

FINAL
Evaluation of Sewer Capacity Charges

Prepared for
Valley Sanitary District, California
May 2019

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Table of Contents

List of Figures.....	iv
List of Tables	iv
List of Abbreviations	iv
Executive Summary	ES-1
Purpose of the Study.....	ES-1
Current Sewer Capacity Charges.....	ES-1
Recommended Unit Costs for Flow, COD and TSS.....	ES-1
Recommended Single Family Sewer Capacity Charges	ES-2
1. Introduction.....	1-1
1.1 District Structure and Leadership.....	1-1
1.2 Wastewater Management System Description.....	1-1
1.3 State of California Regulatory Requirements.....	1-2
1.4 Conceptual Approach for Calculation of Capacity Charges.....	1-2
1.5 Current Equivalent Dwelling Unit Fee	1-2
1.6 Capacity Charge Ordinance	1-2
2. Development of Wastewater Capacity Charges	2-1
2.1 Sewer System Valuation	2-1
2.2 Sewer System Capacity	2-3
2.3 Allocation of Valuation to Flow, COD and TSS.....	2-3
2.4 Development of Unit Costs for Flow, COD and TSS	2-4
2.5 Single Family Equivalent Dwelling Units.....	2-4
2.6 Recommended Single Family Capacity Charges	2-5
2.7 Recommended Restaurant Capacity Charges	2-6
3. Historical and Projected Sewer Capacity Charges and Survey	3-1
3.1 Historical and Projected Sewer Capacity Charges.....	3-1
3.2 Residential Sewer Capacity Charge Survey.....	3-2
4. Limitations	4-1
Appendix A: Sewer System Valuation Tables.....	A

List of Figures

Figure ES-1. Historical, FY20 Recommended and Projected Residential Sewer Capacity ChargesES-2
 Figure 3-1. Historical and Projected Residential Annual Sewer Capacity Charges3-1
 Figure 3-2. Residential Sewer Capacity Charge Survey3-2

List of Tables

Table ES-1. Recommended FY20 and Projected Capacity Charge Unit CostsES-1
 Table 2-1. Sewer System Asset Valuation2-2
 Table 2-2. Sewer System Capacity.....2-3
 Table 2-3. Sewer System Cost Allocation2-3
 Table 2-4. Development of Capacity Charge Unit Costs.....2-4
 Table 2-5. Recommended Single Family Capacity Charges.....2-5
 Table 2-6. Restaurant Capacity Charge for 2000 gpd Discharge2-6

List of Abbreviations

Ccf	Hundred Cubic Feet (equal to ~ 748.1 gallons)
CCI	Construction Cost Index
CIP	Capital Improvement Program
District	Valley Sanitary District
EDU	Equivalent Dwelling Unit
FY	Fiscal year (July 1 to June 30)
FY20	July 1, 2019 to June 30, 2020
gpd	Gallons per Day
HCF	Hundred Cubic Feet (equal to ~ 748.1 gallons)
VSD	Valley Sanitary District
O&M	Operation and maintenance
R&R	Renewal and Replacement
SCC	Sewer Capacity Charge

Executive Summary

In September 2018 the Valley Sanitary District (VSD or District) contracted with Municipal Financial Services to evaluate sewer capacity charges and recommend a revised schedule of capacity charges.¹

Purpose of the Study

The purpose of the study was to evaluate sewer capacity charges for the Valley Sanitary District. Sewer capacity charges are intended to recover both a portion of the District’s proposed Capital Improvement Program (CIP) cost, and utility rate payers’ prior investment in capital facilities that support land development by providing capacity for new connections. The sewer capacity charges developed in this report meet the regulatory requirements found in California Government Code Section 66000 *et sequentia* regarding the establishment of capacity charges.

Current Sewer Capacity Charges

The last sewer capacity charge study was for the Fiscal year 2004/2005. Since that time, the charge has been adjusted by the *Engineering News Record* 20-City Construction Cost Index to its current value of \$4,265 per equivalent dwelling unit.

Recommended Unit Costs for Flow, COD and TSS

Projected capacity charge unit costs for flow, COD and TSS are shown below in Table ES-1. The unit costs for each capacity charge component are based on the value of the system allocated to each component divided by the capacity in the system for each component. The capacity charge for any new connection may be calculated using the unit costs for flow, COD and TSS.

Table ES-1. Recommended FY20 and Projected Capacity Charge Unit Costs						
		Recommended	Projected			
		FY 20	FY 21	FY 22	FY 23	FY 24
Unit Costs of Capacity						
Flow	<i>\$/gpd</i>	\$16.15	\$16.88	\$17.55	\$18.35	\$18.99
COD	<i>\$/lbs/day</i>	\$267.18	\$279.34	\$290.50	\$303.65	\$314.31
TSS	<i>\$/lbs/day</i>	\$645.68	\$675.06	\$702.04	\$733.81	\$759.59

It is recommended that the District adopt capacity charge unit costs for FY20. Capacity charge unit costs for FY21 and onward may be escalated using an appropriate index such as the *Engineering News Record* 20-City Construction Cost Index.

¹ The term “Connection Capacity Charge”, as currently used by the District, and “Capacity Charge”, as defined in Section 66013 of the California Government Code and used in this study, are synonymous.

Recommended Single Family Sewer Capacity Charges

During the past ten years, sewer capacity charges have been adjusted once. In 2013, sewer capacity charges for Single Family connections were increased from \$3,957 per EDU to \$4,265 (an increase of approximately 8 percent). The District’s historical, FY20 recommended, and projected sewer capacity charges for Single Family connections are shown in the figure below. The annual percent increase in sewer capacity charges for FY20 through FY24 average approximately 4.0 percent per year.

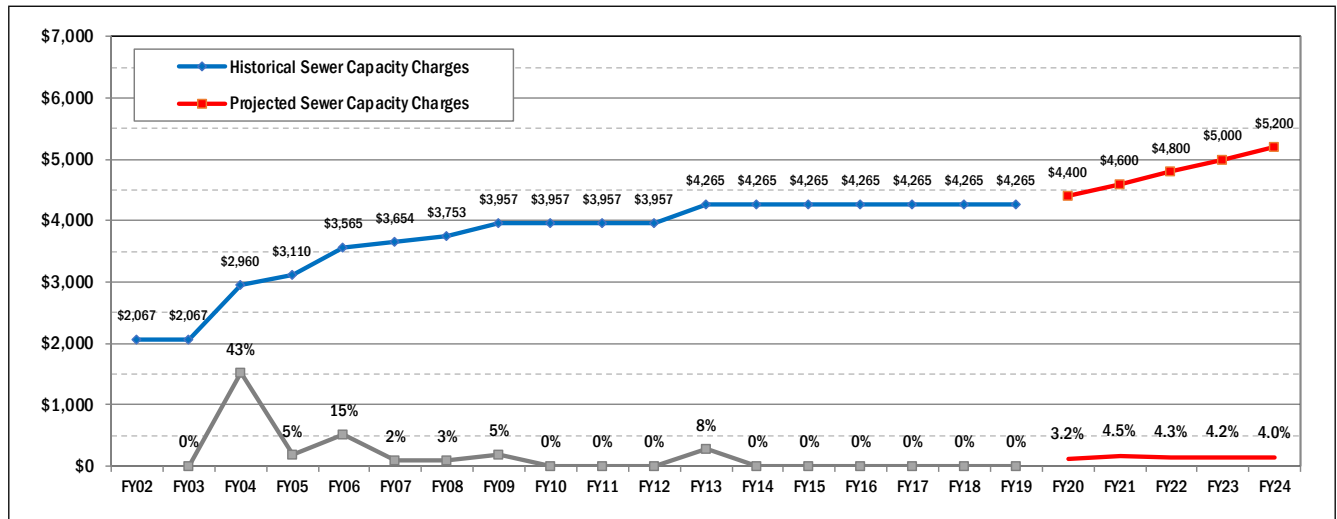


Figure ES-1. Historical, FY20 Recommended and Projected Residential Sewer Capacity Charges

Section 1

Introduction

Sewer capacity charges are intended to recover both a portion of the District's proposed Capital Improvement Program cost, and utility rate payers' prior investment in capital facilities that support land development by providing capacity for new connections. The sewer capacity charges developed in this report meet the regulatory requirements found in California Government Code Section 66000 *et sequentia* regarding the establishment of capacity charges.

1.1 District Structure and Leadership

The Valley Sanitary District is an independent special district, which operates under the authority of the Health and Safety Code, Sanitary District act of 1923, section 6400 *et sequentia*. The District was formed June 1, 1925 and is governed by a five-member Board of Directors, elected at large from within the District's service area. The General Manager administers the day-to-day operations of the District in accordance with policies and procedures established by the Board of Directors. The District employs approximately 27 regular employees organized in three departments.

1.2 Wastewater Management System Description

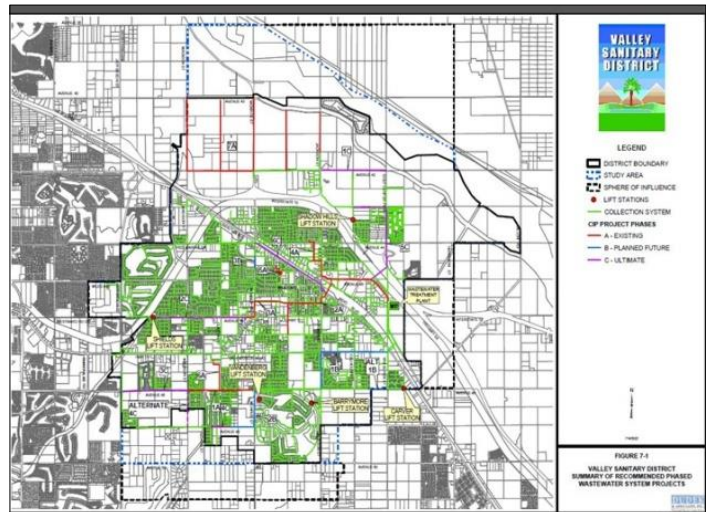
The District provides sewer services to approximately 27,850 connections within its 19.5 square mile service area, located in the eastern desert area of Riverside County. The VSD service area primarily consists of residential areas with moderate commercial, industrial, and public land use encompassing much of the City of Indio, portions of the City of La Quinta and City of Coachella, and unincorporated areas of the County of Riverside.

A vast wastewater management system has been built to collect, transport, treat and dispose wastewater. The wastewater treatment, collection and disposal system comprise approximately:

- 254 miles of sanitary sewer pipe;
- 4,910 sewer manholes;
- 4 sewage pump stations;
- 12.5 mgd capacity secondary treatment plant; and
- Administrative Headquarters Building.

Wastewater is collected from the thousands of customers, transported to the Wastewater Treatment Facility for treatment and subsequently discharged into the Whitewater Channel via an outfall.

The Valley Sanitary District is exploring the possibility with the Indio Water Authority of a recycled / reclaimed water project. This project will reuse tertiary treated water as a new water source for sustainable and beneficial use. The City of Indio and the Valley Sanitary District have created a Joint Powers Authority for this purpose, the East Valley Reclamation Authority. This project is in the preliminary exploration stage.



1.3 State of California Regulatory Requirements

California Government Code Section 66013 describes requirements for fees and charges for water connections or sewer connections. Section 66013 defines a capacity charge as “a charge for public facilities in existence at the time a charge is imposed or charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged, including supply or capacity contracts for rights or entitlements, real property interests, and entitlements and other rights of the local agency involving capital expense relating to its use of existing or new public facilities. A ‘capacity charge’ does not include a commodity charge.”

Section 66013 also describes requirements related to use of revenue from capacity charges and providing information to the public. This study does not examine the District’s practices regarding those requirements.

1.4 Conceptual Approach for Calculation of Capacity Charges

In calculating sewer capacity charges, we have endeavored to satisfy the rational nexus criteria generally applied to these types of fees. A rational nexus-based capacity charge must:

- Be rationally based on public policy that demonstrates a nexus between new development (connections) and the need to expand or build facilities to accommodate it.
- Not exceed the new development’s proportional share of the cost of facilities needed to serve that development, after crediting it for other contributions that it has already made or will make toward that cost.
- Not be arbitrary or discriminatory in its application to individuals or customer classes.

Development impact fees help ensure that the “growth pays for growth” by allocating the cost of new facilities and the cost of unused capacity in existing facilities to new development while allocating the cost of repairing and refurbishing facilities used by current customers to rates.

1.5 Current Equivalent Dwelling Unit Fee

The last sewer capacity charge study was for the Fiscal year 2004-2005. Since that time, the charge has been adjusted by the *Engineering News Record* 20-City Construction Cost Index to its current value of \$4,265 per equivalent dwelling unit.

1.6 Capacity Charge Ordinance

Valley Sanitary District Sewer Construction and Use Ordinance, Ordinance No. 2010-118, was adopted November 9, 2010. Ordinance No. 2010-118 stated multiple objectives; among them is the objective “To equitably allocate treatment costs.” Elements of the ordinance relevant to the development of Sewer Capacity Charges are listed below.

Article 1, Section 103.A.17. Connection Permit shall mean a permit issued by the District, upon payment of a capital facilities connection charge, authorizing the Permittee to connect directly to a District sewerage facility or to a sewer that ultimately discharges into a District sewerage facility.

Article 1, Section 103.A.25. Dwelling Unit shall mean a single unit providing complete, independent living facilities for one or more persons, which may include permanent provisions for living, sleeping, eating, cooking and sanitation. For the purpose of this Ordinance, a mobile home shall be considered as a Dwelling Unit. More than one Dwelling Unit per structure and/or lot shall be deemed Multiple Dwelling Units.

Article 1, Section 103.A.48. Multiple Dwelling shall mean a building for residential purposes having facilities for the occupancy of more than one person or family, including, but not limited to, the following: Hotels, motels, auto courts, trailer courts, apartment houses, duplex, rooming house, boarding house and dormitories.

Article 1, Section 103.A.84. Single Family Dwelling shall mean a single house that provides complete, independent living facilities for one single family, which may include permanent provisions for living, sleeping, eating, cooking and sanitation. For the purpose of this Ordinance, recreational vehicle or park model shall not be considered as a single family dwelling.

Article 3, Section 302.A. No person shall construct a building or lateral sewer connecting with any public sewer without first obtaining a written permit from the District and paying all fees and connection charges.

Other terms not herein defined are defined as being the same as set forth in the current editions of the California Building Code and California Plumbing Code.

The District has written policies related to developer agreements.

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Section 2

Development of Wastewater Capacity Charges

The purpose of this section is to summarize the development of sewer capacity charges. Sewer capacity charges are intended to recover both a portion of the District's proposed Capital Improvement Program (CIP) cost, and utility rate payers' prior investment in capital facilities that support land development by providing capacity for new connections.

2.1 Sewer System Valuation

The system buy-in method of the capacity charge recovers the cost of capacity in those portions of the existing system in which there is capacity available. The value of the existing system was developed using data for the following items:

- Existing Fixed Assets
- Contributed Assets
- Contributed Capital
- Debt Principal Outstanding
- Working Capital

Existing Fixed Assets. The replacement value of subsurface collection pipes (including manholes and force mains) was calculated by segregating the pipes into size categories and multiplying the amount of pipe in each size category (in miles) by a unit replacement cost. A similar approach was used for the valuation of lift stations and siphons. Calculation of the replacement value of subsurface collection pipes, lift stations and siphons is shown in Appendix A, Table A-1.

Contributed Assets. The District requires owners to construct and contribute assets needed to serve their development. The value of contributed assets is deducted from the value of existing fixed assets. The value of contributed assets is estimated to be 20 percent of the replacement value of subsurface collection pipes.

Contributed Capital. The amount of revenue collected from developers is deducted from the valuation of the sewer system. Annual revenues and fees from contributed capital for 2002 - 2018 are from the Statistical Section of District Comprehensive Annual Financial Reports. Revenue from contributed capital for 2001 and earlier is estimated based on fees adjusted downward from the 2018 value by the ENR 20 City CCI and the number of new connections estimated by the District. Calculation of the estimated amount of revenue collected from developers is summarized in Appendix A, Table A-2.

Debt Principal Outstanding. The amount of current debt service principal remaining to be paid is deducted from the value of current assets since the principal portion was used to purchase existing assets.

Working Capital. The cash balance in the Sewer Fund 13 is added to the valuation of existing assets. The projected fund balance for July 2019 is approximately \$7,000,000.

The valuation of the Sewer System, net of adjustments, for FY19 – FY24 is summarized in Table 2-1.

Table 2-1. Sewer System Asset Valuation							
All values in \$thousands							
Item		FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Fixed Assets/Rolling Stock [1, 2]	<i>annual escalation ></i>		3.0%	3.0%	3.0%	3.0%	3.0%
Subsurface Collection Pipes & Manholes	<i>see Table A-1</i>	\$227,250	\$234,070	\$241,090	\$248,320	\$255,770	\$263,440
Force Mains	<i>see Table A-1</i>	\$72	\$74	\$76	\$78	\$80	\$82
Lift Stations	<i>see Table A-1</i>	\$1,820	\$1,870	\$1,930	\$1,990	\$2,050	\$2,110
Siphon	<i>see Table A-1</i>	\$630	\$650	\$670	\$690	\$710	\$730
Treatment Plant		\$70,757	\$72,880	\$75,070	\$77,320	\$79,640	\$82,030
Vehicles/Equipment		\$250	\$260	\$270	\$280	\$290	\$300
Total Fixed Asset Valuation		\$300,779	\$309,804	\$319,106	\$328,678	\$338,540	\$348,692
Adjustments							
1. Contributed Assets [3]							
<i>Less: Value of Contributed Assets</i>		(\$45,000)	(\$47,000)	(\$48,000)	(\$50,000)	(\$51,000)	(\$53,000)
2. Contributed Capital [4]							
<i>Less: Revenue from Capacity Charges</i>		(\$69,000)	(\$70,000)	(\$71,000)	(\$72,000)	(\$73,000)	(\$75,000)
3. Debt Principal Outstanding	<i>see Table A-3</i>						
<i>Less: 2015 Revenue Refunding Bonds</i>		(\$5,215)	(\$4,565)	(\$3,880)	(\$3,165)	(\$2,415)	(\$1,650)
<i>Less: 2016 CWSRF Loan</i>		(\$12,586)	(\$12,247)	(\$11,902)	(\$11,551)	(\$11,194)	(\$10,831)
4. Working Capital (Fund 13)							
<i>Plus: Average Ending Balance</i>		\$5,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000
Net Valuation		\$173,977	\$182,992	\$191,324	\$198,962	\$207,931	\$215,211
Notes:							
1	Valuation of assets was provided by the District.						
2	Annual escalation for fixed assets and contributions are based on half the average percent increase for 2016-2018 (three years) in the Engineering News Record 20 City Construction Cost Index.						
3	Subsurface collection pipe value is net of contributions estimated at 20% of gross value.						
4	Revenue from capacity charges for 2018-19 and onward is estimated as shown below.						
		<u>FY 19</u>	<u>FY 20</u>	<u>FY 21</u>	<u>FY 22</u>	<u>FY 23</u>	<u>FY 24</u>
	current capacity charge, \$/EDU >	4,265					
	projected annual escalation percent >		3.2%	4.5%	4.3%	4.2%	4.0%
	projected capacity charge, \$/EDU >		4,400	4,600	4,800	5,000	5,200
	projected EDU connections >		200	250	250	250	250
	projected capacity charge revenue, \$thousands >	\$896	\$880	\$1,150	\$1,200	\$1,250	\$1,300
	contributed capital thru 2018 (see Table A-2) >	\$68,000					
	cumulative capacity charge revenue, \$thousands >	\$68,896	\$69,776	\$70,926	\$72,126	\$73,376	\$74,676

2.2 Sewer System Capacity

The sewer system capacity is based on effluent limitations for Discharge Point 001 found in the District's NPDES Permit Number CA0104477. Values for flow, COD and TSS are shown below in Table 2-2.

Table 2-2. Sewer System Capacity							
		FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Cost Component [1]							
Flow	<i>gpd x 1000</i>	10,000	10,000	10,000	10,000	10,000	10,000
COD	<i>thousand lbs/day</i>	40.3	40.3	40.3	40.3	40.3	40.3
TSS	<i>thousand lbs/day</i>	16.7	16.7	16.7	16.7	16.7	16.7
Notes:							
1 Capacity is based on information from the <i>Water Reclamation Facility Final Master Plan</i> dated September 2015 and operating parameters. Estimated influent loads for Flow, COD and TSS are based on the calculations shown below.							
	<u>Final Effluent Limitations</u>		<u>Estimated Influent Loads</u>		<u>Estimated Removal Rates</u>		
Flow	10.0	million gallons per day (mgd)	10,000 thousand gallons per day				
COD	72.5	milligrams per liter (mg/l)	40.3 thousand pounds per day		85%		
TSS	30	milligrams per liter (mg/l)	16.7 thousand pounds per day		85%		

2.3 Allocation of Valuation to Flow, COD and TSS

The unit costs for each capacity charge component are based on the value of the system allocated to each component divided by the capacity in the system for each component. Allocation of sewer system valuation to each component is shown below in Table 2-3.

Table 2-3. Sewer System Cost Allocation							
Fixed Assets/Rolling Stock	Allocation Percentages [1]			System Value	Allocation of Dollars		
	Flow	COD	TSS		Flow	COD	TSS
Subsurface Collection Pipes & Manholes	100%			\$227,250	\$227,250	\$0	\$0
Force Mains	100%			\$72	\$72	\$0	\$0
Lift Stations	100%			\$1,820	\$1,820	\$0	\$0
Siphon	100%			\$630	\$630	\$0	\$0
Treatment Plant	50.0%	25.0%	25.0%	\$70,757	\$35,378	\$17,689	\$17,689
Vehicles/Equipment	88.2%	5.9%	5.9%	\$250	\$220	\$15	\$15
Totals	88.2%	5.9%	5.9%	\$300,779	\$265,371	\$17,704	\$17,704
Notes:							
1 Allocation percentages for fixed assets were provided by the Consultant.							
Allocation percentages for Vehicles and Maintenance Equipment are a composite of those for Fixed Assets.							

2.4 Development of Unit Costs for Flow, COD and TSS

The development of unit costs for flow, COD and TSS are shown below in Table 2-4. The unit costs for each capacity charge component are based on the value of the system allocated to each component divided by the capacity in the system for each component. The capacity charge for any new connection may be calculated using the unit costs for flow, COD and TSS.

		FY 20	FY 21	FY 22	FY 23	FY 24
Net System Valuation		<i>allocation</i>				
Flow	88%	\$161,450	\$168,800	\$175,540	\$183,450	\$189,880
COD	5.9%	\$10,770	\$11,260	\$11,710	\$12,240	\$12,670
TSS	5.9%	\$10,770	\$11,260	\$11,710	\$12,240	\$12,670
Total		\$182,992	\$191,324	\$198,962	\$207,931	\$215,211
System Capacity						
Flow	<i>gpd x 1000</i>	10,000	10,000	10,000	10,000	10,000
COD	<i>thousand lbs/day</i>	40.3	40.3	40.3	40.3	40.3
TSS	<i>thousand lbs/day</i>	16.7	16.7	16.7	16.7	16.7
Unit Costs of Capacity						
Flow	<i>\$/gpd</i>	\$16.15	\$16.88	\$17.55	\$18.35	\$18.99
COD	<i>\$/lbs/day</i>	\$267.18	\$279.34	\$290.50	\$303.65	\$314.31
TSS	<i>\$/lbs/day</i>	\$645.68	\$675.06	\$702.04	\$733.81	\$759.59

It is recommended that the District adopt capacity charge unit costs for FY20. Capacity charge unit costs for FY21 and onward may be escalated using an appropriate index such as the *Engineering News Record* 20-City Construction Cost Index.

2.5 Single Family Equivalent Dwelling Units

Section 1 of the Resolution No. 2018-1100 defines the “Equivalent Dwelling Unit” (EDU) for single family household accounts. The EDU for single family household accounts is based on estimated average daily wastewater flow per household (300 gallons per day).

For the purpose of calculating sewer capacity charges, it is recommended that the estimate of the average daily wastewater flow per household be lowered from 300 gallons per day to 230 gallons per day. The change reflects the decrease in indoor water use because of water conservation.

2.6 Recommended Single Family Capacity Charges

Recommended Single Family capacity charges are shown below in Table 2-5. The capacity charge is developed by multiplying the unit costs of capacity (which are the same for any new connection) times the average unit loadings for the Single Family customer class.

Table 2-5. Recommended Single Family Capacity Charges							
		Adopted	Recommended				
		FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Unit Costs of Capacity							
Flow	<i>\$/gpd</i>		\$16.15	\$16.88	\$17.55	\$18.35	\$18.99
COD	<i>\$/lbs/day</i>		\$267.18	\$279.34	\$290.50	\$303.65	\$314.31
TSS	<i>\$/lbs/day</i>		\$645.68	\$675.06	\$702.04	\$733.81	\$759.59
EDU	<i>\$/EDU</i>	\$4,265					
Unit Loadings							
Flow and Concentration							
Flow		300 gpd	230 gpd	230 gpd	230 gpd	230 gpd	230 gpd
COD		500 mg/L	650 mg/L	650 mg/L	650 mg/L	650 mg/L	650 mg/L
TSS		240 mg/L	300 mg/L	300 mg/L	300 mg/L	300 mg/L	300 mg/L
Flow and Mass							
Flow		300 gpd	230 gpd	230 gpd	230 gpd	230 gpd	230 gpd
COD		1.25 lbs/day	1.25 lbs/day	1.25 lbs/day	1.25 lbs/day	1.25 lbs/day	1.25 lbs/day
TSS		0.60 lbs/day	0.58 lbs/day	0.58 lbs/day	0.58 lbs/day	0.58 lbs/day	0.58 lbs/day
Capacity Charge							
Flow			\$3,713	\$3,882	\$4,037	\$4,219	\$4,367
COD			\$333	\$348	\$362	\$379	\$392
TSS			\$372	\$388	\$404	\$422	\$437
Total			\$4,418	\$4,619	\$4,804	\$5,020	\$5,196
Total (round to nearest \$100)			\$4,400	\$4,600	\$4,800	\$5,000	\$5,200
Dollar Change			\$135	\$200	\$200	\$200	\$200
Percent Change			3.2%	4.5%	4.3%	4.2%	4.0%

2.7 Recommended Restaurant Capacity Charges

Capacity charges for a restaurant which plans wastewater discharge of 2,000 gpd are shown below in Table 2-6. The recommended capacity charges are developed by multiplying the unit costs of capacity (which are the same for any new connection) times the unit loadings for the individual restaurant.

Note that capacity charges for a restaurant in this example are based on estimated flow and strength values and are useful only to demonstrate calculation of the charges. They are not representative of flows or strength for every individual new nonresidential connection. Flows and strength for every individual new nonresidential connection are determined by the District at the time of application for a new connection.

Table 2-6. Restaurant Capacity Charge for 2000 gpd Discharge

		Adopted	Recommended				
		FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Unit Costs of Capacity							
Flow	<i>\$/gpd</i>		\$16.15	\$16.88	\$17.55	\$18.35	\$18.99
COD	<i>\$/lbs/day</i>		\$267.18	\$279.34	\$290.50	\$303.65	\$314.31
TSS	<i>\$/lbs/day</i>		\$645.68	\$675.06	\$702.04	\$733.81	\$759.59
EDU	<i>\$/EDU</i>	\$4,265					
Unit Loadings							
Flow and Concentration							
EDU		6.7	9.88	9.88	9.88	9.88	9.88
Flow		2000 gpd	2000 gpd	2000 gpd	2000 gpd	2000 gpd	2000 gpd
COD		1500 mg/L	1500 mg/L	1500 mg/L	1500 mg/L	1500 mg/L	1500 mg/L
TSS		600 mg/L	600 mg/L	600 mg/L	600 mg/L	600 mg/L	600 mg/L
Flow and Mass							
Flow		2000 gpd	2000 gpd	2000 gpd	2000 gpd	2000 gpd	2000 gpd
COD		25.0 lbs/day	25.0 lbs/day	25.0 lbs/day	25.0 lbs/day	25.0 lbs/day	25.0 lbs/day
TSS		10.0 lbs/day	10.0 lbs/day	10.0 lbs/day	10.0 lbs/day	10.0 lbs/day	10.0 lbs/day
Capacity Charge							
Flow			\$32,290	\$33,760	\$35,108	\$36,690	\$37,976
COD			\$6,685	\$6,989	\$7,268	\$7,597	\$7,864
TSS			\$6,462	\$6,756	\$7,026	\$7,344	\$7,602
Total		\$28,433	\$45,437	\$47,505	\$49,402	\$51,631	\$53,442
Total (round to nearest \$100)			\$45,400	\$47,500	\$49,400	\$51,600	\$53,400
Dollar Change			\$16,967	\$2,100	\$1,900	\$2,200	\$1,800
Percent Change			59.7%	4.6%	4.0%	4.5%	3.5%

Section 3

Historical and Projected Sewer Capacity Charges and Survey

The District's historical and projected sewer capacity charges are shown in this section. A survey of the District's current and recommended FY20 sewer capacity charges are compared to the sewer capacity charges for other nearby agencies.

3.1 Historical and Projected Sewer Capacity Charges

The figure below shows historical annual Residential sewer capacity charges from FY02 through FY19 (18 years) and projected annual sewer capacity charges for FY20 through FY24 (five years). The annual average percent increase over the total 23 years is approximately 4.3 percent.

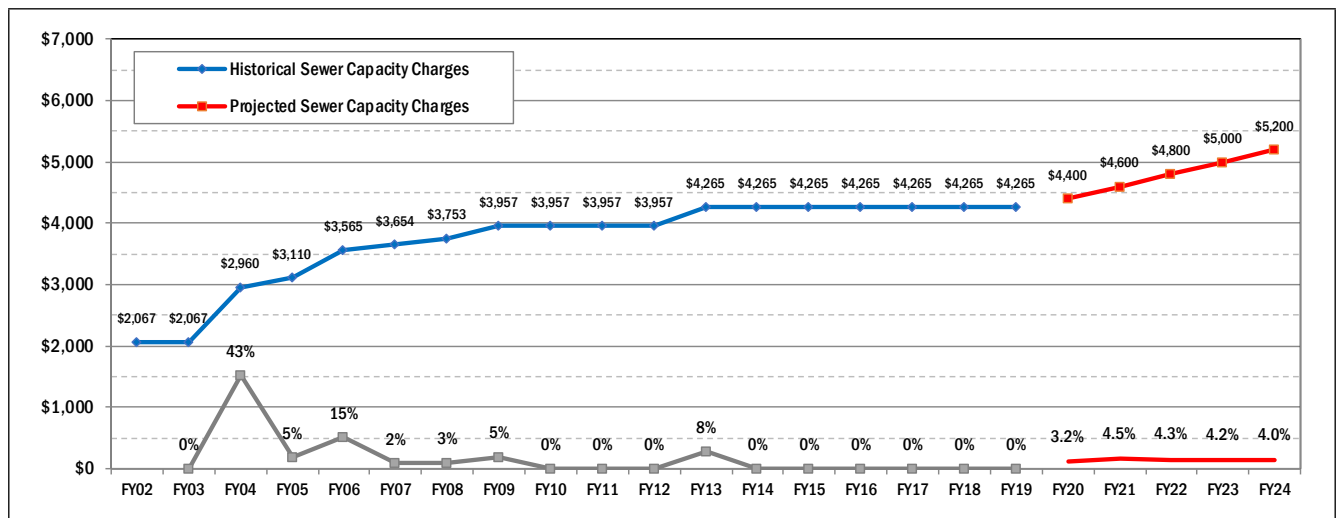


Figure 3-1. Historical and Projected Residential Annual Sewer Capacity Charges

3.2 Residential Sewer Capacity Charge Survey

The District's current (FY 2018-19) and recommended (FY 2019-20) Sewer Service Charges were compared to the sewer capacity charges for other nearby agencies. The comparison is for single family dwelling units. Results of the survey are shown in Figure 3-2.

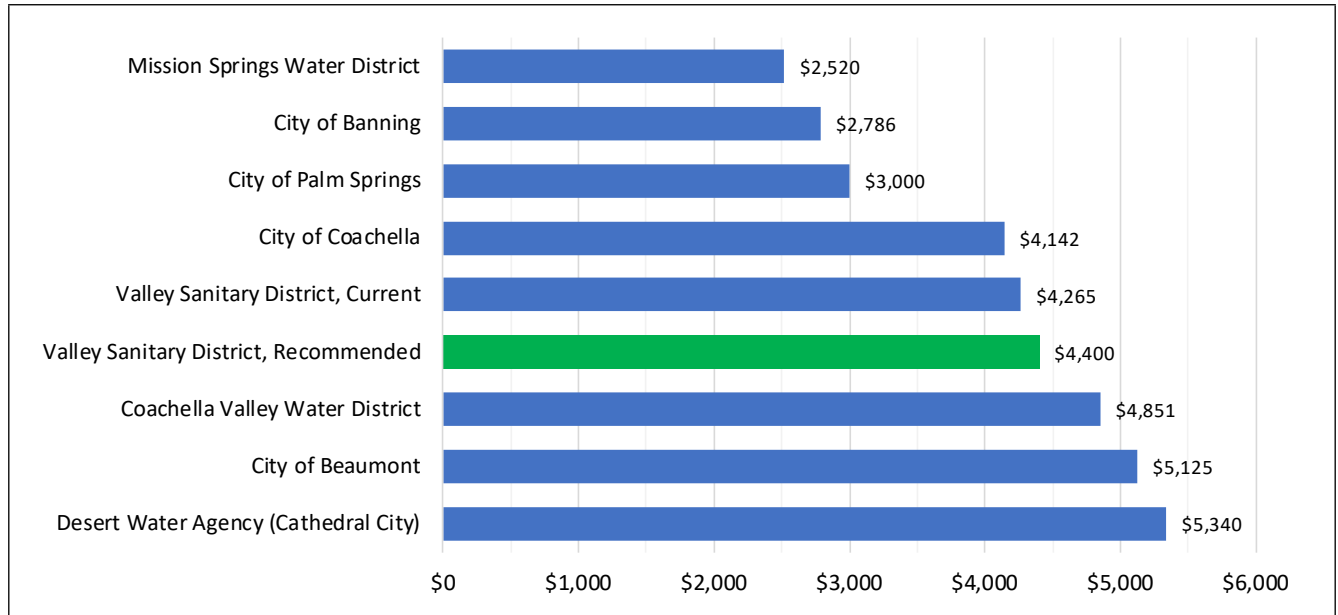


Figure 3-2. Residential Sewer Capacity Charge Survey



Section 4

Limitations

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

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Appendix A: Sewer System Valuation Tables

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Table A-1
Valley Sanitary District
Sewer Collection Pipe/Siphon/Lift Station Data

YEARS	PIPE SIZE												TOTAL LENGTH (feet)				
	4	6	8	10	12	15	16	18	20	21	24	27		30	36	42	48
1930's	332	2,728	14,509	2,850													20,419
1940's																	0
1950's		712	104,699	15,893	6,236	7,261	4,489	495									139,785
1960's		1,359	75,421	3,654	2,698	11,019	6,593	3,760									104,520
1970's	140	765	104,625	22,043	12,399	7,950	385										148,307
1980's		645	90,942	3,552	13,291	23,090	1,536	937	65	2,730							140,731
1990's	77	1,831	82,168	18,028	2,789	12,711	3,054	1,910	3,811	10,856					708	3,236	137,236
2000's		1,102	483,016	48,188	19,813	11,724	1,255	19,579	1,255	42	3,868	4,240			5,479		598,561
2010's		500	26,905	4,275	133		1,475				7,718		11,682				52,688
TOTAL	549	9,642	982,286	118,483	57,359	73,755	1,271	36,110	1,255	2,447	20,094	15,161	14,412	5,479	708	3,236	1,342,247
% TOTAL	0.04%	0.75%	74.09%	8.84%	4.43%	5.71%	0.10%	2.68%	0.10%	0.19%	0.96%	1.17%	0.21%	0.42%	0.05%	0.25%	100.00%

Cost/LF	PIPE COST PER LF BY DIAMETER (based on average depth of 8 feet for 21" dia and below and 12 feet for larger diameter pipe) INCLUDES MANHOLES																
	4	6	8	10	12	15	16	18	20	21	24	27	30	36	42	48	
MH	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 13	\$ 13	\$ 13	\$ 15	\$ 15	
Pipe	\$ 85	\$ 100	\$ 115	\$ 125	\$ 160	\$ 180	\$ 190	\$ 200	\$ 200	\$ 225	\$ 270	\$ 325	\$ 375	\$ 460	\$ 550	\$ 640	
Total 2013	\$ 95	\$ 110	\$ 125	\$ 135	\$ 170	\$ 190	\$ 200	\$ 210	\$ 235	\$ 235	\$ 283	\$ 338	\$ 388	\$ 473	\$ 565	\$ 655	
Total 2018	\$ 111	\$ 129	\$ 147	\$ 158	\$ 223	\$ 234	\$ 246	\$ 275	\$ 275	\$ 275	\$ 331	\$ 396	\$ 454	\$ 554	\$ 662	\$ 768	
Total \$	\$ 61,141	\$ 1,243,317	#####	\$ 18,751,034	\$ 11,431,024	\$ 16,427,929	\$ 297,996	\$ 8,889,673	\$ 345,738	\$ 674,120	\$ 6,654,574	\$ 5,998,422	\$ 6,546,835	\$ 3,034,859	\$ 468,940	\$ 2,484,764	\$ 227,250,913

ENR 20 City Avg.	
ENR 12/1/2018	11186
ENR 6/1/2013	9542

Lift Stations	2005	2018
ENR 20 City Avg	9806	11062
Vandenberg	\$ 400,000	\$ 451,000
Carver	\$ 400,000	\$ 451,000
Calhoun	\$ 400,000	\$ 451,000
Barrymore	\$ 400,000	\$ 451,000
Total	\$ 1,815,062	

VSD's Lift Stations are similar and so the cost is assumed to be about the same

Force Mains	Size (in.)	Length (ft)	Unit Cost	Price
Vandenberg	4	140	\$ 85	\$ 11,900
Carver	6	66	\$ 100	\$ 6,600
Calhoun	6	100	\$ 100	\$ 10,000
Barrymore	8	380	\$ 115	\$ 43,700
Included in pipe lengths above			Total	\$ 72,200

Manholes	4" diameter	5' diameter	6' diameter
Cost MH/foot	\$ 10.00	\$ 12.50	\$ 15.00

Siphons	Size (in.)	Length (ft)	Unit Cost	Price
Indio Blvd.	12	554	\$ 170	\$ 94,180
Shields	12	780	\$ 170	\$ 132,600
Fred Waring	15	650	\$ 190	\$ 123,500
Jefferson	15	220	\$ 190	\$ 41,800
Shadow Hills	16	1255	\$ 500	\$ 627,500
	20	1255	\$ 588	\$ 737,313
	24	1255	\$ 706	\$ 886,344
Total			Total	\$ 2,416,456

These costs are included above except the Shadow Hills portion

Table A-2
Contribution of Sewer Capacity Charges

Fiscal Year	Connection Fees and Revenues [1,2]			ENR 20 City CCI at Year End	Escalation Factor Based on 11062	Escalated Contribution Revenues
	Capacity Charge/EDU	Number of New EDUs	Revenues			
2018	\$4,265	298	\$1,272,580	11062	1.00	\$1,272,580
2017	\$4,265	186	\$791,280	10676	1.04	\$819,874
2016	\$4,265	339	\$1,446,315	10331	1.07	\$1,548,567
2015	\$4,265	211	\$897,863	10036	1.10	\$989,680
2014	\$4,265	469	\$1,998,788	9806	1.13	\$2,254,654
2013	\$4,265	129	\$548,500	9543	1.16	\$635,775
2012	\$3,957	49	\$192,800	9338	1.18	\$228,388
2011	\$3,957	183	\$724,000	9070	1.22	\$883,012
2010	\$3,957	77	\$304,400	8804	1.26	\$382,459
2009	\$3,957	164	\$648,900	8570	1.29	\$837,564
2008	\$3,753	454	\$1,702,500	8310	1.33	\$2,266,282
2007	\$3,654	395	\$1,441,600	7967	1.39	\$2,001,621
2006	\$3,565	2,335	\$8,325,600	7751	1.43	\$11,881,476
2005	\$3,110	2,519	\$7,833,100	7446	1.49	\$11,636,782
2004	\$2,960	1,518	\$4,493,000	7115	1.55	\$6,985,275
2003	\$2,067	1,348	\$2,787,000	6694	1.65	\$4,605,517
2002	\$2,067	692	\$1,431,100	6538	1.69	\$2,421,320
2001	\$2,005	200	\$401,000	6342	1.74	\$699,432
2000	\$1,967	200	\$393,400	6221	1.78	\$699,522
1999	\$1,916	200	\$383,200	6060	1.83	\$699,488
1998	\$1,872	200	\$374,300	5920	1.87	\$699,399
1997	\$1,842	200	\$368,300	5825	1.90	\$699,412
1996	\$1,777	200	\$355,400	5620	1.97	\$699,533
1995	\$1,730	200	\$345,900	5471	2.02	\$699,376
1994	\$1,710	200	\$341,900	5408	2.05	\$699,342
1993	\$1,647	200	\$329,400	5210	2.12	\$699,380
1992	\$1,576	200	\$315,200	4985	2.22	\$699,436
1991	\$1,529	200	\$305,700	4835	2.29	\$699,401
1990	\$1,496	200	\$299,200	4732	2.34	\$699,430
1989	\$1,459	200	\$291,800	4615	2.40	\$699,424
1988	\$1,429	200	\$285,700	4519	2.45	\$699,351
1987	\$1,393	200	\$278,600	4406	2.51	\$699,461
1986	\$1,358	200	\$271,600	4295	2.58	\$699,510
1985	\$1,326	200	\$265,300	4195	2.64	\$699,572
1984	\$1,311	200	\$262,200	4146	2.67	\$699,569
1983	\$1,285	200	\$257,100	4066	2.72	\$699,458
1982	\$1,209	200	\$241,900	3825	2.89	\$699,571
1981	\$1,118	200	\$223,500	3535	3.13	\$699,383
1980	\$1,023	200	\$204,700	3237	3.42	\$699,523
1979	\$949	200	\$189,900	3003	3.68	\$699,515
1978	\$878	200	\$175,500	2776	3.98	\$699,334
Totals		16,164				\$68,437,645

Notes:

- Annual revenues and fees for 2002 - 2018 are from the Statistical Section of District Comprehensive Annual Financial Reports. The reports refer to the revenues as coming from "Connection Fees."
The number of new EDU connections for each year is calculated using the amounts of revenue and actual fees.
- Fees for 2001 and earlier are adjusted downward from the 2018 value by the ENR 20 City CCI.
The number of new connections for 2001 and earlier are estimated by the District.

Table A-3
Debt Service Schedules

Wastewater Revenue Refunding Bonds, Series 2015

Period Ending	12/1/2015	6/1/2016	12/1/2016	6/1/2017	12/1/2017	6/1/2018	12/1/2018	6/1/2019	12/1/2019	6/1/2020	12/1/2020	6/1/2021	12/1/2021	6/1/2022	12/1/2022	6/1/2023	12/1/2023	6/1/2024	12/1/2024	6/1/2025	12/1/2025	6/1/2026	
Principal	550,000	550,000	565,000	565,000	590,000	590,000	620,000	620,000	620,000	650,000	650,000	685,000	685,000	715,000	715,000	750,000	750,000	765,000	765,000	805,000	805,000	845,000	845,000
Interest	160,934	177,719	163,969	163,969	149,844	149,844	135,094	135,094	119,594	119,594	103,344	103,344	103,344	86,219	86,219	68,344	68,344	60,375	60,375	41,250	41,250	21,125	21,125
Debt Service	160,934	727,719	163,969	728,969	149,844	739,844	135,094	755,094	119,594	769,594	103,344	788,344	788,344	86,219	801,219	68,344	818,344	60,375	825,375	41,250	846,250	21,125	866,125

Fiscal Year	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	
Principal	550,000	565,000	590,000	620,000	650,000	685,000	715,000	750,000	765,000	805,000	845,000	
Interest	338,653	327,938	299,688	270,188	239,188	206,688	172,438	136,688	120,750	82,500	42,250	
Total	888,653	892,938	889,688	890,188	889,188	891,688	887,438	886,688	885,750	887,500	887,250	
Principal Remaining (in \$thousands)	7,540	6,990	6,425	5,835	5,215	4,565	3,880	3,165	2,415	1,650	845	0

Percent Alloc	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Fund 11-52.174%	463,646	465,881	464,186	464,446	463,925	465,229	463,012	462,620	462,131	463,044	462,914
Fund 12-47.826%	425,007	427,056	425,502	425,741	425,263	426,458	424,426	424,067	423,619	424,456	424,336
Total	888,653	892,938	889,688	890,188	889,188	891,688	887,438	886,688	885,750	887,500	887,250

Clean Water State Revolving Fund - Project No. C-06-8116-110, Agreement No. D1601003-550-4

12,746,147 < Disbursement
174,008 < Construction Period Interest
 12,920,155 < Construction Period Interest
 1.7% < Interest Rate
 30 < Term

payment period >	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Principal	333,718	339,391	345,161	351,029	356,996	363,065	369,237	375,514	381,898	388,390	394,993	401,708	408,537	415,482	422,545	429,728	437,034	444,463	452,019	459,704	467,518	475,361
Interest	219,643	213,969	208,200	202,332	196,365	190,296	184,124	177,846	171,463	164,970	158,368	151,653	144,824	137,879	130,816	123,632	116,327	108,897	101,342	93,657	85,842	78,627
Total	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361	553,361
Principal Remaining (in \$thousands)	12,920	12,586	12,247	11,902	11,551	11,194	10,831	10,462	10,086	9,704	9,316	8,921	8,519	8,111	7,695	7,272	6,843	6,406	5,961	5,509	5,050	4,582

% alloc	Fund 11-52.174%	Fund 12-47.826%
Total	288,710	288,710
Principal	288,710	288,710
Interest	264,650	264,650
Total	553,361	553,361

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