	15,450	15,450	15,450	3%	
Maintenance - Chem/Lab Supply	37,000	38,110	38,110	38,110	38,110	3%	
Maintenance - Sludge Removal	23,001	23,691	24,402	25,134	25,888		Based on Variable Cost Analysis
Maintenance - Lift Stations	14,000	14,420	14,420	14,420	14,420	3%	
Supplies - Tools/Safety	600	618	618	618	618	3%	
Utilities - Plants	77,129	79,443	81,826	84,281	86,810		Based on Variable Cost Analysis
Capital Improvements	-	-	-	-	-		Tied to CIP Analysis
Annual Debt Service	\$ 188,987	\$ 262,497	\$ 263,256	\$ 263,484	\$ 337,125		Tied to Debt Service Analysis
Total Expense	\$ 1,055,475	\$ 1,154,979	\$ 1,158,833	\$ 1,162,247	\$ 1,239,170	\$ 2	
Revenues							
Water Sales	\$ -	\$ -	\$ -	\$ -	\$ -		Removed from analysis
Water Surcharge	-	-	-	-	-		
Sewer Service Charges	-	-	-	-	-		Removed from analysis
Penalties	7,738	7,971	7,971	7,971	7,971		
Interest on Investments	950	978	978	978	978		
Water Tap Fees	-	-	-	-	-		
Sewer Tap Fees	-	-	-	-	-		
Miscellaneous	136	140	140	140	140		
	\$ 8,824	\$ 9,089	\$ 9,089	\$ 9,089	\$ 9,089		
TOTAL REVENUE REQUIREMENT	\$ 1,046,650	\$ 1,145,890	\$ 1,149,744	\$ 1,153,158	\$ 1,230,081		TRUE