Town of Surfside
Florida

Water and Sewer Rate Study

October 12, 2010

TischlerBise
Fiscal, Economic & Planning Consultants

43460 Ridge Park Drive
Suite 200W
Temecula, CA 92590
T: 951.719.8478
F: 301.320.4860
www.tischlerbise.com

TischlerBise
Fiscal, Economic & Planning Consultants

4701 SANGAMORE ROAD | SUITE S240 | BETHESDA, MD 20816
T: 800.424.4318 | F: 301.320.4860

43460 RIDGE PARK DRIVE | SUITE 200W | TEMECULA, CA 92590
T: 951.719.8478 | F: 301.320.4860

WWW.TISCHLERBISE.COM

October 12, 2010

Mr. Martin D. Sherwood, CPA, CGFO
Finance Director
Town of Surfside
9293 Harding Avenue
Surfside, Florida 33154

Dear Mr. Sherwood,

TischlerBise is pleased to present this final report on the long-term financial plan and rate study conducted for the Town of Surfside's Water and Sewer Enterprise Fund.

This report was undertaken as the Town is facing several challenges to continuing its high-quality utility operations. The focus of this study is to ensure that the utilities have sufficient revenues to meet their operational, capital and proposed debt service obligations and that rates are set proportionate to the costs of providing utility service to each customer class. Our report outlines the approach, methodology, findings, and conclusions of this study.

This report has been prepared using generally accepted rate setting techniques. The Town's utility accounting, budgeting, and billing records were the primary sources for the data contained within the report. Furthermore, we have worked closely with Town staff and the Town Commission over the course of this project. The conclusions contained within this report provide the Town with a set of recommendations to provide stable defensible funding for continued high-quality operations. We are confident that the results developed based on the cost of service analysis will result in fair and equitable rates to the Town's users.

It was a pleasure working with you, and we also wish to express our thanks to Gary Word, Fernando Rodriguez, Catherine Colonna, and other staff members at the Town, along with John Messerian at Calvin, Giordano & Associates, for the support and cooperation extended throughout the study.

Sincerely,

Brian Jewett
Vice-President
TischlerBise, Inc.

Table of Contents

List of Figures & Tables

Executive Summary

The Town of Surfside retained TischlerBise to prepare a long-term financial plan and rate study for the water and sewer utilities to ensure each utility has sufficient revenues to meet operational, capital and projected debt service obligations. An additional but equally important objective of the analysis was to ensure that rates are set proportionate to the costs of providing utility service to each customer class. As part of this rate study, TischlerBise facilitated dialogue with the Town Commission and Town staff at several Commission meetings and project meetings. During these meetings, the Commission and staff made recommendations to be incorporated into the study where appropriate. This report documents the findings, analyses and recommendations of the comprehensive rate study effort.

The Town desires rates and fees that fully fund operations, maintenance, and future capital costs for infrastructure repair and replacement. The Town is facing several challenges to continuing its high-quality operations:

- Utility revenues are not keeping pace with increasing operational and capital costs.
- Purchased water costs and sewage disposal expenses have a volatile history and could spike again in the future.
- Utility infrastructure is aging and must be replaced soon to maintain high-quality service and minimize system water losses and sewer inflow/infiltration problems.

Therefore, the purpose of this analysis is to provide recommendations on changes to the current utility rate structures to meet these challenges and others identified during the course of the project.

Overview of the Rate Study Process

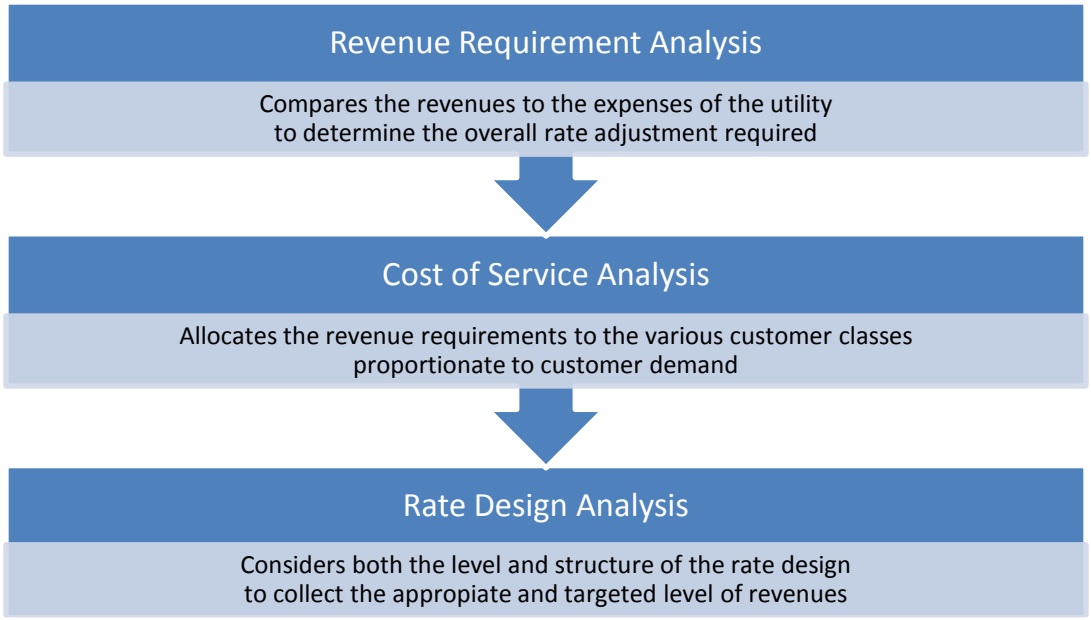
The financial planning and rate study efforts were conducted in coordination with Town staff and the Town Commission. During the course of the project, the consulting team facilitated several presentations and discussions with the Commission members and Town staff to review, explore and analyze rate setting principles and utility financial, operational and capital issues. The meetings consisted of presentations of information and data related to the Town's utility revenue needs, capital improvement plans, current rate structures, other relevant rate and financial issues. This process enabled the Town staff, Commission members and the consulting team to develop a multi-faceted understanding of financing planning issues, and to develop a broad consensus on a number of policy items and rate recommendations.

The scope of the study resulted in the development of cost-based water and sewer user charges through a comprehensive cost of service and rate design study process. Utility rates must be set at a level where a utility's operating and capital expenses are met with the revenues received from customers. This is a significant point, as failure to achieve this level may lead to insufficient funds being available to appropriately maintain the system and meet other obligations such as debt coverage ratios on future bonds. To evaluate the adequacy of the Town's existing rates, a comprehensive rate study was

completed. A comprehensive rate study typically consists of following three interrelated analyses (Figure 1 provides an overview of these processes).

- Financial Planning/Revenue Requirement Analysis: Create a ten-year plan to support an orderly, efficient program of on-going maintenance and operating costs, capital improvement and replacement activities, and retirement of projected outstanding debt. In addition, the long-term plan should fund and maintain reserve balances to adequate levels based on industry standards and Town fiscal policies.
- Cost of Service Analysis: Identifies and apportions annual revenue requirements to the different customer classes based on their demand on each utility system.
- Rate Design: Develops a fixed/variable schedule of rates for each customer class to proportionately recover the costs attributable to them. This is also, where other policy objectives can be achieved, such as discouraging wasteful water use. The policy objectives are balanced with the cost of service objectives to maintain the delicate balance between customer equity, financial stability and resource conservation goals.

Figure 1: Comprehensive Rate Study Interrelated Analysis



Financial Plan Summary

The graphs below (**Figures 2 and 3**) demonstrate the current and projected financial conditions of the water and sewer systems absent a comprehensive rate restructuring and assuming no rate increases over the next 5 years. As the figures illustrate, holding rate structures and rates constant will result in depleted reserve funds, potential General Fund borrowing, lower quality operations and deferred capital projects that are urgently needed.

Figure 2: Water System Financial Projection Using Current Water Rates

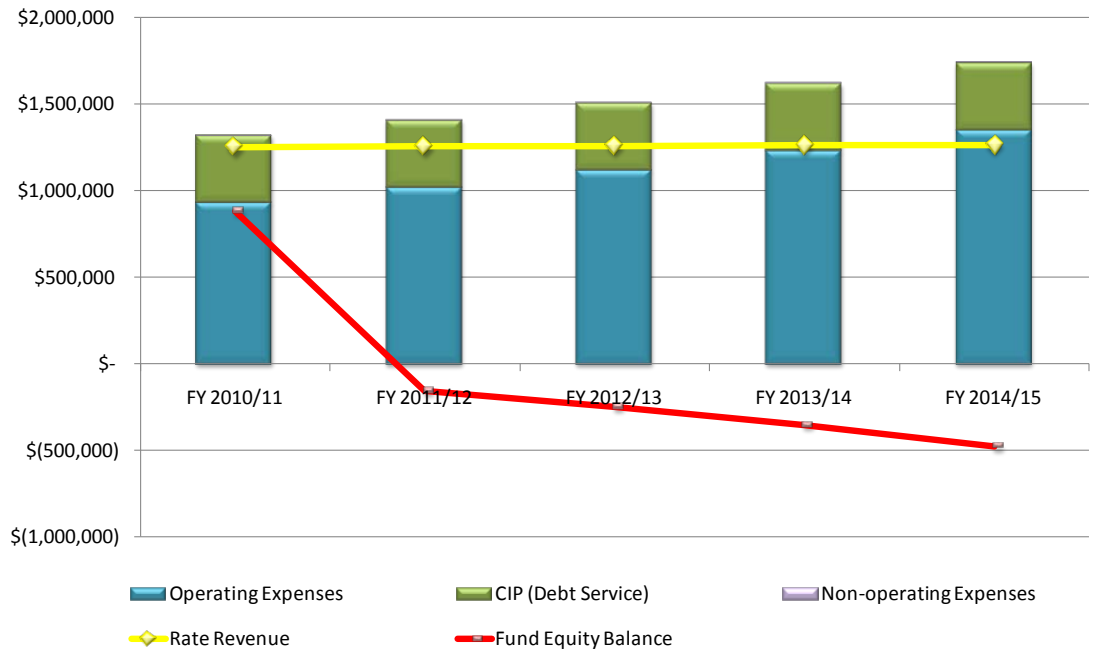
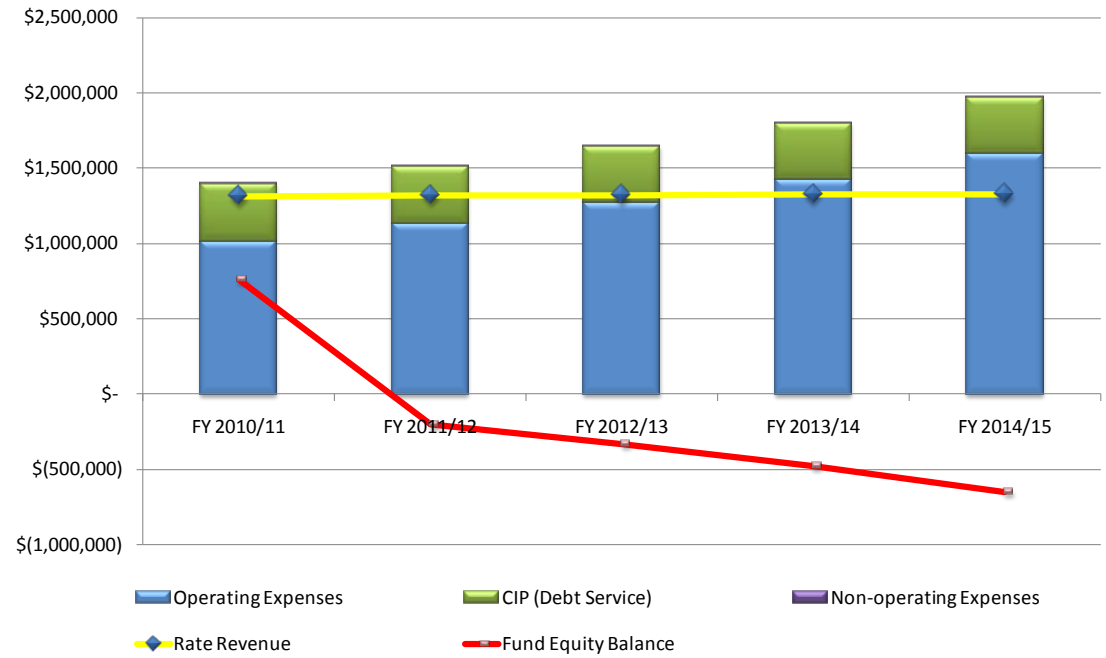


Figure 3: Sewer System Financial Projection Using Current Sewer Rates



The graphs below (**Figures 4 and 5**) demonstrate the projected financial conditions of the water and sewer systems assuming adoption of a comprehensive rate restructuring and recommended rate increases over the next 5 years. As the figures illustrate, the proposed rate structures and rate increases will enable the Town to continue its high quality operations, establish prudent reserve fund levels, and fund capital projects that are urgently needed primarily through a planned bond financing by Fiscal Year 2010/11.

Figure 4: Water System Financial Projection Using Proposed Water Rates

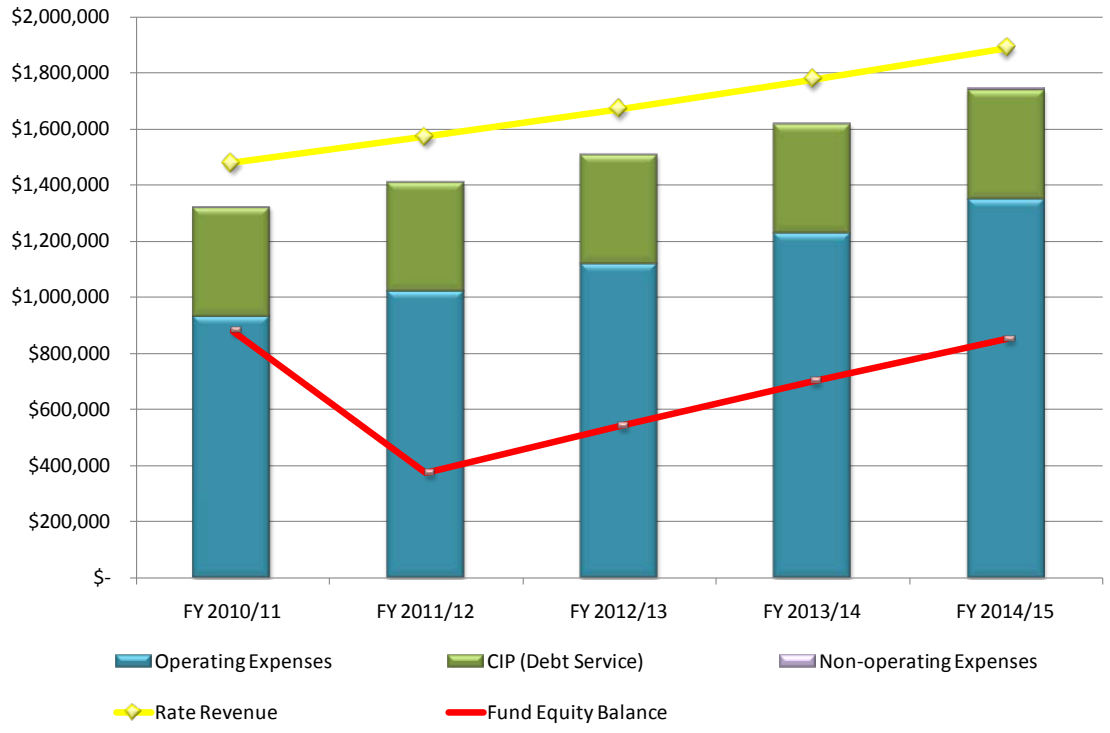
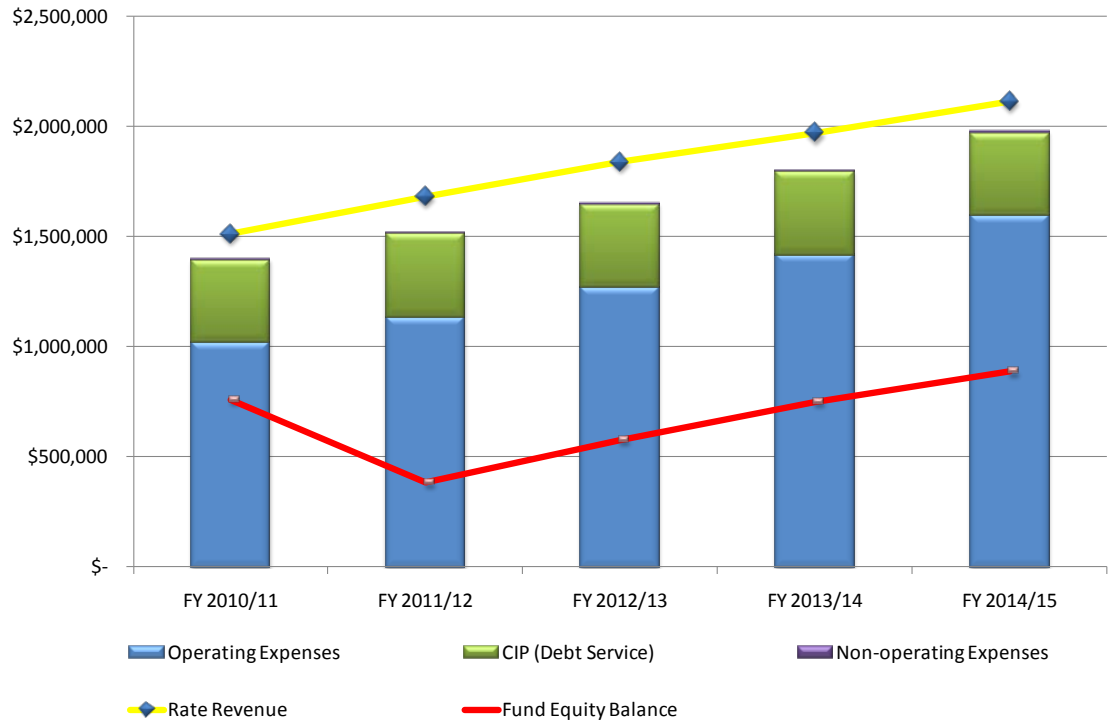


Figure 5: Sewer System Financial Projection Using Proposed Sewer Rates



After completing the financial plan and rate study, and after several meetings with the Town Commission and Town staff, the following tables (**Tables 1, 2 and 3**) present the rates for each utility system from Fiscal Year 2010/11 through Fiscal Year 2014/15. The following report provides detail regarding the supporting rate analysis and results.

Table 1: Water Monthly Base Service Charge

Meter Size	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
5/8"	$ 13.90	$ 14.60	$ 15.33	$ 15.94	$ 16.58
1"	20.22	21.24	22.30	23.19	24.12
1 1/2"	30.76	32.30	33.91	35.27	36.68
2"	43.40	45.57	47.85	49.76	51.75
3"	72.90	76.54	80.37	83.58	86.92
4"	115.03	120.78	126.82	131.90	137.17
6"	220.37	231.39	242.96	252.68	262.79
8"	346.78	364.12	382.33	397.62	413.53

Sources: Town of Surfside; TischlerBise.

Table 2: Water Consumption Charge

Description	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
	Rate per 1,000 gal				
Single-Family Residential (1-4 units)					
Block 1 (0 - 6,000 gal/month)	$ 2.97	$ 3.12	$ 3.27	$ 3.40	$ 3.54
Block 2 (6,001 - 12,000 gal/month)	$ 3.56	$ 3.74	$ 3.93	$ 4.09	$ 4.25
Block 3 (above 12,000 gal/month)	$ 5.94	$ 6.24	$ 6.55	$ 6.81	$ 7.08
All Other Customers					
Uniform Rate	$ 3.67	$ 3.85	$ 4.05	$ 4.21	$ 4.38

Sources: Town of Surfside; TischlerBise.

Table 3: Wastewater Rate Structure

Description	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
	Rate per 1,000 gal				
Uniform Variable Rate	$ 5.41	$ 5.89	$ 6.31	$ 6.62	$ 6.95
	Per Account/Dwelling Unit				
Monthly Fixed Charge	$ 3.43	$ 3.74	$ 4.01	$ 4.21	$ 4.42

Sources: Town of Surfside; TischlerBise.

Organization of the Report

This report is organized to provide an overview of utility rate setting principles utilized in this analysis, followed by an analysis of the water and sewer enterprise fund budget, and finally a separate detailed review of each utility's revenue requirements and rate design process. The following sections comprise the long-term financial plan and rate study report:

- Project Background
- Rate Setting Principles
- Enterprise Fund Budget Analysis
- Water Rate Analysis
- Sewer Rate Analysis

Project Background

The Town of Surfside owns and operates water and sewer systems for residents and businesses within Town limits. As of Fiscal Year 2009/10, the water system provides service to approximately 1,551 residential and non-residential potable water customers and the sewer system provides service to approximately 4,061 residential and non-residential accounts and dwelling units. The Town operates each system as a self-supporting enterprise, with revenues and expenditures accounted for within one enterprise fund, separate from other Town enterprise and General Fund activities.

The Town's Public Works Department is responsible for operations and maintenance of water delivery and wastewater collection systems. The Town's potable water is provided by the Miami-Dade County Water and Sewer Department (MDWASD) which provides service for approximately two million customers in Miami-Dade County. The Town is serviced by the Hialeah-Prestion Water Treatment Plant service area. The source of water is from 45 shallow wells in the Biscayne Acquifer and augmented with five Upper Floridian Aquifer deep wells. Projected water supply to the Town is assured in accordance with the MDWASD Water Supply Plan.

Potable water is distributed to residents and commercial business by the Town via approximately 11 miles of cast iron pipe installed in 1938. Primary mains feeding the system run under the Town's streets and vary in size from 6-inches to 16-inches in diameter, which feed 3-inch and four-inch water lines located along the rear property lines. Disrepair and corrosion for over 70 years has created a fragile water distribution system that has repetitive breaks, loss of potable water, pavement restoration and other associated expenses. The 5-year Water Capital Improvement Program (CIP) addresses these major improvement needs within a two-year period beginning next fiscal year. A funding plan for these improvements is included in this rate analysis and consists of current reserve funding, a Building Better Communities (BBC) countywide bond referendum ratified in 2004, and a projected bond issuance secured by current and projected rate revenues.

The Town's sanitary sewer system is divided into two nearly equal area basins. It is interconnected with the MDWASD system; however, the Town maintains its own sewer collection system and two pumping stations. By agreement with the City of Miami Beach, the Town of Surfside and the Town of Bal Harbour share a sanitary force main that connects to the City of Miami Beach transmission system. The tri-agency agreement provides for the transmission of sewage via force mains to the MDWASD system and eventually to the treatment plant and disposal.

The Town's sanitary sewer collection system failed to meet the Miami-Dade County (MDCC) Infiltration/Inflow standards and exceeded the pump station run time limits. This situation prompted violation notices commencing in 1983. The non-conformance with the MDCC Section 24-42.2 resulted in a Consent Agreement that required the Town to complete a Sanitary Sewer Evaluation Study (SSES). The Sewer Rehabilitation Plan was broken into three phases to bring the Town into compliance with mandates from the U.S. Environmental Protection Agency, the MDCC, and the Miami-Dade County Department of Environmental Resources Management (DERM). The three phases are as follows:

- **Phase I:** This phase was completed by placing full dish gaskets on all manhole openings. In addition, any rainwater leaders found to be attached to the sewer lines will be disconnected from the sanitary sewer system. All service laterals are planned to be either replaced or lined to reduce infiltration of groundwater.
- **Phase II:** This phase includes the investigation of sewer problems using video, smoke testing and other techniques to determine the sources of infiltration and inflow. All broken sanitary lines will be repaired or lined, as determined by the analysis. Severely deteriorated manholes will be sealed with a "Supercoat" system or full liner to reduce infiltration. Costs and unit prices have been established for lining the moderately cracked pipes and point repairs for the broken pipes.
- **Phase III:** This phase will consist of renovating the existing pump stations and installation of emergency generators to bring the system back into compliance with the current law, codes and Consent Decree.

Similar to the water system, the sewer 5-year Water Capital Improvement Program (CIP) addresses these major improvement needs within a two-year period beginning next fiscal year. A funding plan for these improvements is included in this rate analysis and consists of current reserve funding and a projected bond issuance secured by current and projected rate revenues.

Key Financial Plan Objectives

Several objectives were identified during the study to guide decisions regarding the financial plans and rate structures. The major objectives of the study were:

- Utility rates should generate sufficient revenues to meet operating costs, capital program requirements through related debt service obligations, and maintain targeted reserves consistent with sound financial management practices (*see detailed reserve discussion below*)
- Utility rates should be set proportionate to the cost of providing utility service to each customer class to promote fairness and equity
- A financial plan that minimizes future rate impacts on existing and new customers
- Utility rate structures should be supported by a financial model that is easy to update should costs and assumptions change in the future beyond what was projected at the time of this report

Net Asset Targets – Currently the Town designates reserves as a component of Net Assets. The Net Asset balance consists of investment in capital assets and restricted and unrestricted assets for a combined water and sewer total net assets. Some of the funds have been utilized for capital assets while renewal and replacement are restricted for capital project needs. Finally, unrestricted net assets can be used for any future item related to the utility fund operations or capital needs. Currently, the Town does not have targeted fund net asset balance policies in place.

We recommend that the Town strive to meet target policy levels for three proposed restricted fund categories for each utility system:

- Unrestricted Net Assets – Operating Reserves (to be set up to 25 percent of each utility's annual Operations and Maintenance Expenses). This component would ensure each utility system has

sufficient cash on hand to cover emergencies, working capital needs or unexpected contingencies associated with operating the utility. Three months or a 25 percent reserve balance is a standard within the utility rate setting industry and gives the Town adequate coverage.

- Restricted Net Assets – Renewal and Replacement Reserves (to be set up to 2 times annual renewal and replacement costs for the current 5-year improvement plan for each utility system). This component would ensure each utility system has sufficient reserves to cover future major capital repair and replacement (R&R) needs for a short-term period until Town officials decide to issue future debt if major upgrades or replacements are required, or minor R&R needs on an on-going basis without the need for additional borrowing. There is no industry standard amount to be set aside for future R&R needs. However, many rate structures and studies include some amount of future annualized capital project costs for their R&R reserves. For this analysis, we utilized the upcoming 5-year CIP for each utility as our basis and projected annualized impact of each CIP. We believe that a 2-year annualized figure will give the Town enough R&R reserves to fund future capital needs in the short term without relying on additional rate increases or emergency loans.
- Restricted Net Assets – Rate Stabilization Reserves (to be set up to 10 percent of each utility's current year projected rate revenues). This component would ensure each utility system has sufficient reserves to handle potential short-term cash flow interruptions associated with contracted water purchase and sewage disposal costs. While there is no industry standard for a target amount of rate stabilization reserves, our experience demonstrates a 10 percent figure is prudent and not a significant burden on utility rates.

In reviewing the above objectives, it should be noted that the Town has limited control over external forces such as growth, consumer behavior, and system usage. Recognizing these factors, we believe that the recommendations in this study provide a fair, reasonable, and balanced set of proposed rates and fees for the Town that, to the extent possible, meets these key objectives.

Rate Setting Principles

The primary objective of conducting a comprehensive rate study is to determine the adequacy of the existing rates (pricing and structure) and provide the basis for any necessary adjustments to meet the Departments operating and capital needs. The Town desires rate structures that fully fund operations, maintenance, and present and future capital costs. Furthermore, the Town desired to develop a conservation-based water and sewer rate structure. Water scarcity is a growing concern for South Florida communities. The most significant influence this situation places on the Town is large spikes in past water purchase costs from MDWASD. Therefore, significant consideration and dialogue took place between Town staff and the consulting team to review the existing rate structure and propose changes to meet this additional objective.

Over the past years, many generally accepted principles or guidelines have been established to assist in developing utility rates. The purpose of this section of the report is to provide a general background of the methodology and guidelines used for setting cost based utility rates. This will provide the reader with a higher-level understanding of the general process detailed later in this report.

Established Principles & Guidelines

As a practical matter, there should be a general set of principles to develop rates. The American Water Works Association (AWWA) establishes these principles in the M1 Manual – *Principles of Water Rates, Fees and Charges.* For sewer rate setting, the Water Environment Federation (WEF) establishes similar guidelines. These guiding principles help to ensure there is a consistent nationwide approach that is employed by utilities in the development of their rates.

Provided below is a short summary listing the established guidelines around which public utilities should consider when setting their rates. These closely reflect the Town's specified objectives.

- Rates should be cost-based and equitable, and set at a level such that they provide revenue sufficiency.
- Rates and process of allocating costs should conform to generally accepted rate setting techniques.
- Rates should provide reliable, stable and adequate revenue to meets the utility's financial, operation, and regulatory requirements.
- Rate levels should be stable from year to year (limit "rate shocks").
- Rates should be easy to understand and administer.

These guidelines, along with the Town's objectives, have been utilized within this study to help develop utility rates that are cost-based and equitable.

Revenue Requirements

The method used by most public utilities to establish their revenue requirements is called the "cash basis" approach of setting rates. As the name implies, a public utility combines its cash expenditures over a period of time to determine their required revenues from user rates and other forms of income. The figure below presents the "cash basis" methodology.

Figure 6: Overview of the "Cash Basis" Design

+ Operation and Maintenance Expenses
+ Taxes/Transfers
+ Capital Additions Financed with Rate Revenue
+ Debt Service (Principal and Interest)
= Total Revenue Requirements

Financial Planning

In the development of the revenue requirements, many assumptions are utilized to project future expenditures, customer and consumption growth, and necessary revenue adjustments. The Town's budget documents are used as the initial starting point however; assumptions play a necessary role in projecting future required revenue.

Conservative growth assumptions and prudent financial planning are fundamental to ensuring adequate rate revenue to promote financial stability. The financial model developed by the consulting team appropriately considers the Town's projected debt service coverage ratios and operating reserve balances. In addition, it is recommended that the Town begin recognizing some of the cost associated with future capital replacements that will allow the accumulation of a reserve for repair and replacement of depreciated items. This enables the Town to mitigate future rate increases as money for repair and replacement is collected automatically each year.

Rate Design

The final element, the rate design process, applies the results from the revenue requirements to develop rates that achieve the general guidelines and objectives of the Town. These objectives may include consideration of cost-based rates, but may also consider items such as ability to pay, continuity of past rate philosophy, conservation, encouragement of economic development, ease of administration, and legal requirements. While cost-based rates are an important objective, all objectives should be balanced appropriately.

While the general description of the utility rate setting process discussed in this section of the report is simplified and condensed, it does address the underlying fundamentals. One of the key principles for a comprehensive rate study is found in economic theory, which suggests the price of a commodity must roughly equal its cost if equity among customers is to be maintained – i.e. cost-based. For example, capacity-related costs are usually incurred by a water utility to meet peak use requirements. Consequently, the customers causing peak demands should properly pay for the demand-related facilities in proportion to their contribution to maximum demands. Through refinement of costing and pricing techniques, consumers of a product are given a more accurate price signal of what the commodity costs to produce and deliver.

The above fundamentals have considerable foundation in economic literature. They also serve as primary guidelines for rate design by most utility regulators and administrative agencies. This "price-equals-cost" theory provides the basis for much of the subsequent analysis and comment. This theory is particularly important, as the proposed rate, structure has been modified to encourage conservation, while maintaining this economic principle.

Rate Setting Principles Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set utility rates. These principles, techniques, and economic theory were the starting point for this rate study and the groundwork used to meet the Town's key objectives in analyzing and adjusting its utility rates.

Utility Enterprise Fund Budget Analysis

This section describes the assumptions utilized and budgetary figures presented and projected (revenue and expenditures) for purposes of the water and sewer utility rate analysis

Project Assumptions

For the Town of Surfside to more accurately project future revenues and expenditures, growth, inflation and financial factors are estimated for each utility system (**Table 4**).

Escalation Factors – Because of current economic conditions and the developed nature of the Town, we have applied a nominal growth rate to new customer connections for the projection period of five fiscal years. In addition to these factors, we have also included several escalation or inflation factors for various operating and capital items associated with both utilities. Where past annual increases were consistent, we applied historical percentages to our forecast analysis. Where past annual increases were volatile or lacked a consistent pattern, we applied percentage increases based on our past experiences in utility rate and projection analyses.

Financial Ratios and Inputs – Certain financial ratios and assumption are utilized to account for Town central service support of the utility systems, bond covenant debt coverage ratios and financing terms for project revenue bonds to be issued, and an affordability index to demonstrate the affect potential rate increases might have on Surfside customers household income levels.

Utility Revenues and Expenditures

Table 5 illustrates the line item revenues that will be incorporated into the rate analysis for each utility. Water sales and sewer service charges are presented with no rate increases and are inflated by a nominal growth factor of 0.25 percent per year to account for modest new connection growth. Other revenue items are assumed to remain flat to demonstrate a conservative projection analysis.

Table 6 presents the combined system utility fund expenditures based on the latest figures from the Fiscal Year 2010/11 utility budget and projected through FY 2014/15. Budget line items are categorized into functional components to be utilized in the forthcoming cost allocation analysis. Budget line items are escalated by various projection factors found in Table 4. The basis for escalation and the division of costs to each utility are located in the last three columns of Table 6. The division of costs is largely based on the ratio of the two largest line items in the fund: Water Purchases and Sewage Disposal. The exception to this approach is “Miscellaneous Maintenance – Water Tests” which applies solely to the water utility and allocated accordingly.

Table 4: Escalation and Input Assumptions

Description	Annual Figure	Notes
Escalators		
Residential Customer Growth Rate	0.25%	Annual Rate
Non-residential Customer Growth Rate	0.25%	Annual Rate
Personnel Costs	2.00%	Annual Rate
Water Purchases	12.00%	Annual Rate
Sewage Disposal Costs	15.00%	Annual Rate
Operating Costs	3.50%	Annual Rate
Capital Outlay (excl Improvements)	5.00%	Annual Rate
Depreciation Costs	2.00%	Annual Rate
Fund Equity Targets		
O&M Reserves	25.0%	25% of current year O&M
Water Capital Reserves	$ 420,358	2x annualized costs of renewal and replacement of FY11-FY15 CIP
Sewer Capital Reserves	$ 521,202	2x annualized costs of renewal and replacement of FY11-FY15 CIP
Rate Stabilization Reserves	10.0%	10% of current year projected rate revenues
Financial Ratios and Inputs		
Indirect Cost Allocation (GF Reimburse)	10.0%	of central service support to utility fund
Debt Service Coverage Ratio	125%	1.25x (net operating income/annual debt service)
Affordability Index	2.0%	of Surfside's Median Household Income
Bonds/Loans	Terms	
Revenue Bonds Period (years)	20	
Revenue Bonds Interest Rate	5.00%	
Construction Amount	$ 10,000,000	
Price Elasticity Applied to Consumption	3.0%	

Sources: Town of Surfside; TischlerBise.

Table 5: Utility Enterprise Fund Revenue Projections

Revenue Item	[---------- Projected ----------]				
	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
Water Revenues					
Water Sales (no rate increase)	$ 1,305,255	$ 1,308,518	$ 1,311,789	$ 1,315,069	$ 1,318,357
Tapping Fees	300	300	300	300	300
Penalties	870	870	870	870	870
Total Water Revenues	$ 1,306,425	$ 1,309,688	$ 1,312,959	$ 1,316,239	$ 1,319,527
Sewer Revenues					
Sewer Service Charges (no rate increase)	$ 1,407,825	$ 1,411,344	$ 1,414,873	$ 1,418,410	$ 1,421,956
Penalties	870	870	870	870	870
Total Wastewater Revenues	$ 1,408,695	$ 1,412,214	$ 1,415,743	$ 1,419,280	$ 1,422,826
Miscellaneous Revenues					
Water Interest Income	$ 1,064	$ 1,064	$ 1,064	$ 1,064	$ 1,064
Sewer Interest Income	1,064	1,064	1,064	1,064	1,064
Water Impact Fees	500	500	500	500	500
Sewer Impact Fees	500	500	500	500	500
Total Misc. Revenues	$ 3,128	$ 3,128	$ 3,128	$ 3,128	$ 3,128

Source: Town of Surfside; TischlerBise.

Table 6: Utility Enterprise Fund Expenditure Projections

Budget Item	Budgeted 2010/11	Projected 2011/12	Projected 2012/13	Projected 2013/14	Projected 2014/15	Escalation Basis	% to Water	% to Sewer
Personnel Expenses								
Regular Salaries	$ 200,809	$ 204,825	$ 208,922	$ 213,100	$ 217,362	Personnel	47%	53%
Other Salaries	-	-	-	-	-	Personnel	47%	53%
Overtime	14,000	16,100	16,422	16,750	17,085	Personnel	47%	53%
Special pay	4,500	4,658	4,751	4,846	4,943	Personnel	47%	53%
Payroll Taxes	16,777	17,113	17,455	17,804	18,160	Personnel	47%	53%
Retirement Contribution	15,436	15,436	15,745	16,060	16,381	Personnel	47%	53%
Life & Health Insurance	33,512	33,512	34,182	34,866	35,563	Personnel	47%	53%
Workers Compensation	9,104	9,104	9,286	9,472	9,661	Personnel	47%	53%
Unemployment Compensation	-	-	-	-	-	Personnel	47%	53%
Total Personnel Expenses	294,138	300,747	306,762	312,898	319,156			

Table 6: Utility Enterprise Fund Expenditure Projections (continued)

Budget Item	Budgeted 2010/11	Projected 2011/12	Projected 2012/13	Projected 2013/14	Projected 2014/15	Escalation Basis	% to Water	% to Sewer
Operating Expenses								
Professional Services	12,000	12,420	12,855	13,305	13,770	Operating	47%	53%
Lawsuits and Prosecutions	-	-	-	-	-	Operating	47%	53%
Physical Examinations	-	-	-	-	-	Operating	47%	53%
Accounting and Auditing	-	-	-	-	-	Operating	47%	53%
Water Purchases	672,000	752,640	842,957	944,112	1,057,405	Water Purchase	100%	0%
Sewage Disposal	725,389	834,197	959,327	1,103,226	1,268,710	Sewage Disposal	0%	100%
Other Contractual Services	1,500	1,553	1,607	1,663	1,721	Operating	47%	53%
Nuisance Abatement	-	-	-	-	-	Operating	47%	53%
Car Allowance	1,500	1,553	1,607	1,663	1,721	Operating	47%	53%
Travel & Per Diem	-	-	-	-	-	Operating	47%	53%
Board Expenses	-	-	-	-	-	Operating	47%	53%
Telecommunications	1,000	1,035	1,071	1,109	1,148	Operating	47%	53%
Postage	4,080	4,223	4,371	4,524	4,682	Operating	47%	53%
Electricity	40,198	41,605	43,061	44,568	46,128	Operating	47%	53%
Water and Sewer	-	-	-	-	-	Operating	47%	53%
Building Rental/Leasing	-	-	-	-	-	Operating	47%	53%
Equipment/Vehicle Leasing	16,170	16,736	17,322	17,928	18,555	Operating	47%	53%
Property and Liability Insurance	17,695	18,314	18,955	19,619	20,305	Operating	47%	53%
Maintenance Service/Repair Contracts	50,000	51,750	53,561	55,436	57,376	Operating	47%	53%
Building Maintenance	-	-	-	-	-	Operating	47%	53%
Equipment Maintenance	34,000	35,190	36,422	37,696	39,016	Operating	47%	53%
Grounds Maintenance	-	-	-	-	-	Operating	47%	53%
Miscellaneous Maintenance - Water Tests	5,000	5,175	5,356	5,544	5,738	Operating	100%	0%
Vehicle Maintenance	4,000	4,140	4,285	4,435	4,590	Operating	47%	53%
Printing & Binding	-	-	-	-	-	Operating	47%	53%
Promotional Activities	-	-	-	-	-	Operating	47%	53%
Other Current Charges	-	-	-	-	-	Operating	47%	53%
Office Supplies	2,000	2,070	2,142	2,217	2,295	Operating	47%	53%
Property and Maintenance	-	-	-	-	-	Operating	47%	53%
Landscape Improvements		-	-	-	-	Operating	47%	53%
Uniforms	2,846	2,946	3,049	3,155	3,266	Operating	47%	53%
Tires		-	-	-	-	Operating	47%	53%
Gasoline	2,500	2,588	2,678	2,772	2,869	Operating	47%	53%
Miscellaneous Operating Supplies	250	259	268	277	287	Operating	47%	53%
Road Materials	-	-	-	-	-	Operating	47%	53%
Subscriptions and Memberships	-	-	-	-	-	Operating	47%	53%
Conferences and Seminars	-	-	-	-	-	Operating	47%	53%
Depreciation	55,000	56,100	57,222	58,366	59,534	Depreciation		
Total Operating Expenses	1,647,128	1,844,492	2,068,115	2,321,615	2,609,116			
Capital Outlay (excl Improvements)								
Buildings	-	-	-	-	-	Capital	47%	53%
Machinery and Equipment	11,200	11,760	12,348	12,965	13,614	Capital	47%	53%
Total Capital Outlay (excl Improvements)	11,200	11,760	12,348	12,965	13,614			
Non-operating Expenses								
Transfer to General Fund [1]	60,421	62,536	64,724	66,990	69,334	Operating	47%	53%
Contingency/Reserve	83,811	-	-	-	-	Operating	47%	53%
Total Capital Outlay (excl Improvements)	144,232	62,536	64,724	66,990	69,334			
Total Expenditures less Improvements & Debt Service	**$ 2,096,698**	**$ 2,219,535**	**$ 2,451,950**	**$ 2,714,467**	**$ 3,011,220**			

Water Rate Analysis

Revenue Requirements Analysis

The first step in developing the revenue requirements is to develop a projection of revenues from existing rates and expenditures for operations and capital needs. This analysis is demonstrated in Tables 5 and 6. The utility capital improvements project (CIP) needs for the water utility are summarized in **Table 7.** This table presents the water-related 5-year capital improvement plan as prepared by the Town's engineering consultant. The table lists the outside funding sources to be utilized for the capital projects including accumulated restricted and unrestricted net asset reserves, Build Better Communities (BBC) reimbursement monies, nominal water impact fees, and bond proceeds from a proposed revenue bonds issue for both water and sewer related capital construction projects. The combined effect of these outside funding sources is to eliminate the need for future rate revenues to directly fund these projects. However, the rates will be required to fund the debt service obligations on the revenue bonds.

Table 7: Water CIP and Funding Sources

Project	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	Total
Engineering/Architecture	$ 83,200	$ 31,000	$ -	$ -	$ -	$ 114,200
Construction	4,158,000	1,766,371	-	-	-	5,924,371
Prior CIP Appropriations	508,974	-	-	-	-	508,974
Total Water Capital Projects	$ 4,750,174	$ 1,797,371	$ -	$ -	$ -	$ 6,547,545
Less: Outside Funding Sources						
Water Impact Fees	$ 500	$ 500	$ 500	$ 500	$ 500	
Restricted Net Assets - Repair & Replacement	660,000	-	-	-	-	
Unrestricted Assets	172,000	-				
BBC Reimbursement	715,000	-	-	-	-	
Revenue Bonds Proceeds	5,000,000	-	-	-	-	
Carry-over from Prior FY	-	1,797,326	455	955	1,455	
Total Outside Funding	$ 6,547,500	$ 1,797,826	$ 955	$ 1,455	$ 1,955	
Balance to Carry Over to Next FY	$ 1,797,326	$ 455	$ 955	$ 1,455	$ 1,955	
Net CIP Projects Funded from Rates	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Source: Town of Surfside; TischlerBise.

These components comprise the foundation of the revenue requirement analysis. Given the current economic climate, the consulting team facilitated several meetings with Town staff and committee members to assure the accuracy of financial and growth variables in developing the revenue requirement analysis. Particular emphasis was placed on attempting to minimize rates, yet still encompass adequate funds to support the operational activities and capital projects throughout the study period. The revenue requirements analysis figure, presented below in **Table 8**, provides a basis for evaluating the timing and level of water revenue increases required to meet the projected required revenue for the study period. The percentages shown at the bottom of the figure show the recommended revenue adjustments. Please note that the required revenue increase percentages do not

equate to the rate increase for each customer. Rather, these percentage figures describe the amount of additional rate revenue required to meet all utility obligations and policies.

Table 8: Water Revenue Requirements

Description			Base Year FY 10/11	Projected FY 11/12	Projected FY 12/13	Projected FY 13/14	Projected FY 14/15
Operating Revenue							
Water Sales (before increase)			$ 1,305,255	$ 1,308,518	$ 1,311,789	$ 1,315,069	$ 1,318,357
Tapping Fees			300	300	300	300	300
Penalties			870	870	870	870	870
Total Operating Revenue			1,306,425	1,309,688	1,312,959	1,316,239	1,319,527
Additional Rate Revenue Required							
Year	*Revenue Increase*	*Months Effective*					
2010/11	18.00%	12	234,946	235,533	236,122	236,712	237,304
2011/12	5.00%	12	-	77,203	77,396	77,589	77,783
2012/13	5.00%	12	-	-	81,265	81,469	81,672
2013/14	4.00%	12	-	-	-	68,434	68,605
2014/15	4.00%	12	-	-	-	-	71,349
Total Additional Water Sales Revenue			234,946	312,736	394,783	464,204	536,713
Total Required Revenue			1,541,371	1,622,424	1,707,742	1,780,442	1,856,239
O&M Expenses							
Personnel			137,087	140,167	142,970	145,830	148,746
Operations			121,590	125,846	130,250	134,809	139,527
Water Purchases (MDWSD)			672,000	752,640	842,957	944,112	1,057,405
Total O&M Expenses			930,677	1,018,653	1,116,178	1,224,751	1,345,679
Net Operating Income			**610,694**	**603,771**	**591,565**	**555,692**	**510,561**
Debt Service							
Annual Debt Service (Estimated)			388,154	388,154	388,154	388,154	388,154
Total Debt Service			388,154	388,154	388,154	388,154	388,154
Calculated Debt Coverage Ratio			157%	156%	152%	143%	132%
Targeted Debt Coverage Ratio			125%	125%	125%	125%	125%
Non-Operating Revenue							
Interest Income			1,064	1,064	1,064	1,064	1,064
Total Non-Operating Revenue			1,064	1,064	1,064	1,064	1,064
Non-Operating Expenses							
Capital Outlay (excl Improvements)			5,220	5,481	5,755	6,043	6,345
Rate Funded Capital Projects			-	-	-	-	-
Total Non-Operating Expenses			5,220	5,481	5,755	6,043	6,345
Net Income (Loss) [1]			**$ 218,384**	**$ 211,200**	**$ 198,720**	**$ 162,559**	**$ 117,126**

1. Positive net income to be applied to fund balances.

Source: Town of Surfside; TischlerBise.

Figure 7 illustrates the breakdown of the major budget components of the water utility. As the chart demonstrates, the primary cost of operating the water utility is water purchase costs from MDWASD.

Figure 7: Major Budget Components of Water System

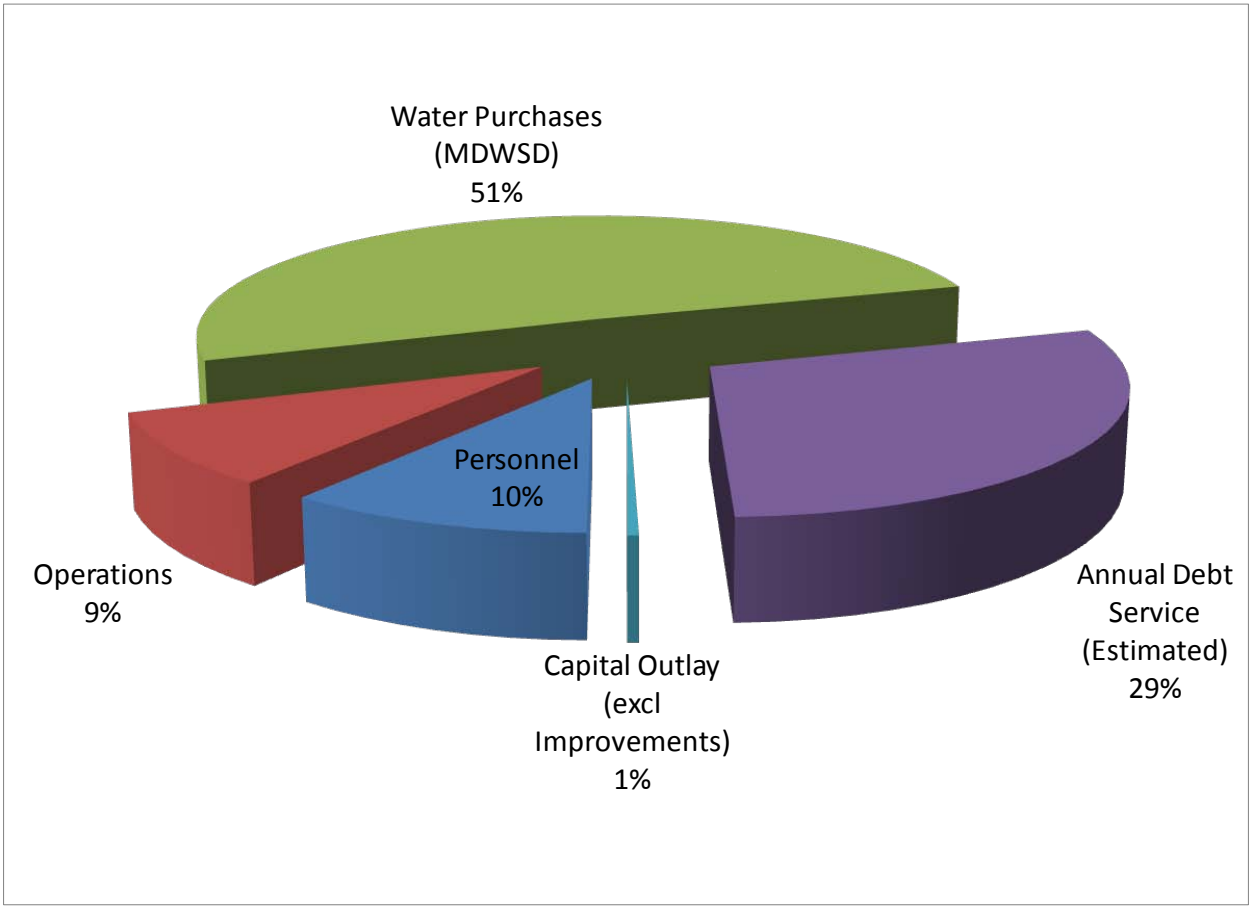


Table 9 on the next page presents the fund balance information utilizing the target fund balance figures for operating, capital and rate stabilization reserves.

Cost of Service Analysis

The cost of service analysis is a systematic process by which revenue requirements are used to generate a classification of fair and equitable costs in proportion to the service received for each user class. The cost of service allocation conducted in this study is established on the base-extra capacity method endorsed by the AWWA. Under the base-extra capacity method, revenue requirements are allocated to the different user classes proportionate to their use on the water system. Allocations are based on average day (base) usage, maximum day (peak) usage, meters and services, and billing and collection. Use of this methodology results in an AWWA-accepted cost distribution among customer classes and a means of calculating and designing rates to proportionately recover those costs.

Table 9: Water Fund Balance Information

Description	Base Year FY 10/11	Projected FY 11/12	Projected FY 12/13	Projected FY 13/14	Projected FY 14/15
Total Fund Equity - Water Only					
Beginning FY 10/11 Balance [1]	**$ 880,000**	See below for fund balance allocation (dependent on Town approval)			
Restricted Net Assets - Renewal & Replacement Reserves					
Beginning Balance	$ 660,000	$ 218,384	$ 420,358	$ 420,358	$ 420,358
Restricted Net Assets to Fund Water CIP Projects	(660,000)	-	-	-	-
Surplus from CIP Program (after bond issue)	-	455	-	-	-
Deposit from Positive Net Income	218,384	201,519	-	-	-
Ending Balance	**$ 218,384**	**$ 420,358**	**$ 420,358**	**$ 420,358**	**$ 420,358**
Target Balance: Up to 2x Annualized R&R	420,358	420,358	420,358	420,358	420,358
Target Met?	NO	YES	YES	YES	YES
% of Target	52%	100%	100%	100%	100%
Net Income Remaining	-	9,682	198,720	162,559	117,126
Restricted Net Assets - Rate Stabilization Reserves					
Beginning Balance	$ -	$ -	$ 9,682	$ 170,657	$ 177,927
Deposit from Positive Net Income	-	9,682	160,975	7,270	7,580
Ending Balance	**$ -**	**$ 9,682**	**$ 170,657**	**$ 177,927**	**$ 185,507**
Target Balance: Up to 10% of Rate Revenues	154,020	162,125	170,657	177,927	185,507
Target Met?	NO	NO	YES	YES	YES
% of Target	0%	6%	100%	100%	100%
Net Income Remaining	-	-	37,745	155,289	109,546
Unrestricted Net Assets - Operating Reserves					
Beginning Balance	$ 220,000	$ 48,000	$ 48,000	$ 85,745	$ 241,034
Unrestricted Net Assets to Fund Water CIP Projects	(172,000)	-	-	-	-
Deposit from Positive Net Income	-	-	37,745	155,289	109,546
Ending Balance	**$ 48,000**	**$ 48,000**	**$ 85,745**	**$ 241,034**	**$ 350,580**
Target Balance: Up to 25% of Current Year O&M	232,669	254,663	279,044	306,188	336,420
Target Met?	NO	NO	NO	NO	YES
% of Target	21%	19%	31%	79%	104%

1. Water utility's share of total enterprise fund equity balance.

Source: Town of Surfside; TischlerBise.

The resulting functionalization factors that appear at the bottom of **Table 10** are utilized to allocate system operating and capital costs to each customer class based on the each class' demand on the system. In **Table 11**, the functionalization percentages are used to allocate revenue requirements between variable costs of the water system (base and peak demands) and fixed costs of the system (meters and services and customer accounts). The final totals are then used to design the fixed base charges based on meter size and the variable rates per 1,000 gallons consumed.

Table 10: Classification of Water Expenses by Function

Description	Total Water Expenses	Base Water Demand	Peak Water Demand	Customer Accounts	Meters & Services	Basis of Classification
Source of Supply						
Water Purchases	$ 672,000	$ 222,681	$ 449,319	$ -	$ -	33.1% Base 66.9% Peak
Water Tests	5,000	1,657	3,343	-	-	33.1% Base 66.9% Peak
Total Source of Supply Expense	677,000	224,338	452,662	-	-	
Water Distribution						
Electricity	18,735	6,208	12,527	-	-	33.1% Base 66.9% Peak
Maintenance - Distribution	48,666	16,222	16,222	-	16,222	33.3% Base 33.3% Peak 33.3% Meters
Total Water Distribution Expense	67,401	22,430	28,749	-	16,222	
General & Administrative						
Personnel	137,087	-	-	68,543	68,543	50% Customers 50% Meters
Indirect Cost Allocation	28,160	-	-	14,080	14,080	50% Customers 50% Meters
Miscellaneous G&A	81,029	-	-	40,515	40,515	50% Customers 50% Meters
Total G&A Expense	246,276	-	-	123,138	123,138	
Capital Requirements						
Capital Outlay (excl Improvements)	5,220	2,088	2,088	522	522	40% Base 40% Peak 10% Customers 10% Meters
Debt Service	388,154	155,262	155,262	38,815	38,815	40% Base 40% Peak 10% Customers 10%
Total Capital Requirements Expense	393,374	157,349	157,349	39,337	39,337	
TOTAL FUNCTIONALIZED COSTS	**$ 1,384,051**	**$ 404,117**	**$ 638,761**	**$ 162,475**	**$ 178,697**	
FUNCTIONALIZATION FACTOR	**100.0%**	**29.2%**	**46.2%**	**11.7%**	**12.9%**	

Sources: Town of Surfside; TischlerBise

Table 11: Allocation of Revenue Requirements by Functional Percentages

Description	Functionalization Factor	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
Base Water Demand	29.2%	$ 449,710	$ 473,376	$ 498,288	$ 519,515	$ 541,646
Peak Water Demand	46.2%	710,826	748,234	787,609	821,161	856,143
Customer Accounts	11.7%	180,806	190,321	200,337	208,871	217,769
Meters & Services	12.9%	198,858	209,323	220,339	229,725	239,512
Rate Revenue Required	100.0%	$ 1,540,201	$ 1,621,254	$ 1,706,572	$ 1,779,272	$ 1,855,069

Sources: Town of Surfside; TischlerBise.

Rate Design Analysis

The final step of the rate study is the design of the water rates to collect the desired level of revenue determined in the revenue requirement analysis. During this analysis, consideration is given to both the level of rates and the structure of the rates. This section reviews the water rate design for the Town.

Rate Design Balance

There is some flexibility in the design of the rate structure to meet the Town's pricing objectives while being consistent with cost of service principles. There are positives and negatives associated with the decrease in fixed revenue. Typically, a larger percentage of fixed rate revenue results in greater revenue stability since a greater percentage of total revenues are not influenced by fluctuations in consumption due to the weather. At the same time, the decrease in fixed revenue will improve equitability concerning cost recovery and the impact of conservation measures while reducing revenue stability, as users have greater control over their consumption and ultimately their bill. The fixed portion of the proposed water rates generates an estimated 25 percent of total rate revenue

Criteria and Considerations

In determining the appropriate rate level and structure, the consulting team, in conjunction with Town staff, analyzed various financial scenarios concerning the proposed adjustments and the implications attributed to those decisions.

A simplified list of some of the design considerations that were reviewed is listed:

- Consideration of the customer's ability to pay
- Clear and understandable rates
- Easily administered
- Conservation measures
- Revenue stability (month to month and year to year)
- Efficient allocation of resources
- Implementation of Capital Improvements (rate of improving the existing system)
- Fair and equitable (cost-based) rates

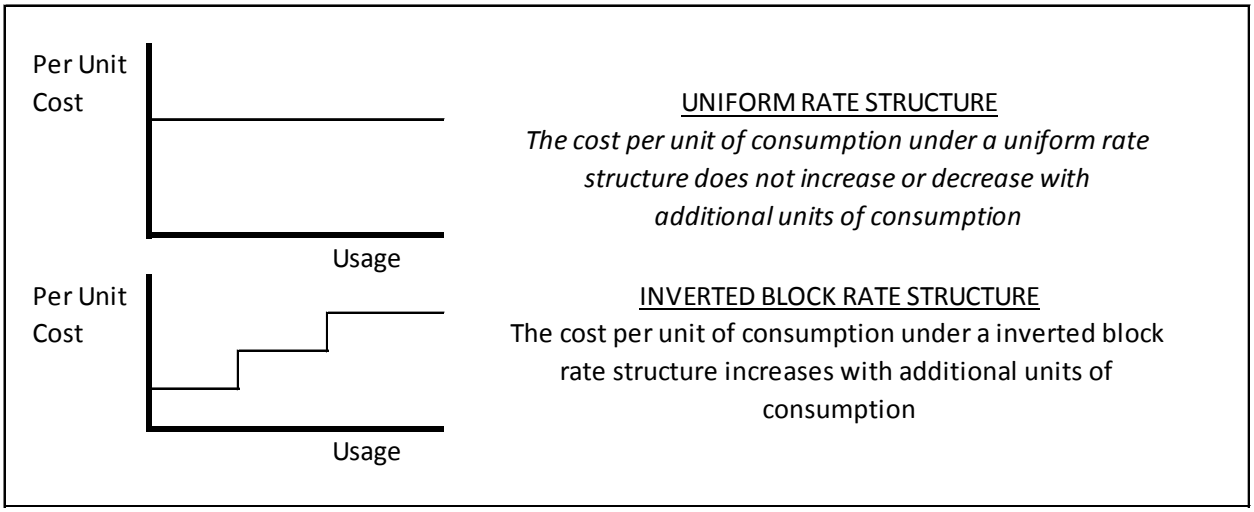
Every consideration has merit and plays an important role in a comprehensive rate study. When developing the Town's proposed rates all of the aforementioned criteria were taken into consideration. Determining the appropriate balance is crucial, as some of the criteria sometime conflict with one another, i.e. the customers ability to pay and cost-based. In designing rates, there will always be concessions between the various objectives; however, we attempt to ensure the proposed rates meet all of the leading objectives of the Town.

Overview of Existing Rate Structure

The Town has one water rate structure for its consumption charges: a uniform block rate structure. Regardless of consumption amounts (above a minimum allotment per meter size), the rate per unit of water (1,000 gallons) is consistent. There are some merits to this approach such as some degree of

certainty to a customer bill as well as a moderate incentive to conserve water. However, a more effective conservation pricing structure utilizes an inverted block, or inclining block, approach. This structure increases the marginal price of a unit of water above certain thresholds. **Figure 8** provides an overview of the two rate structures.

Figure 8: Consumption Charge Approaches



The current water rate structure includes two components: a bi-monthly allotment of water use based on a customer's meter size and a consumption charge of $3.54 per 1,000 gallons of water use. As discussed above, the consumption rate is the same rate regardless of customer class and does not increase or decrease with amount of water use. The bi-monthly charge includes minimum water amounts depending on meter size. For example, a customer with a 5/8 inch water meter is allotted 12,000 gallons of water use on a bi-monthly basis. This allotment is included in the fixed base charge. If a 5/8 inch meter customer uses no water up to 12,000 gallons during a billing period, the corresponding base charge is the same amount (currently $42.48 for a 5/8 inch meter customer). If a customer consumes water above the allotted amount, the water bill is calculated using the consumption charge of $3.54 per 1,000 gallons times the amount of water.

For this analysis, we recommend that the Town eliminate the minimum allotment approach and adopt a cost-based approach including a fixed meter charge based on a customer's meter size and a variable rate for water consumed on a 1,000-gallon basis. We have two reasons for this modification:

- Customer Equity. We believe the current rate system to be inequitable to a group of customers who use less water than the allotted amounts. The current rate structure penalizes efficient customers and customers that use less water due to being a smaller customer (by way of small family size, small business, etc.). An efficient or small customer will typically use less than 12,000 gallons in a two-month period. In fact, Town billing records for the past year indicate that approximately 34 percent of all water customers use less than 12,000 gallons in a bi-monthly period. Whether they use 1,000 gallons or 11,000 gallons, they are still billed at the 12,000-gallon amount, or $42.48.

- Revenue Stability and Cost-of Service-Based. Every utility has certain costs that must be funded regardless of water consumption amounts. These costs are fixed and typically do not fluctuate. If a customer does not use any water during a billing period, there are still costs associated for past use and future service availability. These items include but are not limited to capital replacement for past use, maintenance of assets to provide water in the future, debt service, and customer service. A fixed charge system without minimum water allotments ensures the utility's fixed costs will still be met while creating a more equitable billing system.

Table 12 below presents the current and future fixed base charges by meter size in a monthly format. The fixed charges are calculated using a meter equivalent approach with the 5/8 inch meter as the baseline meter size in the analysis. As a meter size increases, the hydraulic capacity also increases thus allowing the customer to draw greater amounts of water when needed. With this greater ability to draw water, there is a corresponding increase in costs. Therefore, larger meters will have larger fixed charges associated with them. This approach is a standard in the water rate-making industry. **Table 13** presents the meter equivalency approach and corresponding meter ratios. To ensure clarification, the base charges for FY 2010/11 through FY 2014/15 do not include minimum water amounts.

Table 12: Fixed Monthly Base Charges by Meter Size

Meter Size	Current	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
5/8"	$ 21.24	$ 13.90	$ 14.60	$ 15.33	$ 15.94	$ 16.58
1"	28.32	20.22	21.24	22.30	23.19	24.12
1 1/2"	42.48	30.76	32.30	33.91	35.27	36.68
2"	63.72	43.40	45.57	47.85	49.76	51.75
3"	141.60	72.90	76.54	80.37	83.58	86.92
4"	283.20	115.03	120.78	126.82	131.90	137.17
6"	424.80	220.37	231.39	242.96	252.68	262.79
8"	708.00	346.78	364.12	382.33	397.62	413.53

Sources: Town of Surfside; TischlerBise.

Table 13: Meter Equivalency Ratios

Meter Size	GPM	Meter Ratio
5/8"	20	1.00
1"	50	2.50
1 1/2"	100	5.00
2"	160	8.00
3"	300	15.00
4"	500	25.00
6"	1,000	50.00
8"	1,600	80.00

Sources: AWWA M-5 Manual; Town of Surfside; TischlerBise.

For the variable consumption charge analysis, we present two options: 1) maintain the uniform rate approach regardless of customer class and consumption amounts, and 2) an inclining block rate structure for residential customers and a uniform block structure for all other customer classes (apartments, commercial and place of worship).

The inclining block approach is one that sends a price signal to excessive water users to cut back on their wasteful water consumption. Very efficient or low water users would be rewarded with a lower rate per 1,000 gallons compared to the current uniform rate. We applied the inclining block method to the residential customers only for two reasons: 1) there is less variation in residential water use between each customer compared to other customer classes and therefore average use figures easily apply to all residential customers, and 2) industry experience demonstrates that residential properties, particularly single-family detached residential customers, are most able to cut back on excessive use, and even discretionary use. Therefore, we recommend that the Town consider adoption of the inclining block approach to achieve conservation goals. **Table 14** shows the conservation-oriented rate structure for the Single-family Residential (1 to 4 units) customer consumption charge and the uniform block rate for all other customers.

Table 14: Customer Consumption Charge Structure

Description	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
	Rate per 1,000 gal				
Single-Family Residential (1-4 units)					
Block 1 (0 - 6,000 gal/month)	$ 2.97	$ 3.12	$ 3.27	$ 3.40	$ 3.54
Block 2 (6,001 - 12,000 gal/month)	$ 3.56	$ 3.74	$ 3.93	$ 4.09	$ 4.25
Block 3 (above 12,000 gal/month)	$ 5.94	$ 6.24	$ 6.55	$ 6.81	$ 7.08
All Other Customers					
Uniform Rate	$ 3.67	$ 3.85	$ 4.05	$ 4.21	$ 4.38

Sources: Town of Surfside; TischlerBise.

Impact of Revenue Increase

In Fiscal Year 2010/11, the proposed 18% increase in required revenue does not directly correlate to a 18% increase in all water rates. The cost of service analysis and, in Single-family Residential's case, the restructuring of the consumption blocks dictate the actual adjustments to the rates. **Figure 9** presents bi-monthly water charges for Single-family Residential customers with a 5/8 inch meter at various consumption levels. Because of the inclining block rate structure, customers with low water use will see a decrease in their water bills while high use customers will experience greater monthly water bills.

Figure 9: Customer Billing Analysis: Current & Future Water Rates

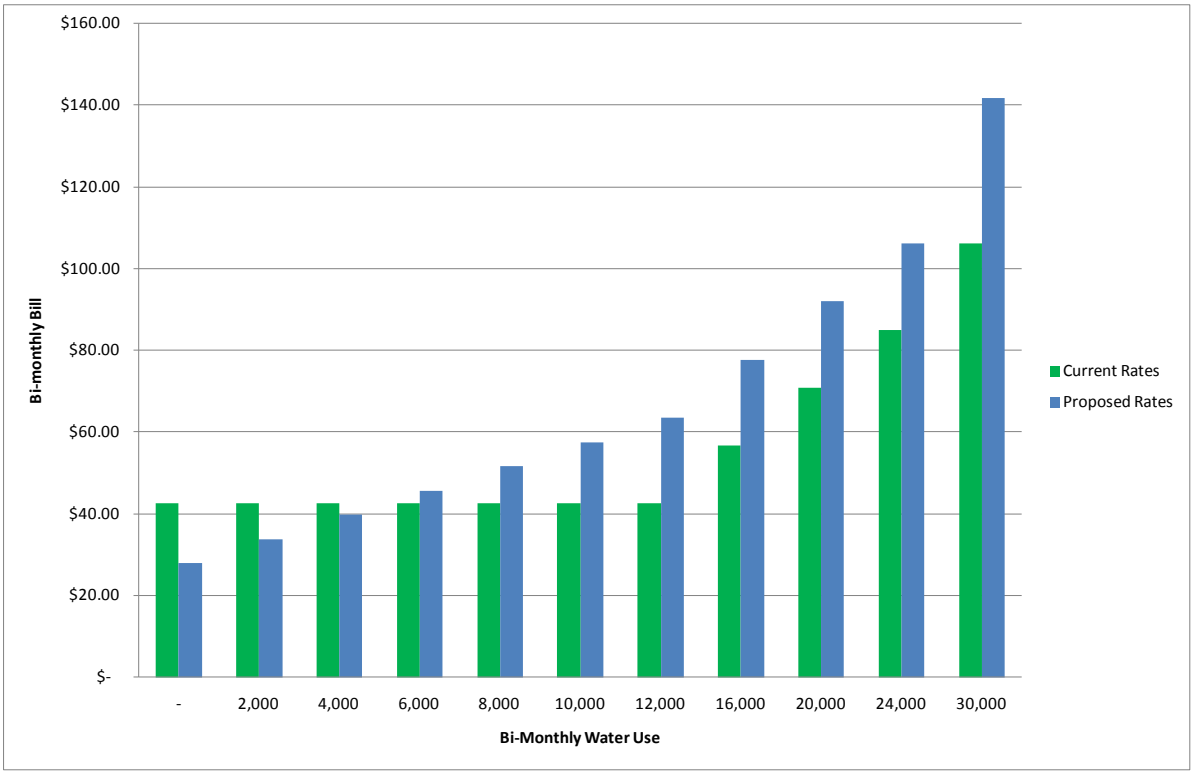
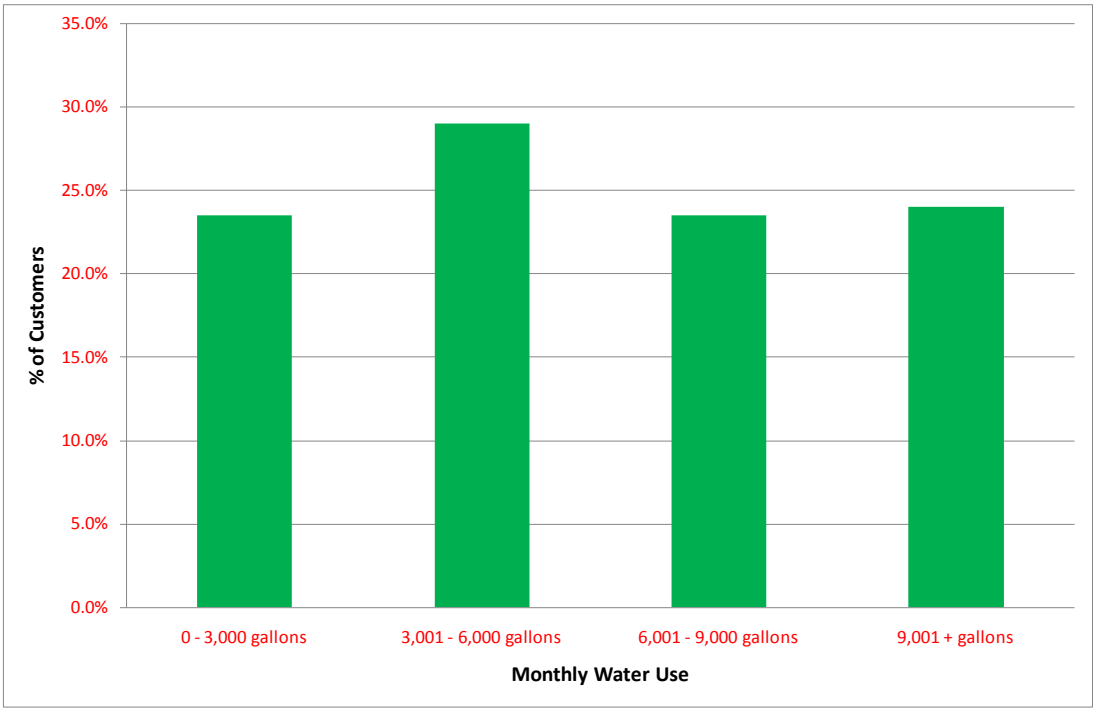


Figure 10 shows a use analysis of Single-family Residential customers at various water use levels.

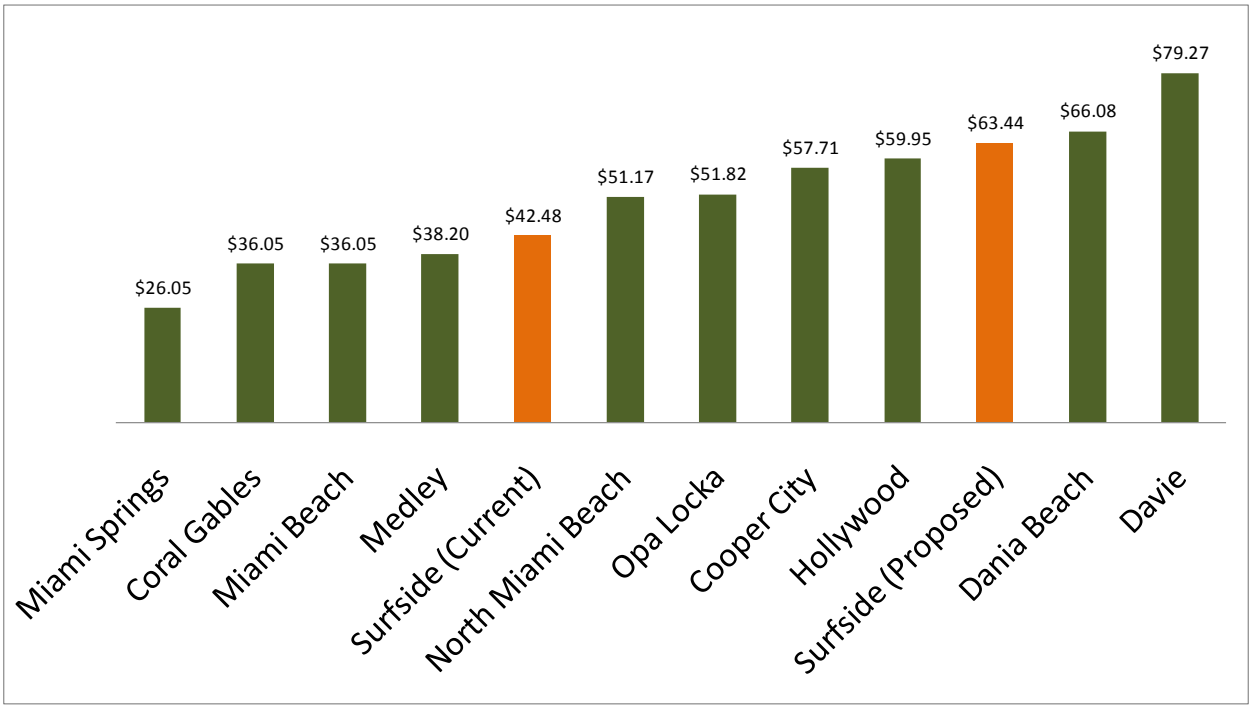
Figure 10: Customer Monthly Consumption Charge Analysis



Rate Comparison

While the cost structure and facilities vary greatly between water utilities, rate comparisons provide the Town a barometer of its rates in relation to surrounding communities. The figure (**Figure 11**) compares the estimated bi-monthly bill for 12,000 gallons of consumption.

Figure 11: SFR Rate Comparison –12,000 gallons



Sewer Rate Analysis

The Town's sewer utility system is in a similar position when compared to the Town's water utility. The sewer utility is facing increased costs related to operations and an increasing need to repair and replace existing infrastructure.

Revenue Requirements Analysis

The first step in developing the revenue requirements is to develop a projection of revenues from existing rates and expenditures for operations and capital needs. This analysis is demonstrated in Tables 5 and 6, located earlier in this report. The utility capital improvements project (CIP) needs for the sewer utility are summarized in **Table 15.** This table presents the sewer-related 5-year capital improvement plan as prepared by the Town's engineering consultant. The table lists the outside funding sources to be utilized for the capital projects including accumulated restricted and unrestricted net asset reserves, nominal water impact fees, and bond proceeds from a proposed revenue bonds issue for both water and sewer related capital construction projects. The combined effect of these outside funding sources is to eliminate the need for future rate revenues to directly fund these projects. However, the rates will be required to fund the debt service obligations on the revenue bonds.

Table 15: Sewer CIP and Funding Sources

Project	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	Total
Engineering/Architecture	$ 78,200	$ 26,000	$ -	$ -	$ -	$ 104,200
Construction	3,908,900	1,023,123	-	-	-	4,932,023
Prior CIP Appropriations	621,988	-	-	-	-	621,988
Total Sewer Capital Projects	$ 4,609,088	$ 1,049,123	$ -	$ -	$ -	$ 5,658,211
Less: Outside Funding Sources						
Sewer Impact Fees	$ 500	$ 500	$ 500	$ 500	$ 500	
Restricted Net Assets - Repair & Replacement	540,000	-	-	-	-	
Unrestricted Assets	118,000					
Revenue Bonds Proceeds	5,000,000	-	-	-	-	
Carry-over from Prior FY	-	1,049,412	789	1,289	1,789	
Total Outside Funding	$ 5,658,500	$ 1,049,912	$ 1,289	$ 1,789	$ 2,289	
Balance to Carry Over to Next FY	$ 1,049,412	$ 789	$ 1,289	$ 1,789	$ 2,289	
Net CIP Projects Funded from Rates	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Source: Town of Surfside; TischlerBise.

Summary of Revenue Requirements Analysis

These components comprise the foundation of the revenue requirement analysis. Given the current economic climate, the consulting team facilitated several meetings with Town staff and committee members to assure the accuracy of financial and growth variables in developing the revenue requirement analysis. Particular emphasis was placed on attempting to minimize rates, yet still encompass adequate funds to support the operational activities and capital projects throughout the

study period. The revenue requirements analysis figure, presented below in **Table 16**, provides a basis for evaluating the timing and level of water revenue increases required to meet the projected required revenue for the study period. The percentages shown at the bottom of the figure show the future revenue adjustments.

Table 16: Sewer Revenue Requirements

Description			Base Year FY 10/11	Projected FY 11/12	Projected FY 12/13	Projected FY 13/14	Projected FY 14/15
Operating Revenue							
Sewer Service Charges (before increase)			$ 1,407,825	$ 1,411,344	$ 1,414,873	$ 1,418,410	$ 1,421,956
Penalties			870	870	870	870	870
Total Operating Revenue			1,408,695	1,412,214	1,415,743	1,419,280	1,422,826
Additional Rate Revenue Required							
Year	*Revenue Increase*	*Months Effective*					
2010/11	15.00%	12	211,174	211,702	212,231	212,761	213,293
2011/12	9.00%	12	-	146,074	146,439	146,805	147,172
2012/13	7.00%	12	-	-	124,148	124,458	124,770
2013/14	5.00%	12	-	-	-	95,122	95,360
2014/15	5.00%	12	-	-	-	-	100,128
Total Additional Sewer Charge Revenue			211,174	357,776	482,818	579,147	680,722
Total Required Revenue			1,619,869	1,769,990	1,898,561	1,998,427	2,103,548
O&M Expenses							
Personnel			157,051	160,580	163,792	167,068	170,409
Operations			133,570	138,245	143,083	148,091	153,274
Sewage Disposal (City of Miami Beach)			725,389	834,197	959,327	1,103,226	1,268,710
Total O&M Expenses			1,016,010	1,133,022	1,266,202	1,418,385	1,592,393
Net Operating Income			**603,858**	**636,968**	**632,359**	**580,042**	**511,155**
Debt Service							
Annual Debt Service (Estimated)			377,151	377,151	377,151	377,151	377,151
Total Debt Service			377,151	377,151	377,151	377,151	377,151
Calculated Debt Coverage Ratio			160%	169%	168%	154%	136%
Targeted Debt Coverage Ratio			125%	125%	125%	125%	125%
Non-Operating Revenue							
Interest Income			1,064	1,064	1,064	1,064	1,064
Total Non-Operating Revenue			1,064	1,064	1,064	1,064	1,064
Non-Operating Expenses							
Capital Outlay (excl Improvements)			5,980	6,279	6,593	6,923	7,269
Rate Funded Capital Projects			-	-	-	-	-
Total Non-Operating Expenses			5,980	6,279	6,593	6,923	7,269
Net Income (Loss) [1]			**$ 221,792**	**$ 254,602**	**$ 249,679**	**$ 197,033**	**$ 127,799**

1. Positive net income to be applied to fund balances.

Source: Town of Surfside; TischlerBise.

Figure 12 illustrates the breakdown of the major budget components of the sewer utility. As the chart demonstrates, the primary cost of operating the utility is the costs of sewage disposal via the City of Miami Beach.

Figure 12: Major Budget Components of Sewer System

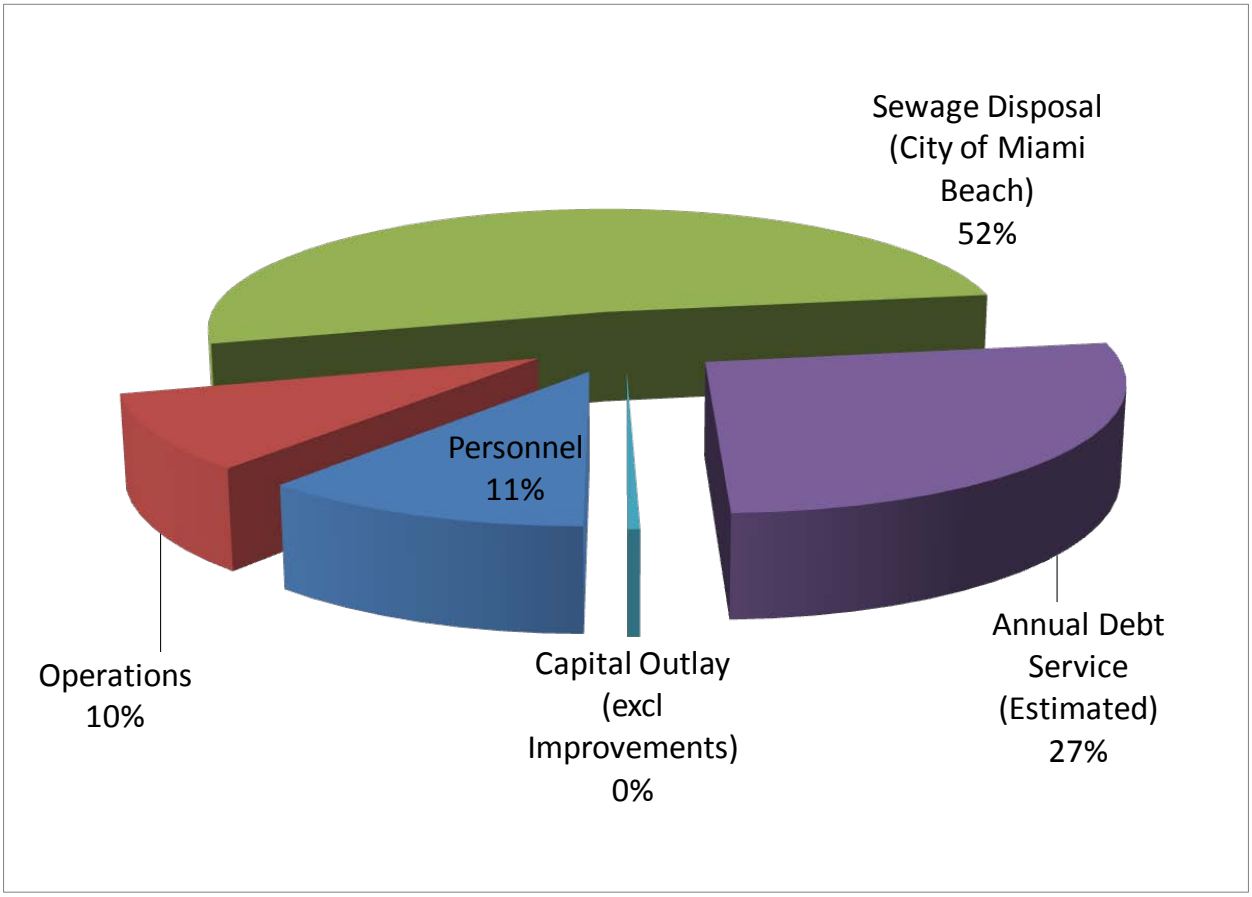


Table 17 on the next page presents the fund balance information utilizing the target fund balance figures for operating, capital and rate stabilization reserves.

Cost of Service Analysis

The cost of service analysis is a systematic process by which revenue requirements are used to generate a classification of fair and equitable costs in proportion to the service received for each user class. The cost of service allocation conducted in this study is established on a basic flow and customer account basis. This simplified method is used because the Town is only responsible for effluent flow, not treatment. This method is one endorsed by the Water Environment Federation (WEF), the nation's leading organization for the wastewater industry. Revenue requirements are allocated to the different user classes proportionate to their flow demands and number of customer accounts or dwelling units. Use of this methodology results in an acceptable cost distribution among customer classes and a means of calculating and designing rates to proportionately recover those costs.

Table 17: Sewer Fund Balance Information

Description	Base Year FY 10/11	Projected FY 11/12	Projected FY 12/13	Projected FY 13/14	Projected FY 14/15
Total Fund Equity - Sewer Only					
Beginning FY 10/11 Balance [1]	**$ 760,000**	See below for fund balance allocation (dependent on Town approval)			
Restricted Net Assets - Renewal & Replacement Reserves					
Beginning Balance	$ 540,000	$ 221,792	$ 477,183	$ 521,202	$ 521,202
Restricted Net Assets to Fund Sewer CIP Projects	(540,000)	-	-	-	-
Surplus from CIP Program (after bond issue)	-	789	1,289	-	-
Deposit from Positive Net Income	221,792	254,602	42,730	-	-
Ending Balance	**$ 221,792**	**$ 477,183**	**$ 521,202**	**$ 521,202**	**$ 521,202**
Target Balance: Up to 2x Annualized R&R	521,202	521,202	521,202	521,202	521,202
Target Met?	NO	NO	YES	YES	YES
% of Target	43%	92%	100%	100%	100%
Net Income Remaining	-	-	206,949	197,033	127,799
Restricted Net Assets - Rate Stabilization Reserves					
Beginning Balance	$ -	$ -	$ -	$ 189,769	$ 199,756
Deposit from Positive Net Income	-	-	189,769	9,987	10,512
Ending Balance	**$ -**	**$ -**	**$ 189,769**	**$ 199,756**	**$ 210,268**
Target Balance: Up to 10% of Rate Revenues	161,900	176,912	189,769	199,756	210,268
Target Met?	NO	NO	YES	YES	YES
% of Target	0%	0%	100%	100%	100%
Net Income Remaining	-	-	17,179	187,046	117,287
Unrestricted Net Assets - Operating Reserves					
Beginning Balance	$ 220,000	$ 102,000	$ 102,000	$ 119,179	$ 306,225
Unrestricted Net Assets to Fund Sewer CIP Projects	(118,000)	-	-	-	-
Deposit from Positive Net Income	-	-	17,179	187,046	117,287
Ending Balance	**$ 102,000**	**$ 102,000**	**$ 119,179**	**$ 306,225**	**$ 423,513**
Target Balance: Up to 25% of Current Year O&M	254,003	283,256	316,551	354,596	398,098
Target Met?	NO	NO	NO	NO	YES
% of Target	40%	36%	38%	86%	106%

1. Sewer utility's share of total enterprise fund equity balance.

Source: Town of Surfside; TischlerBise.

The resulting functionalization factors that appear at the bottom of **Table 18** are utilized to allocate system operating and capital costs to each customer class based on the each class' demand on the system. In **Table 19**, the functionalization percentages are used to allocate revenue requirements between variable costs of the water system (flow demands) and fixed costs of the system (customer accounts or dwelling units). The final totals are then used to design the fixed base charges based on account or dwelling unit and the variable rates per 1,000 gallons of sewage flow.

Table 18: Classification of Water Expenses by Function

Description	Total Sewer Expenses	Flow	Customer Accounts	Basis of Classification
Collection and Transmission				
Sewage Disposal	$ 725,389	$ 725,389	$ -	100% Flow
Electricity	21,463	21,463	-	100% Flow
Maintenance	55,754	55,754	-	100% Flow
Total Collection and Transmission Expense	802,606	802,606	-	
General & Administrative				
Personnel	157,051	78,526	78,526	50% Flow 50% CA
Indirect Cost Allocation	32,261	16,131	16,131	50% Flow 50% CA
Miscellaneous G&A	24,092	12,046	12,046	50% Flow 50% CA
Total G&A Expense	213,404	106,702	106,702	
Capital Requirements				
Capital Outlay (excl Improvements)	5,980	5,382	598	90% Flow 10% CA
Debt Service	377,151	339,436	37,715	90% Flow 10% CA
Total Capital Requirements Expense	383,131	344,818	38,313	
TOTAL FUNCTIONALIZED COSTS	**$ 1,399,141**	**$ 1,254,126**	**$ 145,015**	
FUNCTIONALIZATION FACTOR	**100.0%**	**89.6%**	**10.4%**	

Sources: Town of Surfside; TischlerBise.

Table 19: Allocation of Revenue Requirements by Functional Percentages

Description	Functionalization Factor	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
Sewer Flow	89.6%	$1,451,196	$1,585,758	$1,701,003	$ 1,790,518	$ 1,884,744
Customer Accounts	10.4%	167,803	183,362	196,688	207,039	217,934
Rate Revenue Required	100.0%	$1,618,999	$1,769,120	$1,897,691	$ 1,997,557	$ 2,102,678

Sources: Town of Surfside; TischlerBise.

Rate Design Analysis

The final step of the rate study is the design of the sewer rates to collect the desired level of revenue determined in the revenue requirement analysis. During this analysis, consideration is given to both the level of rates and the structure of the rates. This section reviews the proposed sewer rate design for the Town.

Criteria and Considerations

In determining the appropriate rate level and structure, the consulting team, in conjunction with Town staff, analyzed various financial scenarios concerning the adjustments and the implications attributed to those decisions.

Below, we present a simplified list of some of the design considerations that were reviewed during this analysis:

- Consideration of the customer's ability to pay
- Clear and understandable rates
- Easily administered
- Revenue stability (month to month and year to year)
- Implementation of Capital Improvements (rate of improving the existing system)
- Fair and equitable (cost-based) rates

Every consideration has merit and plays an important role in a comprehensive rate study. When developing the Town's proposed rates all of the aforementioned criteria were taken into consideration. Determining the appropriate balance is crucial, as some of the criteria sometime conflict with one another, i.e. the customers ability to pay and cost-based. In designing rates, there will always be concessions between the various objectives; however, we attempt to ensure the proposed rates meet all of the leading objectives of the Town.

Overview of Existing Rate Structure

The Town has one sewer rate structure for all customers based on the customers meter size. Similar to the current water rate structure, the bi-monthly charge includes minimum sewer flow amounts depending on meter size. If there is sewer flow in excess of this minimum allotment, the customer is charged $4.69 per 1,000 gallons of sewer flow for that billing period. For this analysis, we recommend that the Town eliminate the minimum allotment approach and adopt a cost-based approach including a fixed base charge per customer account or per dwelling unit (in the case of single-family residential accounts, apartments and condominiums) and a variable rate for sewer flow on a 1,000 gallon basis. We have two reasons for this modification:

- Customer Equity. We believe the current rate system to be inequitable to a group of customers who have sewer flows less than the allotted amounts. The current rate structure penalizes efficient customers and customers that have less sewer flow due to being a smaller customer (by way of small family size, small business, etc.).
- Revenue Stability and Cost-of Service-Based. Every utility has certain costs that must be funded regardless of sewer flow amounts. These costs are fixed and typically do not fluctuate. If a customer does not use any water during a billing period, there are still costs associated for past use and future service availability. These items include but are not limited to capital replacement for past use, maintenance of assets to provide sewer collection operations in the future, debt service, and customer service. A fixed charge system without minimum allotments ensures the utility's fixed costs will still be met while creating a more equitable billing system.

Table 20 below presents the current and proposed fixed base charges in a monthly format as well as the proposed sewer flow rate per 1,000 gallons. The fixed charges are calculated using number of customer accounts and dwelling units.

Table 20: Fixed Monthly Base Charges by Account or Dwelling Unit and Sewer Flow Rate

Description	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15
	Rate per 1,000 gal				
Uniform Variable Rate	$ 5.41	$ 5.89	$ 6.31	$ 6.62	$ 6.95
	Per Account/Dwelling Unit				
Monthly Fixed Charge	$ 3.43	$ 3.74	$ 4.01	$ 4.21	$ 4.42

Sources: Town of Surfside; TischlerBise.

Impact of Revenue Increase

In Fiscal Year 2010/11, the proposed 15% increase in required revenue does not directly correlate to a 15% increase in all sewer bills. The cost of service analysis dictates the actual adjustments to the bills. **Figure 13** presents bi-monthly sewer charges for Single-family Residential customers at various sewer flow levels. Under this structure, customers with low sewer flow levels will see a decrease in their bills while high flow customers will experience greater monthly bills.

Rate Comparison

While the cost structure and facilities vary greatly between sewer utilities, rate comparisons provide the Town a barometer of its rates in relation to surrounding communities. The figure (**Figure 14**) compares the estimated bi-monthly bill for 12,000 gallons of sewer flow.

Figure 13: Customer Billing Analysis: Current & Proposed Sewer Rates

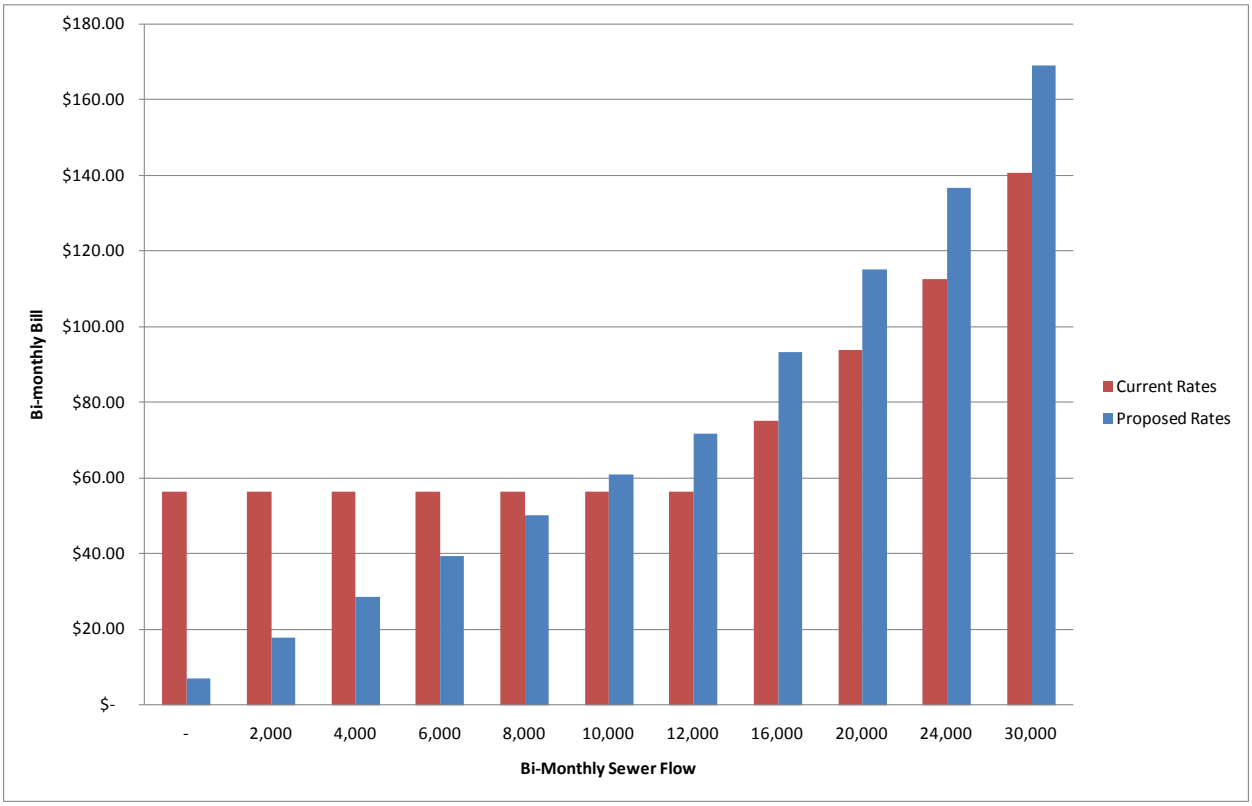


Figure 14: SFR Rate Comparison –12,000 gallons