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## Evaluation of Sewer Enterprise Funds Cash Flow and Rates

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Prepared for  
City of Antioch, California  
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## List of Abbreviations

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AMC	Antioch Municipal Code
CAFR	Comprehensive Annual Financial Report
CIP	Capital Improvement Program
City	City of Antioch
DSC	debt service coverage
FY	Fiscal year (July 1 to June 30)
ENR	Engineering News Record
FY22	July 1, 2021 to June 30, 2022
gpd	gallons per day
HCF	Hundred Cubic Feet (equal to ~ 748.1 gallons)
mgd	million gallons per day
NPL	Net Pension Liability
O&M	Operation and maintenance
OPEB	Other post-employment benefits
SSMP	Sewer System Management Plan
SWRCB	State Water Resources Control Board

# Executive Summary

The City of Antioch, in conjunction with Municipal Financial Services, has analyzed the adequacy of revenues from sewer rates to meet projected expenditures of the sewer enterprise funds to determine whether revenues will be adequate to cover operating and maintenance costs as well as needed capital costs while meeting target reserve levels.

The quality and safety of the City’s local wastewater collections system is essential to the community’s health, safety and financial integrity. In this study, projected sewer funds’ cash flow is evaluated for the six-year period Fiscal Year 2020 – 21 (FY21) and FY26 to ensure the City meets its quality, safety, maintenance, and financial objectives. Actual cash flow for FY20 (the fiscal year proceeding the projections) is included for reference.

A *Water and Sewer Rates and Capacity Charges Study* was completed in May 2015 (2015 Rate Study). Based on findings and recommendations in the 2015 Rate Study, the City Council approved Resolution No. 2015/26 which adopted water and sewer rate increases to be effective July 1<sup>st</sup> of 2015, 2016, 2017, 2018, and 2019 (2015 Five-Year Rate Plan). Rates for the final fiscal year of the rate plan, FY20, which were implemented July 1, 2019, remain in effect for FY21.<sup>1</sup>

## Revenue Required from Sewer Service Charges

Sewer service charges were developed to generate sufficient revenues to cover operating and maintenance expenditures and capital expenditures, fund payment of net pension and OPEB (other post-

	<i>\$ thousands</i>	
<b>Beginning Balance, July 1, 2021</b>	6,760	
<b>Expenditures</b>		
Supervision/Collection	43,170	94%
Capital Expenses	2,980	6%
<b>Total Expenditures</b>	46,150	100%
<b>Revenues</b>		
Charges for Services	41,660	98%
Investment Income and Other	1,020	2%
<b>Total Revenues</b>	42,680	100%
<b>Net Revenues</b>	(3,470)	
<b>Ending Balance, June 30, 2026</b>	3,290	
Ending Balance 120 Day Target	3,000	
<i>Net Pension/OPEB Liabilities</i>	(5,670)	
<b>Ending Balance less NP/OPEB, June 30, 2026</b>	(2,380)	

employment benefits) liabilities and meet target reserve levels.<sup>2</sup> A summary of the projected five-year expenditures, revenues, and fund balances for the sewer operating fund (Fund 621) are shown in the adjacent table for FY22 – FY26 (values are rounded from those listed in other tables in this report).

The approximate projected amount of revenues from rates (Charges for Services) for the five-year period is approximately \$41,660,000.

Projected expenditures are approximately \$46,150,000. The FY26 Ending Balance is approximately \$3,290,000. The 120 Days Cash Target Ending Balance is approximately

\$3,000,000. The FY26 Ending Balance exceeds the target by \$290,000. The City plans to use the amount in excess of the target as a reserve to fund the \$5,670,000 Net Pension and OPEB liabilities.

<sup>1</sup> The City’s sewer service charges are governed by Chapter 4 of Title 6 of the Antioch Municipal Code. The term “sewer service charges” and “sewer rates” are used interchangeably in this report.

<sup>2</sup> With implementation of GASB 68 in FY15, City is now required to book Net Pension Liability and OPEB liability to the enterprise funds, decreasing net position by the amount of the liability.

## Recommended Sewer Service Charges for FY22 – FY26

Based on evaluation of the sewer enterprise funds cash flow for FY22 – FY26 using projected expenditures and revenues it is recommended that current monthly Single Family sewer rates be increased by \$1.00 per month for FY22 (from \$14.00 to \$15.00). Single Family rates for each of the following four fiscal years would increase by an additional \$1.05, \$1.15, \$1.25, and \$1.35 per month. The FY26 Single Family rate would be \$19.80 per month.

Current and recommended sewer service charges for all customer classes are listed in the table below.

Table ES-1. Current and Recommended Sewer Service Charges						
	Current FY21	Recommended Five-Year Rate Plan				
		FY22	FY23	FY24	FY25	FY26
<i>effective dates &gt;</i>	7/1/2019	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025
<i>Residential, \$/month per Dwelling Unit</i>						
Single Family	\$14.00	\$15.00	\$16.05	\$17.20	\$18.45	\$19.80
Multiple Family	\$12.70	\$13.40	\$14.35	\$15.40	\$16.50	\$17.70
Apartment/Mobile Home	\$11.10	\$11.95	\$12.90	\$13.95	\$15.10	\$16.35
<i>Nonresidential</i>						
Account Charge, \$/month	\$4.44	\$4.60	\$4.95	\$5.30	\$5.70	\$6.15
Volume Rate, \$/HCF *	\$1.20	\$1.31	\$1.42	\$1.54	\$1.68	\$1.82

\* 1 HCF = approximately 748 Gallons

## Section 1

# Introduction

This section describes the organization of the report, rate-making objectives, the rate-setting process, and a general description of the sewer system.

## 1.1 Organization of the Report

This report is divided into four sections. This introduction provides an overview of the study objectives.

Section 2 discusses characteristics of customers and their use of the sewer system. The number and type of connections to the system and wastewater discharge projected for FY21 – FY26 is developed in this section.

Section 3 describes the evaluation of sewer enterprise cash flows.

Section 4 describes the limitations of the study document.

## 1.2 Rate-Making Objectives

There are numerous rate-making objectives that must be considered when developing rates and rate structures.

**Revenue sufficiency.** Generate sufficient revenue to fund operating costs, capital costs and bonded debt, and maintain adequate reserves.

**Revenue stability.** Recover revenue from fixed and variable charges that will cover fixed and variable costs (barring water shortages when rationing may be required).

**Administrative efficiency.** Enable efficient implementation and ongoing administration, including monitoring and updating.

**Affordability.** Be as affordable as possible while maintaining the utilities sound financial position and credit rating.

**Customer acceptance.** Be as simple as possible to facilitate customer understanding and acceptance.

**Fairness.** Provide for each customer class to pay its proportionate share of the required revenue in compliance with legal rate-making requirements.

**Economic development.** Operation of the enterprise must be competitive with local jurisdictions to retain and attract economic development.

## 1.3 Source Data

Information and data for the development of rates and preparation of this report comes from many documents provided by the City. The list of documents, and the key information and data from each used in this study, are summarized below.

**City of Antioch Fiscal Year 2019-20 Actual Expenditures and Fiscal Year 2020-23 Annual Operating Budgets.** This document shows the recommended FY 2019-21 Annual Operating Budget and Five-Year Capital Improvement Program for the water and wastewater enterprise funds for two fiscal years. The City provided a mid-year update of the FY20 budget and actual values for FY19. Enterprise funds are funded primarily from fees and other user charges.

**City of Antioch Municipal Code.** Ordinances relating to the sewer enterprise are codified in Title 6: Sanitation and Health, Chapter 4: Sewer System.

**Utility Billing System data.** Monthly water use data for each of the City's metered accounts, for the time period July 2016 through June 2017, were provided in an Excel file. Each account record had descriptive information of the account's customer class, meter size and elevation pressure zone. The City also generated special reports for January 2021, such as the *Multiple Unit Report*, which listed sewer accounts with multiple dwelling units connected to the collection system.

## 1.4 Antioch Sewer Utility

The sewer collection activity is primarily responsible for maintaining an estimated 300 miles of sanitary sewer system lines, an estimated 6,050 manhole structures and approximately 30,650 residential and commercial sewer lateral connections. This program also performs root foaming, manhole rehabilitation, infiltration control, spot repairs and cleaning of larger trunk lines. Employees in this activity provide a comprehensive program of televising, archiving and benchmarking the overall condition of the sewer system infrastructure. Data from these activities are used to establish maintenance requirements, the need for repairs and development of Capital Improvement Projects. Personnel also assist in staffing an alternative work shift and 24-hour Stand-by system that responds to emergency after hour calls for service.

Pursuant to State Water Resources Control Board Order 2006-0003, Statewide General Discharge Requirements of Sanitary Sewer Systems, the City of Antioch has developed and implemented a Sewer System Management Plan (SSMP). The goal of the SSMP is to minimize the frequency and severity of sanitary sewer overflows. The SSMP covers the management, planning, design, and operation and maintenance of the agency's sanitary sewer system.

Wastewater from the City is collected through the City's sewer system and is discharged into Delta Diablo's conveyance system. There are three main connection points between the City system and the Delta Diablo system:

- Bridgehead Pump Station, in the northwest section of the City: Wastewater from the southern part of the City, including Roddy Ranch and Ginocchio future development focus areas, is transported through the Lone Tree Interceptor to the Bridgehead Pump Station.
- Fulton Shipyard (Antioch) Pump Station, in the north section of the City: Sewage from the central and northern parts of the City is collected at the Fulton Shipyard Pump Station. Sewage from the Bridgehead Pump Station is conveyed to the Fulton Shipyard Pump Station through a Delta Diablo - owned and operated force main and gravity conveyance system. Sewage from the Fulton Shipyard Pump Station is pumped into the Antioch Interceptor and conveyed to the Delta Diablo Wastewater Treatment Plant.
- Pittsburg-Antioch Interceptor, in the northeast section of the City: In addition to sewage from Pittsburg, sewage from the eastern part of Antioch is conveyed to the Delta Diablo Wastewater Treatment Plant through the Pittsburg-Antioch Interceptor.

Delta Diablo was originally formed in 1976 to protect the health of the public and the environment by collecting and effectively treating wastewater in the communities of Antioch, Bay Point and Pittsburg. Treated effluent is discharged into New York Slough, a section of the San Joaquin River. For Fiscal Year 2020-21, Delta Diablo charges Antioch residents \$403.10 annually on their property taxes.



## Section 2

# User Characteristics

The purpose of this section is to summarize the number of residential and nonresidential sewer accounts and dwelling units (multiple family dwellings, apartments and mobile home parks) and their corresponding wastewater discharge characteristics. The data used in this section comes from the City's utility billing system.

## 2.1 Fiscal Year 2020 – 21 Wastewater Discharge and Accounts/Units

The estimated number of sewer accounts and dwelling units (multiple family, apartment, and mobile home) and wastewater discharge characteristics for FY21, by customer class, are shown in the figures below.

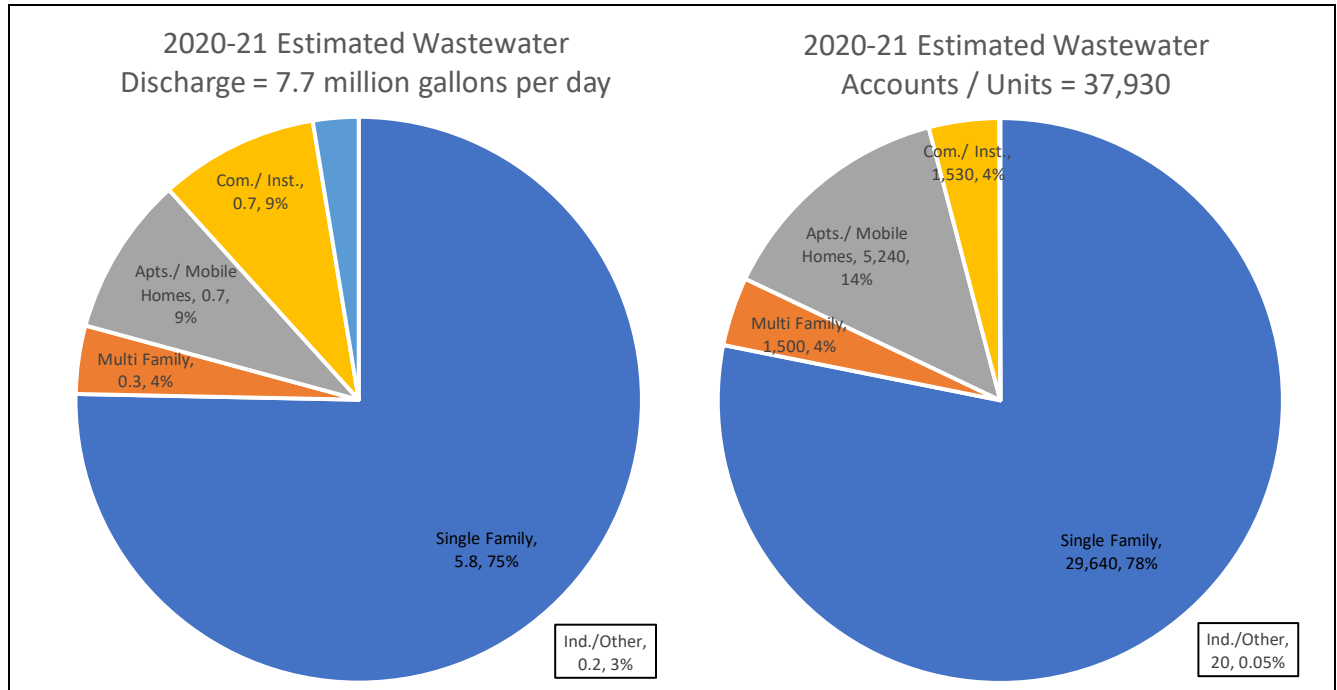


Figure 2-1. Fiscal Year 2020 – 21 Wastewater Discharge and Accounts/Units

## 2.2 Projected FY22 – FY26 Wastewater Accounts/Units

Projected growth in accounts is based on recent growth in the number of new connections to the sewer system in the City's wastewater service area. The number of Single Family accounts connected to the City's sewer system is projected to increase by 330 accounts per year from FY22 to FY26. The number of accounts in the other customer classes are projected to remain approximately at current levels.

Wastewater discharge per Single Family account and per Multiple Family unit is projected to continue to decrease from current levels. The continued decrease reflects the ongoing reduction in indoor water use resulting from use of more water efficient plumbing fixture devices and changes in water use habits. Wastewater discharge per unit for Apartments and Mobile Homes is projected to remain approximately at current levels. The table below shows projected wastewater discharge per account/unit for residential customer classes.

**Table 2-1. Projected Wastewater Discharge per Account/Unit for Residential Customer Classes**

Customer Class	FY21	FY22	FY23	FY24	FY25	FY26
	HCF* / gpd	HCF* / gpd	HCF* / gpd	HCF* / gpd	HCF* / gpd	HCF* / gpd
Single Family	8.00 / 197	7.90 / 194	7.70 / 189	7.70 / 189	7.60 / 187	7.50 / 184
Multi Family	6.80 / 167	6.71 / 165	6.53 / 161	6.53 / 161	6.44 / 158	6.35 / 156
Apt./Mobile Homes	5.60 / 138	5.60 / 138	5.60 / 138	5.60 / 138	5.60 / 138	5.60 / 138

\* HCF = hundred cubic feet; all values are per month

## 2.3 Projected FY21 – FY26 Wastewater Discharge

Projected wastewater discharge for FY21 – FY26 is calculated by multiplying the number of accounts and units by the average wastewater discharge per account or unit. Wastewater discharge is shown in HCF (hundred cubic feet). One HCF equals approximately 748 gallons. Projected wastewater discharge, in HCF for each customer class for FY21 to FY26 is shown in the table below.

**Table 2-2. Projected FY21 – FY26 Wastewater Discharge**

Item	FY21	FY22	FY23	FY24	FY25	FY26
<b>Accounts/Units</b>						
Single Family	29,636	29,966	30,296	30,626	30,956	31,286
Multi Family	1,498	1,498	1,498	1,498	1,498	1,498
Apartments/Mobile Homes	5,237	5,237	5,237	5,237	5,237	5,237
Commercial/Institutional	1,525	1,525	1,525	1,525	1,525	1,525
Industrial	13	13	13	13	13	13
Other	10	10	10	10	10	10
<b>Total</b>	<b>37,919</b>	<b>38,249</b>	<b>38,579</b>	<b>38,909</b>	<b>39,239</b>	<b>39,569</b>
<b>Average Wastewater Discharge HCF/mo</b>						
Single Family	8.00	7.90	7.80	7.70	7.60	7.50
Multi Family	6.80	6.71	6.62	6.53	6.44	6.35
Apartments/Mobile Homes	5.60	5.60	5.60	5.60	5.60	5.60
Commercial/Institutional	19	19	19	19	19	19
Industrial	571	571	571	571	571	571
Other	60	60	60	60	60	60
<b>Wastewater Discharge, HCF</b>						
Single Family	2,845,056	2,840,777	2,835,706	2,829,842	2,823,187	2,815,740
Multi Family	122,237	120,619	119,001	117,383	115,765	114,148
Apartments/ Mobile Homes	351,926	351,926	351,926	351,926	351,926	351,926
Commercial/ Institutional	356,122	356,122	356,122	356,122	356,122	356,122
Industrial	89,058	89,058	89,058	89,058	89,058	89,058
Other	7,149	7,149	7,149	7,149	7,149	7,149
<b>Total</b>	<b>3,771,548</b>	<b>3,765,651</b>	<b>3,758,962</b>	<b>3,751,481</b>	<b>3,743,208</b>	<b>3,734,143</b>
Total HCF, rounded	3,772,000	3,766,000	3,759,000	3,751,000	3,743,000	3,734,000
Total, million gallons	2,821	2,817	2,812	2,806	2,800	2,794
Total, gallons per day	7,730,000	7,718,000	7,704,000	7,689,000	7,672,000	7,653,000

## Section 3

# Sewer Enterprise Funds Cash Flow and Unit Costs

Revenue from sewer service charges must adequately fund sewer utility operations, capital costs, reserves, and bonded debt related to the provision of sewer service (if any). The City established Sewer Fund 621 as a Public Works Enterprise Fund that accounts for the revenues and expenditures related to providing sewer service. A separate fund, the Sewer System Improvements Fund 622, is set up to track the development fees collected from developers to fund offsite or oversize sewer system facilities.

### 3.1 Sewer Fund 621 Projected Cash Flow

Projected cash flow for FY20 – FY26 is shown in the table below. Evaluation of the number of days cash (target fund balance) are included in the table. The target ending fund balance is 120 days of operating expenses. In FY26, the target ending fund balance is approximately \$3,000,000.

All Dollars are x\$1000 Category	Actual	Budget	Projected					FY22 - FY26
	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total
Beginning Balance, July 1	\$7,810	\$7,990	\$6,760	\$5,480	\$4,290	\$3,470	\$3,170	
<b>Revenues</b>								
Charges for Services	\$6,590	\$6,530	\$7,060	\$7,640	\$8,270	\$8,970	\$9,720	\$41,660
Interest	\$370	\$100	\$170	\$160	\$140	\$130	\$120	\$720
Other	\$350	\$350	\$300	\$0	\$0	\$0	\$0	\$300
<b>Total Revenues</b>	<b>\$7,310</b>	<b>\$6,980</b>	<b>\$7,530</b>	<b>\$7,800</b>	<b>\$8,410</b>	<b>\$9,100</b>	<b>\$9,840</b>	<b>\$42,680</b>
<b>Expenses</b>								
Supervision	\$6,400	\$7,070	\$8,190	\$8,360	\$8,610	\$8,870	\$9,140	\$43,170
Capital	\$730	\$1,140	\$620	\$630	\$620	\$530	\$580	\$2,980
<b>Total Expenditures</b>	<b>\$7,130</b>	<b>\$8,210</b>	<b>\$8,810</b>	<b>\$8,990</b>	<b>\$9,230</b>	<b>\$9,400</b>	<b>\$9,720</b>	<b>\$46,150</b>
Net Revenues	\$180	(\$1,230)	(\$1,280)	(\$1,190)	(\$820)	(\$300)	\$120	(\$3,470)
Ending Balance, June 30	\$7,990	\$6,760	\$5,480	\$4,290	\$3,470	\$3,170	\$3,290	
Net Pension/OPEB Liabilities	\$5,670	\$5,670	\$5,670	\$5,670	\$5,670	\$5,670	\$5,670	
Ending Balance without NPL/OPEB	\$13,660	\$12,430	\$11,150	\$9,960	\$9,140	\$8,840	\$8,960	
<b>Days Cash</b>								
Operating Expenses	\$6,400	\$7,070	\$8,190	\$8,360	\$8,610	\$8,870	\$9,140	
120 Days Cash Target	\$2,100	\$2,320	\$2,690	\$2,750	\$2,830	\$2,920	\$3,000	
<b>Evaluation</b>								
Ending Cash Balance	\$7,990	\$6,760	\$5,480	\$4,290	\$3,470	\$3,170	\$3,290	
Calculated Days Cash	460	349	244	187	147	130	131	

Source: All data provided by the City.

\* With implementation of GASB68 in FY15, City is now required to book NPL to fund, decreasing net position by the amount of the liability.

From FY21 through FY25, fund balance is being used to attenuate increases in revenue required from sewer service charges. As a result, increases in sewer service charges are kept lower than if the fund balance was not reduced. In FY26, the fund balance increases as revenues exceed expenditures.

## 3.2 Sewer Fund 622 Projected Cash Flow

Projected cash flow for FY20 – FY26 is shown in the table below. Revenues for Fund 622 are from sewer capacity charges and interest earnings on fund balance.

Table 3-2. Sewer Fund 622 Projected Cash Flow								
Category	Actual FY20	Budget FY21	Projected					FY22 - FY26 Total
			FY22	FY23	FY24	FY25	FY26	
All Dollars are x\$1000								
Beginning Balance, July 1	\$1,730	\$2,540	\$1,480	\$2,250	\$3,050	\$3,870	\$4,720	
Revenues								
Charges for Services	\$750	\$900	\$910	\$930	\$940	\$960	\$980	\$4,720
Interest	\$70	\$40	\$20	\$30	\$40	\$50	\$70	\$210
<b>Total Revenues</b>	<b>\$820</b>	<b>\$940</b>	<b>\$930</b>	<b>\$960</b>	<b>\$980</b>	<b>\$1,010</b>	<b>\$1,050</b>	<b>\$5,870</b>
Expenses								
Capital	\$10	\$2,000	\$160	\$160	\$160	\$160	\$160	\$800
<b>Total Expenditures</b>	<b>\$10</b>	<b>\$2,000</b>	<b>\$160</b>	<b>\$160</b>	<b>\$160</b>	<b>\$160</b>	<b>\$160</b>	<b>\$2,800</b>
Net Revenues	\$810	(\$1,060)	\$770	\$800	\$820	\$850	\$890	\$3,070
Ending Balance, June 30	\$2,540	\$1,480	\$2,250	\$3,050	\$3,870	\$4,720	\$5,610	\$3,070

*Source: All data provided by the City.*

## 3.3 Sewer Service Charges Allocation of Costs

The annual amount of revenue required from Sewer Service Charges is allocated between revenue to be recovered from a charge that is the same for all dwelling units and accounts and a charge that is the same for each HCF of wastewater discharge. Revenue recovered from dwelling units and accounts is divided by the total number of dwelling units and accounts to yield a unit cost (\$/dwelling unit-account). Revenue recovered from HCF is divided by HCF of wastewater discharge to yield a unit cost (\$/HCF).

The percent of total expenditures allocated to the account/unit charge is 30 percent. The other 70 percent is allocated to the unit cost for wastewater discharge. Percent and dollar allocations for FY22 – FY26 are summarized in the table below.

Table 3-3. Sewer Service Charges Allocation of Costs							
Category		FY22	FY23	FY24	FY25	FY26	Total
Operating Expenses (x\$000)							
Supervision	<i>from Table 3-1</i>	\$8,194	\$8,361	\$8,612	\$8,870	\$9,136	\$43,173
Capital Expenses	<i>from Table 3-1</i>	\$624	\$634	\$622	\$532	\$583	\$2,995
Add / (Use) Fund Balance		(\$1,760)	(\$1,360)	(\$960)	(\$440)	(\$10)	(\$4,530)
Net Operating Expenses		\$7,058	\$7,635	\$8,274	\$8,962	\$9,709	\$41,638
Allocation, %							
Accounts/Units Allocation %		30%	30%	30%	30%	30%	
Flow Allocation %		70%	70%	70%	70%	70%	
Allocation Summary, \$							
Accounts-Units		\$2,117	\$2,291	\$2,482	\$2,689	\$2,913	\$12,491
Flow		\$4,941	\$5,345	\$5,792	\$6,273	\$6,796	\$29,147
Total		\$7,058	\$7,635	\$8,274	\$8,962	\$9,709	\$41,638
Allocation Summary, %							
Accounts		30%	30%	30%	30%	30%	30%
Flow		70%	70%	70%	70%	70%	70%

### 3.4 Sewer Service Charges Unit Costs of Service

Unit costs of service are calculated by dividing the allocated net expenditures shown in Table 3-3 by the amount of use (accounts/units or wastewater discharge flow). Unit costs of service for FY22 – FY26 are summarized in the table below.

Table 3-4. Sewer Service Charges Unit Costs of Service							
Cost Category		FY22	FY23	FY24	FY25	FY26	Total
Allocation Summary (x\$000)							
Accounts-Units	<i>from Table 3-3</i>	\$2,117	\$2,291	\$2,482	\$2,689	\$2,913	\$12,491
Flow	<i>from Table 3-3</i>	\$4,941	\$5,345	\$5,792	\$6,273	\$6,796	\$29,147
Total		\$7,058	\$7,635	\$8,274	\$8,962	\$9,709	\$41,638
Account/Unit Cost							
Cost Allocation (x\$000)		\$2,117	\$2,291	\$2,482	\$2,689	\$2,913	
Accounts/Dwelling Units	<i>from Table 2-2</i>	38,249	38,579	38,909	39,239	39,569	
Unit Cost, \$/Account-Unit/month (not rounded)		\$4.61	\$4.95	\$5.32	\$5.71	\$6.13	
Flow Unit Cost							
Cost Allocation (x\$000)		\$4,941	\$5,345	\$5,792	\$6,273	\$6,796	
Flow, HCF x1000	<i>from Table 2-2</i>	3,766	3,759	3,751	3,743	3,734	
Unit Cost, \$/HCF (not rounded)		\$1.31	\$1.42	\$1.54	\$1.68	\$1.82	

The same unit costs are used to develop sewer service charges for all customer classes.

The amount of revenue required from each customer class is the unit cost for accounts-units times the number of accounts-units *plus* the unit cost for per HCF of wastewater discharge times the wastewater discharge for each customer class.

### 3.5 Sewer Service Charges Revenue by Customer Class

Calculation of the revenue required from sewer service charges for each customer class for FY22– FY26 using the unit costs is shown in the table below.

Table 3-5. Sewer Service Charges Revenue by Customer Class						
Category		FY22	FY23	FY24	FY25	FY26
<b>Unit Costs</b>						
Acct-Unit, \$/Acct-Unit/month (not rounded)	<i>from Table 3-4</i>	\$4.61	\$4.95	\$5.32	\$5.71	\$6.13
Flow, \$/HCF (not rounded)	<i>from Table 3-4</i>	\$1.31	\$1.42	\$1.54	\$1.68	\$1.82
<b>Revenue Required from Charges</b>						
<i>Account/Dwelling Unit Costs</i>						
<b>Number of Accounts/Dwelling Units</b>						
Single Family	<i>from Table 2-2</i>	29,966	30,296	30,626	30,956	31,286
Multi Family	<i>from Table 2-2</i>	1,498	1,498	1,498	1,498	1,498
Apartments/Mobile Homes	<i>from Table 2-2</i>	5,237	5,237	5,237	5,237	5,237
Commercial/Institutional	<i>from Table 2-2</i>	1,525	1,525	1,525	1,525	1,525
Industrial	<i>from Table 2-2</i>	13	13	13	13	13
Other	<i>from Table 2-2</i>	10	10	10	10	10
<b>Total</b>		<b>38,249</b>	<b>38,579</b>	<b>38,909</b>	<b>39,239</b>	<b>39,569</b>
<b>Revenue Required</b>						
Single Family		\$1,658,867	\$1,798,724	\$1,953,786	\$2,121,061	\$2,302,983
Multi Family		\$82,927	\$88,939	\$95,565	\$102,641	\$110,269
Apartments/Mobile Homes		\$289,911	\$310,929	\$334,094	\$358,832	\$385,499
Commercial/Institutional		\$84,421	\$90,542	\$97,287	\$104,491	\$112,256
Industrial		\$720	\$772	\$829	\$891	\$957
Other		\$554	\$594	\$638	\$685	\$736
<b>Total</b>		<b>\$2,117,400</b>	<b>\$2,290,500</b>	<b>\$2,482,200</b>	<b>\$2,688,600</b>	<b>\$2,912,700</b>
<i>Flow Costs</i>						
<b>Wastewater Discharge</b>						
Single Family		2,840,777	2,835,706	2,829,842	2,823,187	2,815,740
Multi Family		120,619	119,001	117,383	115,765	114,148
Apartments/Mobile Homes		351,926	351,926	351,926	351,926	351,926
Commercial/Institutional		356,122	356,122	356,122	356,122	356,122
Industrial		89,058	89,058	89,058	89,058	89,058
Other		7,149	7,149	7,149	7,149	7,149
<b>Total</b>		<b>3,765,651</b>	<b>3,758,962</b>	<b>3,751,481</b>	<b>3,743,208</b>	<b>3,734,143</b>
<b>Revenue Required</b>						
Single Family		\$3,727,148	\$4,031,812	\$4,368,909	\$4,731,498	\$5,124,767
Multi Family		\$158,254	\$169,196	\$181,225	\$194,016	\$207,754
Apartments/Mobile Homes		\$461,734	\$500,370	\$543,329	\$589,808	\$640,521
Commercial/Institutional		\$467,239	\$506,335	\$549,807	\$596,840	\$648,158
Industrial		\$116,846	\$126,623	\$137,494	\$149,256	\$162,089
Other		\$9,380	\$10,164	\$11,037	\$11,981	\$13,011
<b>Total</b>		<b>\$4,940,600</b>	<b>\$5,344,500</b>	<b>\$5,791,800</b>	<b>\$6,273,400</b>	<b>\$6,796,300</b>
<b>Revenue Requirement Summary</b>						
Single Family		\$5,386,016	\$5,830,536	\$6,322,695	\$6,852,559	\$7,427,750
Multi Family		\$241,181	\$258,135	\$276,789	\$296,657	\$318,022
Apartments/Mobile Homes		\$751,645	\$811,299	\$877,423	\$948,640	\$1,026,020
Commercial/Institutional		\$551,660	\$596,877	\$647,094	\$701,331	\$760,414
Industrial		\$117,565	\$127,395	\$138,323	\$150,147	\$163,046
Other		\$9,933	\$10,758	\$11,675	\$12,666	\$13,747
<b>Total</b>		<b>\$7,058,000</b>	<b>\$7,635,000</b>	<b>\$8,274,000</b>	<b>\$8,962,000</b>	<b>\$9,709,000</b>

### 3.6 Sewer Service Charges by Customer Class

The amount of revenue required from each customer class is recovered by a uniform charge for each residential customer class and by a combination of a uniform charge and a flow-based charge for nonresidential customers. Calculation of sewer service charges for each customer class for FY22 – FY26 are summarized in the table below.

Note that recommended sewer service charges for the nonresidential customer class are rounded values (to the nearest \$0.05 for the account charge and \$0.01 for the HCF rate) while the unit costs shown in Table 3-3 are not rounded.

**Table 3-6. Sewer Service Charges by Customer Class**

Category		FY22	FY23	FY24	FY25	FY26
<b>Revenue Required</b>						
Single Family	<i>from Table 3-5</i>	\$5,386,016	\$5,830,536	\$6,322,695	\$6,852,559	\$7,427,750
Multi Family	<i>from Table 3-5</i>	\$241,181	\$258,135	\$276,789	\$296,657	\$318,022
Apartments/Mobile Homes	<i>from Table 3-5</i>	\$751,645	\$811,299	\$877,423	\$948,640	\$1,026,020
Commercial/Institutional	<i>from Table 3-5</i>	\$551,660	\$596,877	\$647,094	\$701,331	\$760,414
Industrial	<i>from Table 3-5</i>	\$117,565	\$127,395	\$138,323	\$150,147	\$163,046
Other	<i>from Table 3-5</i>	\$9,933	\$10,758	\$11,675	\$12,666	\$13,747
<b>Total</b>		<b>\$7,058,000</b>	<b>\$7,635,000</b>	<b>\$8,274,000</b>	<b>\$8,962,000</b>	<b>\$9,709,000</b>
<b>Sewer Service Charges</b>						
<b>Single Family</b>						
Cost Allocation	<i>from Table 3-5</i>	\$5,386,016	\$5,830,536	\$6,322,695	\$6,852,559	\$7,427,750
Number of Dwelling Units	<i>from Table 2-2</i>	29,966	30,296	30,626	30,956	31,286
Rate, \$/dwelling unit/month (rounded to \$0.05)		\$15.00	\$16.05	\$17.20	\$18.45	\$19.80
<b>Multiple Family</b>						
Cost Allocation	<i>from Table 3-5</i>	\$241,181	\$258,135	\$276,789	\$296,657	\$318,022
Number of Dwelling Units	<i>from Table 2-2</i>	1,498	1,498	1,498	1,498	1,498
Rate, \$/dwelling unit/month (rounded to \$0.05)		\$13.40	\$14.35	\$15.40	\$16.50	\$17.70
<b>Apartments/Mobile Homes</b>						
Cost Allocation	<i>from Table 3-5</i>	\$751,645	\$811,299	\$877,423	\$948,640	\$1,026,020
Number of Dwelling Units	<i>from Table 2-2</i>	5,237	5,237	5,237	5,237	5,237
Rate, \$/dwelling unit/month (rounded to \$0.05)		\$11.95	\$12.90	\$13.95	\$15.10	\$16.35
<b>Nonresidential</b>						
<b>Account Rate</b>						
Account Cost Allocation	<i>from Table 3-5</i>	\$85,695	\$91,907	\$98,755	\$106,067	\$113,949
Number of Accounts	<i>from Table 2-2</i>	1,548	1,548	1,548	1,548	1,548
Rate, \$/account/month (rounded to \$0.05)		\$4.60	\$4.95	\$5.30	\$5.70	\$6.15
<b>Flow Rate</b>						
Cost Allocation	<i>from Table 3-5</i>	\$593,464	\$643,123	\$698,338	\$758,078	\$823,259
Wastewater Discharge, HCF	<i>from Table 2-2</i>	452,329	452,329	452,329	452,329	452,329
Rate, \$/HCF (rounded to \$0.01)		\$1.31	\$1.42	\$1.54	\$1.68	\$1.82

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## Section 4

# Recommended Sewer Service Charges

Recommended sewer service charges for residential and nonresidential customer classes are presented in this section. A survey of Single Family monthly wastewater bills for six other nearby municipalities which provide sewer service is included.

### 4.1 Recommended Sewer Service Charges

Recommended uniform charges for Residential users are based on unit costs applicable to all users. The unit costs are used to calculate monthly bills for Nonresidential users.

Based on evaluation of the sewer enterprise funds cash flow for FY22 – FY26 using projected expenditures and revenues it is recommended that current monthly Single Family sewer rates be increased by \$1.00 per month for FY22 (from \$14.00 to \$15.00). Single Family rates for each of the following four fiscal years would increase by an additional \$1.05, \$1.15, \$1.25, and \$1.35 per month. The FY26 Single Family rate would be \$19.80 per month.

Recommended sewer service rates and charges for FY22 – FY26 are listed in the table below.

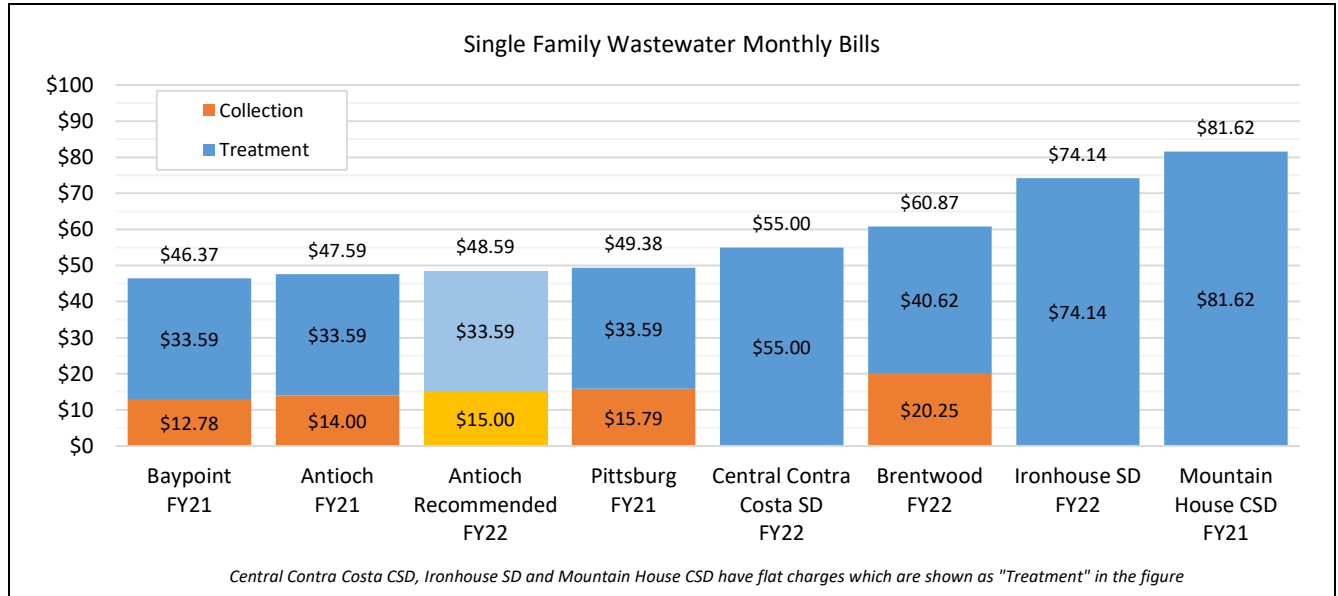
	Current	Recommended Five-Year Rate Plan									
	FY21	FY22	FY23	FY24	FY25	FY26	FY22	FY23	FY24	FY25	FY26
<i>effective dates &gt;</i>	7/1/2019	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025					
<i>Residential, \$/month per Dwelling Unit</i>											
Single Family	\$14.00	\$15.00	\$16.05	\$17.20	\$18.45	\$19.80	7%	7%	7%	7%	7%
Multiple Family	\$12.70	\$13.40	\$14.35	\$15.40	\$16.50	\$17.70	6%	7%	7%	7%	7%
Apartment/Mobile Home	\$11.10	\$11.95	\$12.90	\$13.95	\$15.10	\$16.35	8%	8%	8%	8%	8%
<i>Nonresidential</i>											
Account Charge, \$/month	\$4.44	\$4.60	\$4.95	\$5.30	\$5.70	\$6.15	4%	8%	7%	8%	8%
Volume Rate, \$/HCF *	\$1.20	\$1.31	\$1.42	\$1.54	\$1.68	\$1.82	9%	8%	8%	9%	8%

\* 1 HCF = approximately 748 Gallons

## 4.2 Survey of Single Family Monthly Wastewater Bills

Delta Diablo provides wastewater conveyance and wastewater treatment services to the City of Antioch and the City of Pittsburg. To calculate annual wastewater bills for these two cities, Delta Diablo wastewater charges must be added to the wastewater charges for each city.

The City of Antioch’s current and recommended sewer service charges and the current wastewater treatment charges from Delta Diablo for FY21 were compared to the sewer service charges and wastewater treatment charges for other agencies. Results of the survey are shown in the table below.



**Figure 4-1. Survey of Single Family Monthly Wastewater Bills**



## Section 5

# Limitations

This document was prepared solely for the City of Antioch in accordance with professional standards at the time the services were performed and in accordance with the contract between the City of Antioch and Municipal Financial Services. This document is governed by the specific scope of work authorized by the City of Antioch in an Agreement dated January 29, 2014 and subsequent amendments to the Agreement; it is not intended to be relied upon by any other party. We have relied on information or instructions provided by the City of Antioch and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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