Wastewater User Fee Analysis and Recommendations

Scotia Community Services District
Scotia, California

Prepared for:

Scotia Community Services District

SHN Engineers & Geologists

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December 2016

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Table of Contents

List of Illustrations

Tables **Page**

Abbreviations & Acronyms

cf	cubic feet
HCF/mo	hundred cubic feet per month
ACS	American Community Survey
AMHI	annual median household income
BOD	biochemical oxygen demand
CIP	capital improvement plan
CPI	consumer price index
DEA	Detailed Engineering Analysis
EDU	equivalent dwelling unit
EPA	U.S. Environmental Protection Agency
FY	fiscal year
HRC	Humboldt Redwood Company
MHI	monthly household income
NR	no reference
O&M	operations and maintenance
SCSD	Scotia Community Services District
SHN	SHN Engineers & Geologists
SWRCB	State Water Resources Control Board
TOS	Town of Scotia Company, LLC
TSS	biochemical oxygen demand

1.0 Introduction

Located in the heart of California Redwood Country, Scotia was developed starting in the 1880s and has been maintained since then as a true company town. The entire town was developed and constructed by The Pacific Lumber Company. The residences were all constructed and maintained by the company for its employees. Industrial, commercial, and community structures were also developed by the company, creating a consistency in historical design. In 2008, The Pacific Lumber Company was reorganized. Today, Scotia is owned and operated by the Town of Scotia Company, LLC (TOS); the sawmill is operated by Humboldt Redwood Company (HRC). All residences and businesses other than HRC are occupied by rental tenants; however, TOS is in the process of subdividing the properties and selling them into private ownership. To facilitate this transition to private ownership, in 2014 the Scotia Community Services District (SCSD) was formed to provide the town with essential services associated with water, wastewater, streets and street lighting, storm drainage, and parks. This report provides support and recommendations for establishment of user fees and benefit assessments to support the provision of those services by the SCSD.

This assessment was conducted by SHN Engineers & Geologists on behalf of the SCSD.

1.1 Objectives

Several objectives should be considered in the development of a financial plan and in the design of fees. The major objectives of the study were:

- Ensure revenue sufficiency to meet the operation and maintenance (O&M) and capital needs of the SCSD's community services.
- Plan for revenue stability to provide for adequate operating and capital reserves and the overall financial health of the SCSD.
- Provide for fairness and equity in the development of a system of user charges.
- Minimize fee impacts to reduce financial hardship on user categories and individual members of those categories.
- Maintain simplicity for ease of administration and implementation, as well as customer understanding and acceptance.

Some of these objectives are interrelated. This being the case, judgment plays a role in the final design of fee structures and fees.

1.2 Methodology

Municipalities face a common dilemma when establishing fees for municipally owned and operated enterprise facilities (water, sewer, gas, electricity, etc.). Municipal officials, understandably, want to keep user fees as low as possible. However, experience shows that insufficient user fees, combined with a reluctance to adjust fees upward when necessary, contribute to a progressive operating deficit, ultimately requiring substantial fee increases.

There are many cost factors to consider when evaluating utility user fees (such as, operational costs, debt service, capital improvements, and cash reserves to meet emergency needs).

Administrative expenses (such as, prorated portions of administrative salaries, legal expenses, insurance premiums, pension contributions, costs of audits, and other expenses that may be attributed to the utility) are also typically charged as costs of providing service.

It is important for a governing body to adopt fees and fees that are fair, equitable, and reasonable whenever working with any type of user charge or fee system. The "fair," "equitable," and "reasonable" criteria typically have different meanings to the various stakeholders or parties involved, and it is common for disagreements to surface in the process of establishing or changing user fees.

Sewer user fee systems have evolved over time from a simple fixed fee for all users to combinations of fixed base, flow-based and strength-based fees. There are many methods for establishing a user fee system; however, state and federal funding agencies consider the flow/ strength-based system approach the most equitable for the users. These funding agencies typically require some type of flow/strength based method to provide the revenue needed to repay debt associated with system improvements. Currently, Scotia includes an industrial tenant as a high strength effluent producing user. Consequently, for Scotia, this report recommends a fee system that includes a "base" fee to cover all fixed expenditures, a flow-based fee, along with a strength-based fee.

1.2.1 Base Fee

Administrative and general services relate to indirect support activities necessary to operate a wastewater system, and hence indirect costs, are usually allocated as customer-related costs.

Customer-related costs are fixed expenditures that relate to operational support activities including accounting, billing, customer service, and administrative and technical support. The customer-related costs are essentially common-to-all costs that are independent of user category characteristics. A base charge provides a mechanism for recovering a portion of the fixed costs and ensures a stable source of user revenues for the utility.

Once the costs are known, they are divided by the number of units of service associated with those costs to determine annual unit costs. Base charges are associated with equivalent dwelling units (EDUs) with respect to projected wastewater volumes to reflect the fact that base costs are higher for larger users.

1.2.2 Flow Fee

Sewer flows are not directly metered at the consumer's connection to the SCSD's system. Instead, water meter readings are used as a surrogate measure of sewage generation. Single-family and multiple-family residential, commercial, industrial, and institutional users are assessed a combination of the fixed fees and flowage charges based on water meter readings for the billing period. In special commercial and industrial cases, wastewater contributions may be metered to assign costs more accurately.

The most commonly used method for calculating sewer user fees on a flow-based system is the EDU method. The EDU method is based on the average water use by all single-family residences within the service area. The average single-family residence is assigned one EDU, and all other customers are assigned an equivalent number of EDUs based on proportionate water use, and

charged accordingly. The various non-single-family residential customers (multi-family, industrial, commercial, and institutional) are assigned an equivalent number of EDUs based on their total water usage divided by the "EDU volume" of used water.

Until recently, the existing Scotia water system has been mostly unmetered. With the completion of Phase 1 of the infrastructure improvements, 42 residential meters have been installed and several meters are in service related to some commercial and Industrial uses. For the purposes of this analysis, monthly water demand has been estimated by using data accumulated through the past six months of metered use by those users that are currently being monitored in the community. Due to the limited data available, the high and low months of metered water use were discarded along with identified inconsistencies. Because data mostly consists of information gathered during summer months and the "shoulder" seasons of May (7.93 hundred cubic feet per month [HCF/Mo]) and October (6.33 HCF/Mo) are decreasing, it was assumed that the "winter month usage would average approximately 5.0 HCF. Considering all readings and assumptions it is estimated that the average monthly use per household would be 6.50 HCF.

Table 1
Flow-based EDUs[1]
Scotia Community Services District

Use	EDUs
Residential	270
Commercial	64
Industrial	217
Institutional	14
Total	**565**

1. EDUs: equivalent dwelling units

Table 1 depicts the number of EDUs within Scotia based upon land use classification and comparative water use volume to the single-family residence (flow-based EDU equivalency).

1.2.3 Strength Fee

Strength of wastewater is typically based upon sampled and measured amounts of biochemical oxygen demand (BOD) and total suspended solids (TSS) contained within the wastewater. Wastewater treatment plants typically are designed based upon parameters of amount of flow needed to treat the effluent, including contaminant removal based upon measured concentrations of BOD and TSS in raw wastewater influent and treated effluent. The simplest method of allocating wastewater treatment costs is to use allocation percentages based on the useful lives and allocation parameters related to the community's treatment structures and equipment. Considering Appendix G of the Revenue Program Guidelines, March 1998 Edition, from the Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities, State of California, costs are allocated 40% to wastewater flow, 30% to BOD, and 30% to TSS. These percentages are based on a mechanical type wastewater treatment system, which is the type of treatment system being used by Scotia. According to Metcalf & Eddy Inc. (1991), typical, single-family residential (EDU) strength contributions to the waste stream are:

- 0.5 pound BOD per day
- 0.5 pound TSS per day

There are multiple commercial, industrial and institutional users in Scotia, however, considering the wastewater strength and flows produced by the Eel River Brewing Company, they are the only industrial tenant which is currently classified as a high strength user in the system, that single tenant user is equivalent to approximately 62 EDUs balanced between flow and strength. Identified

"High-Strength Users" will be charged based upon actual measured strengths and flows acquired from the individual source, along with associated base fees. Estimates of the Brewery fees and EDU calculations are contained in Appendix A.

2.0 Revenue Requirements

Utility owners establish user fees based on generating sufficient revenue to pay all operating costs, cover debt service on outstanding loans, provide cash to make ongoing capital improvements, provide a cash reserve for unexpected repairs and to meet all loan requirements, and provide cash reserves for increasing capacity as population growth occurs.

Typically, it is important to distinguish the difference between future capacity needs related to undeveloped areas and additional capacity needs that have occurred in the process of orderly development within the service area. However, the SCSD will have limited future growth capabilities. Future growth, capacity expansion improvements are often paid for through connection fees assessed to new customers. This fee analysis does not address future growth, the capacity needed to accommodate that growth, or existing capacity buy-in costs that are typically assessed to new customers as part of their connection fee. Consequently, there is no analysis or discussion of connection fees in this report. There are only about three residential lots and one commercial lot that could possibly be developed in all of Scotia. Capacity expansion improvement activities and costs are, therefore, speculative at best, dependent upon policy determinations not yet made, and are unlikely to be material in any event.

2.1 Operation and Maintenance

A formal definition of operation and maintenance (O&M) is: The continuing activities required to keep wastewater facilities and their components functioning in accordance with design objectives while maintaining compliance with public wastewater system health and safety requirements.

More specifically for the purpose of establishing user fees, O&M requirements consist of those expenditures associated with the day-to-day operations of the collection, treatment, disinfection, and disposal, and are made up of costs related to such items as personnel, other utility uses (power, telephone), supplies, training, equipment repair, etc.

Operations and maintenance revenue requirements are established based on years of experience, and any unusual changes that may have been instituted in any particular year, and are considered relatively inflexible when analyzing the overall revenue requirements of a utility. As a "start-up" services district, there is no history with which to establish an O&M budget. A proposed O&M budget was prepared giving consideration to the current financial information provided by TOS relative to its past two years of operations, comparisons of neighboring communities' operations, and experience with the financial and budgetary aspects of smaller communities and service districts.

2.2 Debt Service

As a "start-up" entity, the SCSD has no existing debt service. However, some improvements to the wastewater treatment facilities have been identified in the Detailed Engineering Analysis (DEA; SHN, 2009), and as updated (SHN, 2016), developed in relation to the SCSD formation requirements, which project expenditures for upgrades in the future. The SCSD Wastewater Fund is expected to pay a portion of the debt related to acquisition of the SCSD's office building and grounds, which may be purchased in fiscal year (FY) 2016-17, and the fund is expected to pay debt service related to an approximately $3,000,000 treatment plant upgrade, which may occur in FY 2018-19.

2.3 System Replacement

According to the State Water Resources Control Board, Revenue Program Guidelines, system replacement costs are: "Expenditures for obtaining and installing equipment, accessories, or appurtenances, which are necessary during the useful life of the treatment works to maintain the capacity and performance for which such works were designed and constructed" (SWRCB, 2004). System replacement, as defined above, is considered by that agency to be a minimal level of funding in this category. Establishing a funding level for facilities replacement is a policy decision often driven by a community's determination of user fee affordability, among other criteria. It may be considered good "business sense," for agencies that own and operate wastewater collection and treatment facilities to fund 100% of the replacement value of the existing facilities, but it is not common. Two primary reasons for that trend are:

1. Replacement of future facilities can be funded through debt financing (primarily revenue bonds) provided by outside sources (such as, state and federal agencies).
2. Most facilities are struggling with needed improvements or existing debt financing burdens, and the managers of such facilities do not always believe it is fair to have the existing customers pay for both current and future improvements. It is common to assume future users will pay for their long-term facility replacement costs.

2.4 Capital Improvement Planning

The term "capital improvement" refers to new or expanded physical facilities for the communities that are of relatively large size. Capital improvements are relatively expensive, and are considered permanent with respect to usefulness to service area customers. Large-scale replacement and rehabilitation of existing facilities also falls within this category. Equipment, (such as, a utility truck) is not classified as a capital improvement for the purposes of this report.

A DEA for the Scotia wastewater system was prepared (SHN, 2009), and as updated (SHN, 2016), for the required documentation for district formation. TOS is in the process of performing the collection system upgrades, including replacement of more than 90% of the existing collection system. Improvements identified in the DEA expected to be performed by the SCSD in the future include treatment plant improvements. Costs identified in the DEA associated with those improvements total approximately $3,000,000.

2.5 Total Revenue Requirements

A first year budget and projections of future wastewater system revenue and expenditures were developed for the SCSD. Table 2 presents the projected expenditures for the upcoming fiscal year and projects them out through FY 2020-21.

Table 2
Projected Expenses, Wastewater Fund
Scotia Community Services District

	FY [1] 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Personal Services					
Attorney	$17,600	$17,952	$18,311	$18,677	$19,051
IT Services	$6,600	$6,732	$6,867	$7,004	$7,144
Auditor (Annual Audit)	$5,280	$5,386	$5,493	$5,603	$5,715
Board Stipend	$2,640	$2,640	$2,640	$2,640	$2,640
Bookkeeping/CPA Consult	$2,200	$2,244	$2,289	$2,335	$2,381
Engineering	$5,400	$5,508	$5,618	$5,731	$5,845
O&M[2] Staff (Salaries & Benefits)	$168,900	$172,278	$175,724	$179,238	$182,823
Total Personal Services	**$208,620**	**$212,740**	**$216,942**	**$221,228**	**$225,599**
Materials and Services					
Bond, Dues, Publications	$2,500	$2,575	$2,652	$2,732	$2,814
Supplies, Lab, Permitting & Monitoring	$55,000	$56,650	$58,350	$60,100	$61,903
Utilities- Water, Sewer Communications	$4,800	$4,944	$5,092	$5,245	$5,402
General Maintenance & Repair	$10,000	$10,300	$10,609	$10,927	$11,255
Insurance	$30,000	$30,900	$31,827	$32,782	$33,765
Electrical	$25,000	$25,750	$26,523	$27,318	$28,138
Contracted Maintenance Services	$7,500	$7,725	$7,957	$8,195	$8,441
Total Materials And Services	**$134,800**	**$138,844**	**$143,009**	**$147,300**	**$151,719**
Total O&M	**$343,420**	**$351,584**	**$359,951**	**$368,527**	**$377,318**
Other Expenditures					
Annual Debt Service	$8,140	$8,140	$186,340	$186,340	$186,340
Transfer to Equipment Replacement Fund	$35,120	$35,120	$35,120	$35,120	$35,120
Transfer to Capital Reserve Fund	$233,550	$233,550	$0	$30,000	$40,000
Total Other Expenditures	**$276,810**	**$276,810**	**$221,460**	**$251,460**	**$261,460**
Capital Outlay					
SCSD Office Building	$118,800				
Treatment Plant Facilities Plan Update			$3,000,000		
Office Equipment/furnishings Start-up	$6,000			$0	$0
Total Capital Expenditures	**$124,800**	**$0**	**$3,000,000**	**$0**	**$0**
Total All Expenditures	**$745,030**	**$628,394**	**$3,581,411**	**$619,987**	**$638,778**

1. FY: fiscal year
2. O&M: operations and maintenance

2.6 Fee Design and Recommendations

The proposed fee structure is based upon establishing a fee system that is intended to serve the District over a five-year period. Collected annual revenues that exceed O&M, debt service, and equipment replacement costs will be placed in a capital reserve fund to help offset debt financing requirements for future capital improvements and to offset increases due to inflation.

Fee structures should be designed in such a way as to ensure that users pay only their proportionate share of costs. In addition, fee structures should be easy to understand, simple to administer, and comply with regulatory requirements. The service charge and the suggested commodity fee for the various user categories are discussed in detail below.

NOTE: This report and associated analyses are based upon consideration of 270 individual residential users as a separate user category. Residential users will not be considered customers until they purchase a home. The residential user category analyses is employed to determine what costs are allocated and paid by TOS, the current owner and customer for all the residential users in town at this time. Once a residence is sold, the new owner will pay the incremental cost and fee for an individual residential user.

2.6.1 Base Fees

Base fee-related costs are fixed expenditures that relate to operational support activities, including accounting, billing, customer service, administrative and technical support, and debt service. The customer-related costs are essentially common-to-all costs that are independent of user category characteristics. A base fee provides a mechanism for recovering a portion of the fixed costs and ensures a stable source of user revenues for the utility. Fixed expenditures for the FY 2016-17 projected budget (Table 2) are determined to be approximately 62% ($381,980, See Table A-1, Total Costs, Base) of the total projected ongoing operational expenditures of $620,230 (total all costs less projected capital outlay expenses for the year in the amount of $124,800). These figures equate to a recommended residential base fee of $75.25 per month per EDU (Appendix A). All single family residential users shall pay the same monthly base fee. All non residential users will pay a fixed monthly base fee proportional to the estimated monthly comparison of each non residential users water use to the established EDU water use (6.5 HCF/mo), or based on documented proportions of actual wastewater volume contributions determined by measured wastewater flows or through the use of established national standards. Non residential users will pay a monthly base fee of no less than one EDU.

2.6.2 Flow Fee

The flow fee is the fee developed to recover the SCSD's variable volume-related costs. The annual estimated FY 2016-17 revenues required, less annual costs associated with base fee revenues, are the revenues that need to be recovered through a flow fee.

The user categories can be sorted into groups with similar peaking characteristics, resulting in a uniform flow fee that is the same within the group. Due to similar usage characteristics, residential customers are grouped together, and commercial and industrial are grouped together. The SCSD does not currently differentiate between residences and all other user categories for fee design.

The recommended residential flow fee is $4.11per 100 cf water used (Appendix A).

2.6.3 Strength Fee

Strength fees for the wastewater fee system are recommended to be based upon sampled and measured amounts of BOD and TSS contained within the wastewater contribution of classified "high-strength" users. There is currently only one "high-strength" user in the Scotia system, the Eel River Brewery Company. Based on costs allocated to the treatment of the two contaminant indicators (see Appendix A), the recommended strength fees, associated with BOD and TSS contribution are:

- $0.3626 per pound/month of BOD contribution
- $0.5414 per pound/month of TSS contribution

2.6.4 Annual Escalators

The proposed fee structure is based upon establishing a fee system intended to serve the SCSD over a five-year period. Revenues collected that will exceed projected O&M, debt service, and replacement expenses are to be placed in a capital reserve fund, which will use accumulated funds for application toward principal costs of projected capital improvements related to the treatment plant upgrade and other planned capital expenditures.

The SCSD's proposed five-year fees are established with an annual 1.5% escalation factor. The proposed fees may also be increased based on an indexed escalation, if the District chooses to use it. The maximum user fee may increase based on the annual change in the consumer price index (CPI) if that amount exceeds the assumed 1.5% increase built into the initial five-year budget projections. The fee adjustment shall be based on CPI activity measured during the preceding year, for "All Urban Consumers, West Urban Area," all items, published by the United States Department of Labor, Bureau of Labor Statistics (or a reasonably equivalent index if the stated index is discontinued; US Bureau of Labor Statistics, no date). Table 3 shows the fee progression throughout the next five years considering a 1.5% increase.

Table 3
Proposed 1.5% Annual Fee Increases
Scotia Community Services District

Operational Year		FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
EDU	Base Fee	$75.25	$76.38	$77.53	$78.69	$79.87
	Flow/Strength Fee	$40.48	$41.09	$41.70	$42.33	$42.96
High Strength User	Flow Fee[1]	$4.11	$4.18	$4.24	$4.30	$4.37
	BOD[2]	$0.3626	$0.3680	$0.3736	$0.3792	$0.3849
	TSS[2]	$0.5414	$0.5495	$0.5578	$0.5661	$0.5746

1. Flow Fee is $/hundred cubic feet of water used
2. Strength Fees are $/lb of contaminant

Future increases shall also take into account the "pass through" costs of the purchase of uncontrolled, mandatory services (such as, utility costs). Increases or decreases in the purchase of uncontrolled mandatory services, outside of typical inflationary values, shall be passed through proportionately when considering all annual fee adjustments.

Indexing fees annually to the CPI and adjusting for "pass through" costs, allows for minor increases for normal maintenance and operating cost escalation without incurring the costs of the Proposition 218 ballot proceedings. Any significant change in the user fees initiated by an increase in service provided or other significant changes to the SCSD would require the Proposition 218 proceedings and property owner approval.

3.0 Affordability

One of the most important issues in wastewater pricing is affordability. Water serves as an indicator of wastewater flows. Although water is priced extremely low compared to most other goods, it is an essential good. People have little choice but to use water and pay a local monopoly provider for-related wastewater flows. Besides affordability, equity issues are part of the fee making process. Are fees fair across customer groups? Are customers paying for the cost of service? Are some groups getting price breaks on the backs of others? While the issue of affordability is important, revenue adequacy remains the number one priority of any wastewater system. Income effects and affordability issues must be secondary or be addressed directly through other government social programs.

A basic affordability issue is determining who to protect and at what levels? How much income protection should be supplied through the wastewater fee making process? Affordability issues in the future will require careful planning. Consumers must be educated about why fees are set as they are, and customer feedback should be monitored.

How is fee affordability measured? The U.S. Environmental Protection Agency (EPA) has published literature related to the affordability of water user fees. It also is common to use the water user fee guidelines when considering wastewater user fees, because they are a similar type of utility. The EPA study is also comparable to another study prepared by the Missouri Department of Natural Resources Program, Clean Water State Revolving fund Additional Subsidization Affordability Analyses, which addresses wastewater fees. The EPA suggests that user fees which are 2% or less of annual median household income (AMHI) are affordable. In a survey of 1,600 utilities in five states, the EPA found that user fees ranged from 0.1% to 3.1% of AMHI with an average of 0.5% (EPA, 1998). Thus by EPA standards, user fees nationwide are affordable. The most recent published AMHI for the SCSD area is estimated at $54,605 for 2014 (American Community Survey [ACS], 2014). Applying EPA's standard of 2%, an affordable (upper end of affordability) monthly fee for residential customers, (home or property owners), would be $91 per month. Based upon the EPA criteria, the proposed wastewater EDU fee for SCSD (base fee plus flow-related fee) is $115.73 per month, which is 2.6% of AMHI, and is above the range of affordability but below the maximum range.

5.0 References

American Community Survey. (2014). Annual Median Household Income. NR:US Census Bureau.

Metcalf & Eddy Inc. (1991) *Wastewater Engineering. Treatment Disposal and Reuse.* 3rd edition, Mc-Graw Hill Book Company. NR: McGraw Hill.

SHN Consulting Engineers & Geologists, Inc. (2009). "Detailed Engineering Analysis, Town of Scotia, CA." Eureka:SHN.

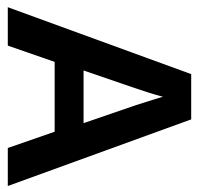
SHN Consulting Engineers & Geologists, Inc. (2016). "Detailed Engineering Analysis, Town of Scotia, CA." Eureka:SHN.

State of California (1998). Appendix G of the Revenue Program Guidelines, (March 1998 Edition), from the *Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities*, State of California. NR: State of California.

State Water Resources Control Board. (May 2004). *Revenue Program Guidelines for the Small Community Wastewater Grant (SCWG) Program*. Sacramento, CA:SWRCB.

U.S. Bureau of Labor Statistics. (NR). Databases, Tables & Calculators by Subject "Consumer Price Index - All Urban Consumers" Accessed at: http://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUUR0400SA0,CUUS0400SA0.

U.S. Environmental Protection Agency. (Aug. 19, 1998). *National-Level Affordability Criteria under the 1996 Amendments to the Safe Drinking Water Act – Final Draft Report*. NR:EPA.



Fee Calculations

Table A-1 Distribution For Flow and Strength Expenses (Year 1) Wastewater Breakdown			
	Collection	**Treatment**	**Base**
TOTAL PERSONAL SERVICES	**$45,100**	**$55,730**	**$107,790**
Materials and Services			
Bond, Dues, Publications			$2,500
General Supplies, Lab, Permitting & Monitoring	$11,000	$44,000	
Utilities- water, sewer, Assess., communications	$960	$3,840	
General Maintenance & Repair	$2,500	$7,500	
Liability Insurance			$30,000
Electrical		$25,000	
Contracted Maintenance Services	$3,750	$3,750	
TOTAL MATERIALS AND SERVICES	**$18,210**	**$84,090**	**$32,500**
Annual Debt Service on Capital Improvement Loans			$8,140
Transfer to Equipment Replacement Reserve Fund		$35,120	
Transfer to Capital Reserve Fund			$244,550
TOTAL ALL COSTS	**$63,310**	**$174,940**	**$381,980**
	Collection Distribution	**Treatment Distribution**	
100% Flow =	$63,310	$69,976	=Flow 40%
		$52,482	=BOD 30%
		$52,482	=TSS 30%

Table A-2 Personal Services Expense Distribution			
	Wastewater		
Position	Collection	Treatment	Base
District Manager	--	--	$51,612
Clerk	--	--	$21,858
Operations Supervisor	$16,698	$16,698	--
Utility Operations/Lead	$3,036	$27,324	--
Utility Worker - all	$20,493	$6,831	--
Utility Worker - Parks	$2,174	$2,174	--
Legal Counsel	--	--	$17,600
IT Services			$6,600
Auditor (Annual Audit)	--	--	$5,280
Board Stipend	--	--	$2,640
CPA/Bookkeeping	--	--	$2,200
Engineering/Operations Consult	$2,700	$2,700	
Total	**$45,100**	**$55,730**	**$107,790**

Table A-3 Residential (Low Strength) Wastewater Fee Calculations			
Cost to Allocate	**Total**	**Unit Cost/mo**	**$/EDU**
$133,286 Flow	2,033,592 gallons	$0.0055 per gallon	$26.74
$52,482 BOD	12,063 pounds	$0.3626 per pound	$5.51
$52,482 TSS	8,078 pounds	$0.5414 per pound	$8.23
$381,980 Base	**Monthly Flow and Strength Fee/EDU**		**$40.48**
$620,230	**Total Costs Allocated**	**Monthly Base Fee/EDU**	**$75.25**
		Total Monthly EDU Fee	**$115.73**

Notes:

1. "Low Strength" Residential strength and flow wastewater contributions are based on:
    - 0.5 lb of BOD/day
    - 0.5 lb of TSS/day
    - EDU monthly Flow of 650 cubic feet/month ÷ 100 = 6.5 units/month
2. Identified "High Strength Users" to be charged based upon actual measured strengths (BOD and TSS) and flows acquired from the individual source, along with associated base fees.
3. EDU calculations
    - Flow - 650 cf/mo x 7.48 gallons/cf x $0.0055/gallon = $26.74/mo
    - BOD – 0.5 lb/day x 365 days/year ÷12 mo/year x $0.3626/lb = $5.51/mo
    - TSS - 0.5 lb/day x 365 days/year ÷12 mo/year x $0.5414/lb = $8.23/mo
    - Base Fee - $381,980/year ÷12 mo/year ÷ 423 EDU's (flow based) = 75.25/mo

Table A-4
Example of Eel River Brewery Company Monthly Fee Estimate[1]

Monthly Contribution			Fee			Brewery Fee	EDU Equivalent (Per Contribution Type)
346[2]	HCF/mo. (commodity/flow fee)	X	$4.11	/HCF	=	$1,422.06	53
4,350	lb BOD/mo. (strength fee)	X	$0.3626	/lb	=	$1,577.31	286
365	lb TSS/mo. (strength fee)	X	$0.5414	/lb	=	$197.61	24
	Total monthly strength/flow fees					$3,196.98	
53[3]	EDU flow equivalent (Base Fee)	X	$75.25	/EDU	=	$3,988.25	53
	Total Monthly Fee				**=**	**$7,185.23**	62[4]

Brewery - EDU Comparison Related to Wastewater Characteristic

Brewery			EDU		Brewery Equivalent EDUs
Flow	346 HCF/mo	÷	6.5 HCF/mo	=	53
BOD	4,350 lb/mo	÷	15.2 lb/mo	=	286
TSS	365 lb/mo	÷	15.2 lb/mo	=	24
Base Fee[3]	346 HCF/mo	÷	6.5 HCF/mo	=	53

1. Based upon average of three BOD and TSS samples taken on November 13, 2015; December 28, 2015; and December 29, 2015.
2. Flow based upon metered water use less consumptive use (water used for product and not discharged to wastewater system).
3. See Report Section 2.6.1.
4. EDU equivalent based upon estimated monthly fee comparison, Brewery Fee ÷ EDU monthly fee, ($7,185.23/$115.73 = 62).

Table A-5 EDU's Based on Water Use or Estimated Wastewater Contribution	
	Flow Based EDU's
Residential	270[1]
Commercial	
Scotia Inn - Restaurant/Lounge	33[1]
Scotia Inn	
Scotia Child Enrichment Center (pre-school)	2[2]
TOS Admin. Offices	5[1]
U S Bank	1[1]
Pharmacy	2[2]
Auqua Dam Offices	1[2]
Hair Heaven & Post Office	1[1]
TOS office (now constr. & CSD offices)	2[2]
Medical Center Building	6[2]
Scotia True Value Hardware Store	2[2]
Gas Station	1[2]
Hoby's Market	4[1]
HRC Sales Offices	1[2]
HRC Offices	3[2]
Industrial	
HRC Mill Facilities	15[2]
Electrical Co-generation Facilities	3[2]
Aqua Dams	1[2]
Hall's Sheet Metal	1[2]
Eel River Brewery	53[3]
HRC Repair Garage	1[2]
Vacant Storage Building (Northern Mill A)	1[2]
Institutional	
Fire Station (& Future CSD Offices)	2[2]
Scotia Union School District (K-8)	6[1]
Winema theater	1[2]
CSD Shops/corporate Yard	1[2]
Scotia Museum	1[2]
St. Patrick's Church	1[2]
Scotia Union Church	1[2]
Scotia Park (Fields & Picnic)	1[2]
Total EDU's	**423**

Basis of Estimate Notes

1. Metered Water Use
2. Published Standard, Primarily Metcalf & Eddy Inc. (1991) *Wastewater Engineering. Treatment Disposal and Reuse*
3. Metered Water use, less Consumptive Use