



VSD

Board of Directors Agenda Regular Meeting
Tuesday, May 12, 2020 at 1:00 PM
Valley Sanitary District Board Room
45-500 Van Buren Street, Indio, CA

*****SPECIAL NOTICE – Telephonic Accessibility*****

Pursuant to Paragraph 11 of Executive Order N-25-20, executed by the Governor of California on March 12, 2020, as a response to mitigating the spread of coronavirus known as COVID-19, during the May 12, 2020, regular meeting of Valley Sanitary District Board of Directors members of the public will be allowed to attend and address the Board of Directors during the open session of the meeting telephonically.

Members of the public wanting to listen to the open session of the meeting may do so by calling (425) 436-6376 and when prompted, enter access code 166514. Members of the public wanting to address the Board, either during public comment or for a specific agenda item, or both, are requested to send an email notification no later than 12:30 p.m. on the day of the meeting to the Valley Sanitary District's Clerk of the Board at hevans@valley-sanitary.org.

Page

1. CALL TO ORDER



- 1.1. Roll Call
- 1.2. Pledge of Allegiance
- 1.3. May Employee Anniversaries
 - Tino Tijerina - 30 years
 - Anna Bell - 7 years
 - Austin Lopanec - 5 years
- 1.4. New Employee Introduction

2. PUBLIC COMMENT






This is the time set aside for public comment on any item not appearing on the agenda. Please notify the Secretary in advance of the meeting if you wish to speak on a non-hearing item.

3. CONSENT CALENDAR

Consent calendar items are expected to be routine and noncontroversial, to be acted upon by the Board of Directors at one time, without discussion. If any Board member requests that an item be removed from the consent calendar, it will be removed so that it may be acted upon separately.

- | | | |
|------|--|---------|
| 3.1. | Approve April 28, 2020 Regular Meeting Minutes
3.1 Minutes for 28 Apr 2020.pdf  | 5 - 9 |
| 3.2. | Approve Warrants for April 23 to May 6, 2020
3.2 Warrants for April 23 to May 6, 2020.pdf  | 10 - 11 |

4. PUBLIC HEARING

- | | | |
|------|---|---------|
| 4.1. | Public Hearing to Receive Input from the Community
Regarding the Proposed Sewer Service Charge Increase and
Consider Adopting Resolution No. 2020-1129
- General Notice and Call
- President Announces Public Hearing Procedures
- General Manager's Report
- President Declares Public Hearing Open
- Public Comments
- President Declares Public Hearing Closed
- Board Discussion
- Consideration of Resolution
4.1 Staff Report Public Hearing Sewer Service Charge.pdf 
4.1 Attachment A Resolution No. 2020-1129.pdf 
4.1 Attachment B Prop 218 Card.pdf 
4.1 Attachment C Public Hearing Notice.pdf 
4.1 Attachment D Evaluation of Sewer Service Charges.pdf  | 12 - 51 |
|------|---|---------|

[4.1 Attachment E Memo to Board Clarifying EDUs.pdf](#) 

5. NON-HEARING ITEMS

Director's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

- 5.1. Discuss Ad Hoc Budget Committee Recommendations and Provide Direction to Staff 52 - 54

[5.1 Staff Report Budget Discussion Revised.pdf](#) 

[5.1 Attachment A Variance Combined Budget Summary.pdf](#) 

- 5.2. Discuss Director's Request for Staff Input on Comprehensive Budget for Fiscal Year 2020/21 and Other Operational Issues and Provide Direction to Staff 55

[5.2 Staff Report Employee Input on Budget.pdf](#) 

- 5.3. Recognize Staff for GFOA Certificate of Achievement for Excellence in Financial Reporting got FYE June 30, 2019 56 - 63

[5.3 Staff Report Certificate of Achievement for Excellence in Financial Reporting.pdf](#) 

[5.3 Attachment A VSD 2019 CAFR Results.pdf](#) 

[5.3 Attachment B VSD Award PDF.pdf](#) 

6. GENERAL MANAGER'S ITEMS

General Manager's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

- 6.1. Update on COVID-19 and Potential Direction to Staff

- 6.2. Monthly Staff Notes for April 2020 64 - 68

[6.2 Monthly Staff Notes for April 2020.pdf](#) 

[6.2 Development Services Report 2020 May 5.pdf](#) 

7. DIRECTOR'S ITEMS

Director's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

8. INFORMATIONAL ITEMS

- 8.1. Water and Sewer Affordability in the United States: A 2019 Update, AWWA Water Science, by Manuel P. Teodoro and Robin Rose Saywitz

69 - 80

[8.1 AWWA Affordability Article.pdf](#) 

9. ADJOURNMENT

Pursuant to the Brown Act, items may not be added to this agenda unless the Secretary to the Board has at least 72 hours advance notice prior to the time and date posted on this notice.

UNNOFFICAL UNTIL APPROVED

VALLEY SANITARY DISTRICT MINUTES OF SPECIAL BOARD MEETING

April 28, 2020

*****SPECIAL NOTICE – Telephonic Accessibility*****

Pursuant to Paragraph 11 of Executive Order N-25-20, executed by the Governor of California on March 12, 2020, as a response to mitigating the spread of coronavirus known as COVID-19, during the April 28, 2020 regular meeting of Valley Sanitary District Board of Directors, members of the public will be allowed to attend and address the Board of Directors during the open session of the meeting telephonically.

Members of the public wanting to listen to the open session of the meeting were able to do so by calling (425) 436-6376 and when prompted, enter access code 166514. Members of the public wanting to address the Board, either during public comment or for a specific agenda item, or both, were requested to send an email notification no later than 12:30 p.m. on the day of the meeting to the Valley Sanitary District's Clerk of the Board at hevans@valley-sanitary.org.

A regular Board Meeting of the Governing Board of Valley Sanitary District (VSD) was held at the District offices, 45-500 Van Buren Street, Indio, California, on Tuesday, April 28, 2020.

1. CALL TO ORDER

President Mike Duran called the meeting to order at 1:00 p.m.

1.1 Roll Call

Directors Present via Telephone:

Debra Canero, Dennis Coleman, Mike Duran, William Teague

Directors Present:

Scott Sear

Staff Present:

Beverli A. Marshall, General Manager, Holly Gould, Ron Buchwald, Joanne Padgham (via telephone), Ian Wilson (via telephone); Legal Counsel: Robert Hargreaves, Best Best & Krieger (via telephone)

Guests via Telephone:

Haki Dervishi, One Stop Shoppe

1.2 Pledge of Allegiance

2. PUBLIC COMMENT

This is the time set aside for public comment on any item not appearing on the agenda. Please notify the Secretary in advance of the meeting if you wish to speak on a non-hearing item.

None.

3. CONSENT CALENDAR

- 3.1 Approve April 14, 2020, Regular Meeting Minutes
 - 3.2 Approve Warrants for April 9 to April 22, 2020
 - 3.3 Summary of Cash and Investments for March 2020
 - 3.4 Accept Certificate of Acceptance for Sewer Main Improvements for Tract 32341-7 and 32341-9 Residential Development and Authorize the General Manager to Sign and have Notarized the Certificate of Acceptance for Recording Purposes
-

ACTION TAKEN:

MOTION:

Director Teague made a motion to approve the consent calendar as presented. Secretary Canero seconded the motion.

Motion carried by the following roll call vote:

AYES: Canero, Coleman, Duran, Sear, Teague

NOES: None

ABSENT: None

ABSTAIN: None

MINUTE ORDER NO. 2020-3008

4. NON-HEAING ITEMS

- 4.1 Discussed Proposed Comprehensive Budget for Fiscal Year 2020/21 and Provide Direction to Staff

Staff presented the Fiscal Year 2020/21 Draft budget to the board for input, revisions and recommendations. Directors Teague and Coleman felt it was a reasonable budget and recommended it move forward without any changes. President Duran, Vice President Sear and Secretary Canero were not comfortable with the presented draft budget. It was determined that more information was needed for them to be able to make any recommendations. An ad-hoc budget committee was formed that includes Vice President Sear and Secretary Canero. They will meet with the General Manager and staff for further clarity on proposed budgeted items. The draft budget will come back before the board on May 26, 2020.

ACTION TAKEN:

MOTION:

Director Teague made for the General Manager to move forward with the budget as presented. Director Coleman seconded the motion. Motion not carried by the following roll call vote:

AYES: Coleman, Teague

NOES: Canero, Duran, Sear

ABSENT: None

ABSTAIN: None

MINUTE ORDER NO. 2020-3009

4.2 Adopt VSD Design Build Conflict of Interest Policy

Pursuant to California Public Contract Code section 22160 et seq. public agencies seeking to use the design build process to construct public work projects shall adopt a Conflict of Interest Policy for Design Build projects. This policy sets the ground rules for consultants, subconsultants, contractors, subcontractors and related entities to avoid Conflict of Interest situations. It was recommended by legal counsel that the District adopt this policy.

ACTION TAKEN:

MOTION: Director Teague made a motion to adopt the Design Build Conflict of Interest Policy. Vice President Sear seconded the motion. Motion carried by the following roll call vote:

AYES: Canero, Coleman, Duran, Sear, Teague

NOES: None

ABSENT: None

ABSTAIN: None

MINUTE ORDER NO. 2020-3010

4.3 Authorize the General Manager to Execute a Contract with Carollo Engineers, Inc. to Provide Final Design of the Siphon Replacement Crossing the Coachella Stormwater Channel

On April 23, 2019, the Board authorized the General Manager to execute a contract with Carollo Engineers, Inc. (Carollo) for a not to exceed price of \$125,534 for the preliminary design of the replacement of the sewer siphon crossing the Coachella Stormwater Channel at Westward Ho. The preliminary design report determined the preferred method to use is Horizontal Directional Drilling (HDD) in terms of cost, constructability, and future operation and maintenance. The next phase will consist of performing the final design of the project based on the HDD method. This will provide full plans and specifications for contractors to be able to bid on to determine the lowest, responsible bidder. It is recommended to execute a contract with Carollo Engineers, Inc. to provide final design for a not to exceed amount of \$279,893. Most of this money will be reimbursed through FEMA/CalOES.

ACTION TAKEN:

MOTION: Vice President Sear made a motion to authorize the General Manager to execute a contract with Carollo Engineers, Inc. to perform final design of the sewer siphon replacement crossing the Coachella Stormwater Channel in an amount not to exceed \$279,893. Director Teague seconded the motion. Motion carried by the following roll call vote:

AYES: Canero, Coleman, Duran, Sear, Teague

NOES: None

ABSENT: None

ABSTAIN: None

MINUTE ORDER NO. 2020-3011

4.4 Award of Contract to Petrochem Materials Innovation, LLC for the Slurry Seal of Asphalt Roads Throughout the VSD Facility

The asphalt throughout the VSD facility is getting worn with cracks and pits. Adding slurry seal will provide for a fresh look and provide several years of life to the asphalt. Petrochem Materials Innovation, LLC (PMI) offers a superior slurry seal product that lasts longer than basic slurry seals. PMI is the only manufacturer to make this product. PMI offers the lowest possible pricing to any public utility in California due to their bid pricing agreement with the City of Los Angeles. Other cities within the Coachella Valley have used this price agreement to take advantage of discounted pricing without having to publicly bid the project. It is recommended to execute a construction contract with PMI for a not to exceed amount of \$78,350.

ACTION TAKEN:

MOTION:

Secretary Canero made a motion to authorize the General Manager to execute a construction contract with PMI to perform the slurry seal of asphalt roads throughout VSD Facility not to exceed \$78,350. Director Teague seconded the motion. Motion carried by the following roll call vote:

AYES: Canero, Coleman, Duran, Sear, Teague

NOES: None

ABSENT: None

ABSTAIN: None

MINUTE ORDER NO. 2020-3012

5. GENERAL MANAGER'S ITEMS

5.1 Oral Update on COVID-19 and Potential Direction from the Board

Monitoring of the phone calls, emails and webinars on the COVID-19 updates are continuing. Ms. Marshall reported that staff is continuing the alternate schedules of Team A and Team B, one week on and one week off. There is a lot of pressure from the business community to reopen. Four cities in the Coachella Valley, including the City of Indio, have submitted a letter requesting that the county approve a process for reopening. Governor Newsome has announced that schools may reopen in July and will include a combination of distance learning.

6. DIRECTOR'S ITEMS

Director's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

None.

7. INFORMATIONAL ITEMS

7.1 Combined Monthly Account Summary March 2020

7.2 Monthly Income Summary March 2020

7.3 Adjourn in recognition of May 3 – 9, 2020, as National Public Service Recognition Week. This week was created in 1985 to honor those who serve as federal, state, county, and local government employees. You can find more information about this event at <https://psrw.ourpublicservice.org/>.

Vice President Sear suggested an appreciation lunch for staff in honor of National Public Service Recognition Week; the Board agreed.

8. ADJOURNMENT

There being no further business to discuss, the meeting was adjourned at 2:47 p.m. The next regular board meeting will be held May 12, 2020.

Respectfully submitted,

Holly Gould, Clerk of the Board
Valley Sanitary District

DISBURSEMENTS
Approved at the Board Meeting of
May 12, 2020

38187 American Material Company	Neck Gaiters	\$326.25
38188 Analytical Technology, Inc.	Pump Assembly	\$447.75
38189 Aqua Staffing	Temporary Staffing	\$11,414.00
38190 Calif. Water Environment Assn.	Membership Renewal	\$192.00
38191 Caltest Analytical Laboratory	Quarterly Samples	\$239.40
38191 Caltest Analytical Laboratory	Monthly Samples	\$1,086.33
38192 Carollo Engineering, Inc	*Sewer Siphon Replacement March 2020	\$4,616.25
38193 Carquest Auto Parts	New Charges for April 2020	\$183.14
38194 Chemco Products Co.	Heavy Duty Degreaser	\$572.68
38195 Cintas Corp	Uniforms, Mats, Towels, Etc for Week of 04/23/2020	\$563.72
38195 Cintas Corp	Uniforms, Mats, Towels, Etc for Week of 04/30/2020	\$664.81
38195 Cintas Corp	Restock First Aid Kits	\$67.11
38196 City of Indio Alarm Program	Alarm Permit Renewal 2020	\$20.00
38197 Consolidated Electrical Distributors, Inc.	Portable Cord	\$1,555.13
38198 Daniels Tire Service, Inc.	Tire Disposal	\$14.00
38199 Desert Hose & Supply	Hose Parts & Supplies	\$1,063.18
38200 Eisenhower Occupational Health	New Employee Screening	\$125.00
38201 EOA, Inc.	NPDES Permit Renewal Assistance	\$320.87
38202 Goldstreet Design Agency, inc	FOG Brochures & Door Hangers	\$1,267.99
38203 Grainger	Flush Mount Light	\$80.63
38203 Grainger	Air Filters	\$368.99
38203 Grainger	Garment Rack	\$158.10
38204 Hach Company	*Composite Sampler	\$8,840.29
38204 Hach Company	Ammonia	\$132.14
38205 Hajoca Corporation	Pump with Cutter Blade	\$325.70
38206 Harris & Associates	*PADM for Collections System	\$22,244.25
38207 Healthy Futures, Inc.	Wellness Program for April 2020	\$1,500.00
38208 ICMA Membership Renewals	Membership Renewal	\$1,400.00
38209 Industrial Filter Manufacturers, Inc.	Panel Element	\$1,247.02
38210 Innovative Federal Strategies LLC	Federal Advocacy for April 2020	\$6,000.00
38211 IPT Holdings, LLC	Stem Nut	\$490.47
38212 J.G. Tucker & Sons, Inc.	Battery	\$1,576.88
38213 McMaster-Carr Supply Co.	Steel Pipe	\$645.52
38213 McMaster-Carr Supply Co.	PVC Pipe & Pipe Fittings	\$118.93
38214 Northwest Scientific, Inc.	Sulfuric Acid	\$605.02
38215 Paloma Air Conditioning	Install Mini Split in Ferric Building	\$2,618.00
38216 Pete's Road Service, Inc.	Mount Tires	\$98.53
38217 Plumbers Depot Inc.	Parts for Collections Dept.	\$1,278.38
38218 Praxair Distribution, Inc.	Tank Rentals	\$124.39
38219 Pyro-Comm Systems	Fire Alarm Monitoring	\$135.00
38220 Quinn Company	Remove & Install Tracks	\$1,038.00
38221 Rauch Communication Consultants, Inc.	Strategic Planning	\$443.75
38222 ReadyRefresh by Nestle	Bottled Water for April 2020	\$595.58
38223 Rudy's Pest Control	Pest Control for May 2020	\$185.00
38224 Safety-Kleen Systems, Inc.	Parts Washer Service	\$1,162.92
38225 South Coast A.Q.M.D	Hot Spots Program Fee 2020	\$137.63
38226 Southern California Boiler, Inc.	Boiler Maintenance for April 2020	\$1,004.99
38227 Southwest Networks, Inc.	Home Computer Agreement	\$144.00
38227 Southwest Networks, Inc.	BDR Storage June 2020	\$699.00
38227 Southwest Networks, Inc.	Technical Support for April 2020	\$760.00
38227 Southwest Networks, Inc.	Quarterly Billing June -Aug 2020	\$8,595.00
38228 Staples Advantage	New Charges for April 2020	\$1,581.00
38229 Sulzer	Washdown Duty Motor	\$1,498.41
38229 Sulzer	Electric Motor	\$2,426.83
38230 Superior Protection Consultants	Plant Security for April 2020	\$6,240.00
38231 Underground Service Alert	Dig Alerts for April 2020	\$127.15
38231 Underground Service Alert	Dig Safe Board Fee	\$68.99
38232 United Way of the Desert	PR 04/17/2020 - 04/30/2020 PD 05/08/2020 Sodium	\$25.00
38233 Univar Solutions	Hypochlorite	\$7,128.60
38233 Univar Solutions	Sodium Bisulfite	\$5,304.75
38233 Univar Solutions	Ferric Chloride	\$9,684.84
38233 Univar Solutions	Sodium Hypochlorite	\$7,074.57
38234 USA Blue Book	Circular Chart Paper	\$281.87
38235 Vantage Point Transfer Agents - ICMA	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$1,395.00
38236 Water Environment Federation	Membership Renewal	\$332.00
38237 Western Pump, Inc.	Repairs for Vapor Recovery Testing	\$725.66
38237 Western Pump, Inc.	AQMD Testing	\$650.00
38238 Yellow Mart	Work Boots	\$217.49
202004301 Indio Water Authority	Hydrant Water for March 2020	\$548.25
202004302 Domino Solar LTD	Electricity for March 2020	\$9,992.17

202005041 Imperial Irrigation District	Electricity for March 2020	\$35,364.37
202005042 Verizon Wireless	Cell Service for April 2020	\$803.17
202005081 Paychex - Direct Deposit	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$64,083.20
202005082 Paychex - Garnishment	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$210.46
202005083 Paychex - Tax	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$29,679.35
202005084 MassMutual	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$10.00
202005085 Nationwide Retirement Solution	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$2,385.00
202005086 Paychex - Fee	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$155.47
202005111 Indio Water Authority	Water for March 2020	\$933.25
202005112 TASC	PR 04/17/2020 - 04/30/2020 PD 05/08/2020	\$296.14
EFT Bank of New York Mellon	WW Rev Refunding Bond Payment	\$769,593.75
EFT State Water Resources Control Board	Clean Water State Revolving Fund	\$553,360.71
*Capital Expenditures		\$1,601,671.17



**Valley Sanitary District
Board of Directors Meeting
May 12, 2020**

TO: Board of Directors
THROUGH: Beverli A. Marshall, General Manager
FROM: Joanne Padgham, Administration & Finance Manager
SUBJECT: **Conduct a Public Hearing to Receive Input from the Community Regarding the Proposed Sewer Service Charge Increase and Consider Adoption of Resolution 2020-1129 Establishing Sewer Service Charges for Fiscal Year 2020/21**

<input checked="" type="checkbox"/> Board Action	<input type="checkbox"/> New Budget Approval	<input type="checkbox"/> Contract Award
<input type="checkbox"/> Board Information	<input type="checkbox"/> Existing FY Approved Budget	<input type="checkbox"/> Closed Session

Executive Summary

The purpose of this report is for the Board to conduct a public hearing, in accordance with Proposition 218, regarding the proposed sewer service charge increase.

Strategic Plan Compliance

This item complies with VSD Strategic Plan Objective 5.1: Align long-term financial planning with strategic priorities.

Fiscal Impact

The adoption of the proposed sewer rate will increase annual revenue in Fiscal Year 2020/21 by \$617,100.

Background

The District provides wastewater service to its customers, and continually strives to provide excellent service while maximizing cost reductions and better utilization of its assets. In addition, the District must be fiscally responsible to ensure financial stability in the years to come. To this end, the District engaged an independent consultant to perform a cost of service analysis and rate study for its sewer service charges.

Based upon the rate study, the District anticipates there will be future increases in the costs of operating and maintaining the wastewater systems. The proposed wastewater rate increases are necessary to enable the District to:

1. maintain the operational and financial stability of the District, including keeping pace with inflation and other cost increases including wastewater treatment costs; and
2. comply with State and Federal regulations governing the treatment, disposal, and reuse of wastewater; and
3. fund capital infrastructure improvements needed to repair and update the District's aging wastewater system; and
4. avoid operational deficits and depletion of reserves.

In compliance with California Proposition 218, a notice was sent to the record owners and/or tenants via U.S. Mail at least 45 days before the Public Hearing in order to consider an increase to the sewer service charges. Additionally, a notice of the Public Hearing was advertised in the Desert Sun, a newspaper of general circulation, on March 22, 2020 and March 29, 2020.

Recommendation

Staff recommends that the Board of Directors conduct a Public Hearing, in accordance with Proposition 218, regarding the proposed sewer rate increase, and adopt Resolution No. 2020-1129, setting the sewer service charges for Fiscal Year 2020/21 and repealing Resolution No. 2019-1115.

Attachments

- Attachment A: Resolution 2020-1129
- Attachment B: Copy of Proposition 218 Notice
- Attachment C: Copy of Public Hearing Notice
- Attachment D: Evaluation of Sewer Service Charges by Municipal Financial Services
- Attachment E: Memo to Board Clarifying EDUs

RESOLUTION NO. 2020-1129
A RESOLUTION OF THE BOARD OF DIRECTORS OF VALLEY SANITARY DISTRICT ADOPTING SEWER SERVICE CHARGES FOR FISCAL YEAR 2020/21

WHEREAS, the Valley Sanitary District (the “District”) is authorized to provide sewer service to properties within its service area, and pursuant to Ordinance 94-115 the Board of Directors established the authority under State law to collect fees and charges for costs reasonably borne and charges levied by the District; and,

WHEREAS, costs for providing sewer service and operating the sewer system have gone up, and the District previously retained Municipal Financial Services, an independent rate consultant, to perform a cost of service analysis and rate study, entitled the Evaluation of Sewer Service Charges; and

WHEREAS, on March 4, 2020, the District held a study session at a special board meeting, reviewing the Evaluation of Sewer Service Charges prepared by Municipal Financial Services; and

WHEREAS, the Evaluation of Sewer Service Charges found that increases and adjustments to the District’s sewer service charges are necessary to meet increased costs of providing service and operating the system; and

WHEREAS, based on this analysis, the District is proposing to increase its sewer service charges to \$330 per EDU; and

WHEREAS, the proposed structure for the sewer service charges include an annual flat charge per equivalent dwelling unit (“EDU”), with each EDU equaling 230 Gallons Per Day (GPD); and

WHEREAS, the revenues derived from the sewer service charges will not exceed the funds required to provide the services for which the sewer service charges are imposed, and will be used exclusively for the operation and maintenance of the District’s sewer systems; and

WHEREAS, the sewer service charges are equitable to all customer classes; and

WHEREAS, the amount of the sewer service charges will not exceed the proportional cost of the service attributable to each parcel upon which they are proposed for imposition; and

WHEREAS, the sewer service charges will not be imposed on a parcel unless the service for which such charge is imposed, is actually used by, or immediately available to, the owner of the parcel; and

WHEREAS, article XIII D, section 6 of the California Constitution (“Article XIII D”) requires that prior to imposing any increase to the charges, the District shall provide written notice (the “Notice”) by mail of the new or increased sewer service charges to the record owner of each parcel upon which the Charges are proposed for imposition

and any tenant directly liable for payment of the sewer service charges, the amount of the sewer service charges proposed to be imposed on each parcel, the basis upon which the sewer service charges were calculated, the reason for the sewer service charges, and the date time and location of a public hearing (the "Hearing") on the proposed sewer service charges; and

WHEREAS, pursuant to Article XIII D such Notice is required to be provided to the affected property owners and any tenant directly liable for the payment of the sewer service charges not less than 45 days prior to the Hearing on the proposed sewer service charges; and

WHEREAS, on May 12, 2020, the Board of Directors held a duly noticed Hearing on the proposed sewer service charges contained in this resolution, and at that time invited oral and written comments from the public; and

WHEREAS, at the time of this writing the District received seven written protests to the proposed annual increase to the various annual sewer service charges, and received _____ additional protests during the Hearing; and

WHEREAS, the Board of Directors now desires to establish sewer service charges for Fiscal Year 2020/21, effective July 1, 2020.

NOW, THEREFORE, the Board of Directors of Valley Sanitary District **HEREBY RESOLVES**:

1. The matters set forth in the recitals to this Resolution are true and correct statements.
2. Written protests against the proposed rates and charges were not presented by a majority of owners.
3. The sewer service charge of \$330 per EDU is hereby approved and adopted.
4. The sewer service charges shall take effect on July 1, 2020.
5. To the extent the sewer service charges set forth in this Resolution conflict with any fee or charge previously adopted by the District, it is the intent of the Board of Directors that these sewer service charges will prevail.
6. In accordance with the California Environmental Quality Act ("CEQA"), Public Resources Code §21000 et seq., and the regulations promulgated pursuant to CEQA ("The State Guidelines") the District Board finds that this Resolution establishes rates and charges for the purposes of meeting operating expenses of the District, meeting financial reserve needs and requirements of the District and obtaining funds for capital projects which are necessary to maintain sewer service within existing service areas in the District. (State Guidelines § 15273).

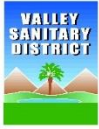
PASSED, APPROVED, and ADOPTED this 12th day of May 2020, by the following roll call vote. A summary notice thereof has been published twice in a newspaper of general circulation in the Valley Sanitary District prior to said hearing as required by law. Resolution 2019-1115 is hereby repealed at the effective date of this resolution.

AYES:
NAYES:
ABSENT:
ABSTAIN:

Mike Duran, President

ATTEST:

Debra Canero, Secretary



VALLEY SANITARY DISTRICT
45-500 VAN BUREN STREET
INDIO, CA 92201
WWW.VALLEY-SANITARY.ORG

How to Voice Your Opinion:

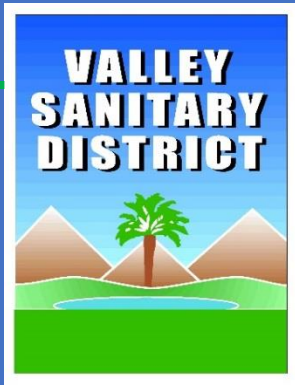
Under Proposition 218, the property owner of record or a tenant may submit a written protest against the proposed rate increase to the District at or before the time set for the public hearing. Protests should contain the following information: (1) a description of the property, such as the assessor's parcel number; (2) whether you are the property owner of record or a tenant; and (3) the parcel owner's or tenant's signature. One (1) written protest per parcel will be counted.

Please mail written protests to:

Board of Directors
Valley Sanitary District
45-500 Van Buren Street
Indio, CA 92201

Or you can deliver your protest to the Clerk of the Board at the same address, Monday – Friday between the hours of 8:00 a.m. and 5:00 p.m. Written protests delivered in person must be submitted to the Clerk of the Board prior to the close of the public hearing. Written protests delivered by mail **must be received** by Valley Sanitary District no later than **1:00 p.m.** on Tuesday, **May 12, 2020**. Electronically submitted protests will not be accepted.

The Board of Directors will consider all protests to the proposed increase. If written protests towards the proposed increase are presented on behalf of a majority of parcels, the Board of Directors will not impose the increase. If there is no majority protest, the District Board of Directors may vote to adopt the proposed rate for sewer services, which will become effective as of **July 1, 2020**.



NOTICE OF PUBLIC HEARING

PROPOSED CHANGES TO SEWER USE RATES

Date: May 12, 2020

Time: 1:00 PM

Location: Valley Sanitary District Board Room

45-500 Van Buren Street Indio, CA 92201

The Valley Sanitary District (VSD) Board of Directors will hold a public hearing to discuss the increase of the sewer use rates. If approved by the VSD Board of Directors, the rate increase will take effect starting July 1st, 2020. All members of the public are welcome to attend the public hearing.

For further information, please call 760.238.5400.

Para obtener esta información en español, llame al 760.984.0535

Why the Rate Increase?

The District provides wastewater service to its customers, and continually strives to provide excellent service while maximizing cost reductions and better utilization of its assets. The District must also be fiscally responsible to ensure financial stability in years to come. To this end, the District engaged an independent consultant to perform a cost of service analysis and rate study for its wastewater service charges. Based on the rate study, the District anticipates there will be future increases in the costs of operating and maintaining the wastewater systems. The proposed wastewater rate increases are necessary to enable the District to: (1) maintain the operational and financial stability of the District, including keeping pace with inflation and other cost increases including wastewater treatment costs; (2) comply with State and Federal regulations governing the treatment, disposal, and reuse of wastewater; (3) fund capital infrastructure improvements needed to repair and update the District's aging wastewater system; (4) avoid operational deficits and depletion of reserves. A copy of the rate study and cost of service analysis providing justification for the proposed rates for wastewater service charges is on the District's website (<http://www.valley-sanitary.org>) and is also available during regular office hours of the District.

Date	Rate
Current Rate	\$ 313 per EDU* (\$ 26.08 / month)
After Rate Increase	\$ 330 per EDU (\$ 27.50 / month)

An Equivalent Dwelling Unit, or EDU is the average sewer flow of 230 gallons per day from one single family household. Each single-family household is assigned one EDU. For non-household uses, EDUs are assigned based on estimated flow and strength of wastewater discharge to the wastewater system and are established pursuant to Resolution No. 2019-1115 of the District.

**PROOF OF
PUBLICATION**

**STATE OF CALIFORNIA SS.
COUNTY OF RIVERSIDE**

VALLEY SANITARY DISTRICT
45500 VAN BUREN ST

INDIO CA 92201

I am over the age of 18 years old, a citizen of the United States and not a party to, or have interest in this matter. I hereby certify that the attached advertisement appeared in said newspaper (set in type not smaller than non paniel) in each and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

03/22/2020, 03/29/2020

I acknowledge that I am a principal clerk of the printer of The Desert Sun, printed and published weekly in the City of Palm Springs, County of Riverside, State of California. The Desert Sun was adjudicated a Newspaper of general circulation on March 24, 1988 by the Superior Court of the County of Riverside, State of California Case No. 191236.

I certify under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct.. Executed on this 30th of March 2020 in Green Bay, WI, County of Brown.


DECLARANT

Ad#:0004111876

P O :

This is not an invoice

of Affidavits: 1

**NOTICE OF PUBLIC HEARING
ON PROPOSED
NEW RATE FOR VALLEY SANITARY DISTRICT
SEWER SERVICES**

On Tuesday, May 12, 2020, the Valley Sanitary District Board of Directors will hold a public hearing to consider the proposed rate described in the Proposition 218 Notice mailed to property owners of record within the District's service area.

The hearing will begin at 1:00 p.m. in the Valley Sanitary District Boardroom located at 45-500 Van Buren Street, Indio, CA 92201.

How to protest the proposed new rate:

Under Proposition 218, the property owner of record or a tenant may submit a written protest against the proposed rate increase to the District at or before the time set for the public hearing.

Protests should contain the following information: (1) a description of the property, such as the assessor's parcel number; (2) whether you are the property owner of record or a tenant; and (3) the parcel owner's or tenant's signature. One written protest per parcel will be counted.

Please mail written protests to:

Board of Directors
Valley Sanitary District
45-500 Van Buren Street
Indio, CA 92201

Or you can deliver your protest to the Clerk of the Board at the same address, Monday - Friday between the hours of 8:00 a.m. and 5:00 p.m. Written protests must be received by Valley Sanitary District no later than 1:00 p.m. on Tuesday, May 12, 2020. Electronically submitted protests will not be accepted.

The Board of Directors will consider all protests against the proposed increase. If written protests against the proposed increase are presented by the majority of property owners, the Board of Directors will not impose the increase. If there is no majority protest, the District Board of Directors may vote to adopt the proposed rate for sewer services, which will become effective as of July 1, 2020. Pub: 3/22, 3/29/2020

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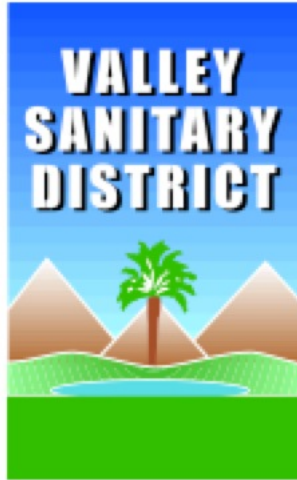
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APR 06 2020



FINAL
Evaluation of Sewer Service Charges

Prepared for
Valley Sanitary District, California
May 2019

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List of Abbreviations

Ccf	Hundred Cubic Feet
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
VSD	Valley Sanitary District
O&M	Operation and maintenance
R&R	Renewal and Replacement
SSC	Sewer Service Charge

Executive Summary

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

Purpose of the Study

The purpose of the study was to evaluate sewer service charges for the Valley Sanitary District. Sewer service charges are intended to recover revenues sufficient to adequately fund sewer utility operations, maintenance, and capital program expenditures, and meet debt service obligations, while keeping rates as competitive as possible and maintaining a prudent level of reserves.

Evaluation of Capital Improvement Program (CIP) projects extends through Fiscal Year 2028 – 2029 (FY29). This 10-year time-period was selected to include the impact of \$163.4 million in CIP expenditures which include the Phase 3 wastewater treatment plant projects. It is recommended that the District adopt sewer service charges for FY20 – FY24 (five years).

The evaluation includes estimates of future operating and non-operating revenues, operating and maintenance expenses, debt service obligations, and capital program expenditures. Like all projections, the evaluation is based on several assumptions including interest and inflation rates as well as future operating and program costs. The evaluation reflects current policies as well as potential changes to sewer service charges and sewer capacity charges, and other sources of revenues. To the extent that actual conditions differ from those incorporated in the evaluation, actual results may differ from the findings developed in this study.

Projected Cash Flow

Operating and capital funds cash flow for the five-year period of FY20 – FY24 is shown in Figure ES-1. The revenues from sewer service charges and sewer capacity charges include additional revenues from

Beginning Balance, July 1, 2019	\$46,672
Revenues	
Sewer Service Charges	\$61,431
Other Operating	\$120
Nonoperating	\$3,959
Interest Earnings	\$3,375
Capacity Charges	\$5,780
Loan Disbursements	\$59,356
Total Revenues	\$134,021
Expenditures	
Fund 11 Operating & Maintenance	\$38,710
Fund 11 Capital	\$2,187
Fund 12 Capital	\$69,908
Fund 13 Capital	\$23,742
Debt Service	\$14,440
Total Expenditures	\$148,988
Revenues less Expenditures	(\$14,967)
Ending Balance, June 30, 2024	\$31,705

annual increases in charges. Note that during this five-year period, total expenditures exceed total revenues by approximately \$15 million. Expenditures not funded by revenues are funded by use of cash from the fund balance.

Revenues from sewer service charges and sewer capacity charges are required to fund the projected \$95.8 million in CIP expenditures during the five-year period. Approximately 63 percent of the CIP expenditures (\$59.4 million) are projected to be funded from issuance of new debt with the remainder from cash. After issuance of new debt, the annual debt service principal and interest payments are projected to total approximately \$4.1 million per year.

Figure ES-1. Cash Flow Summary, FY20 – FY24

Recommended Sewer Service Charges

During the past nine years, sewer service charges have been adjusted twice. In 2014, sewer service charges were increased from \$259 per unit of service to \$270 (an increase of approximately 4 percent). The most recent adjustment was in 2016 when sewer service charges were increased by 16 percent to \$313 per unit of service.

The District’s historical and recommended sewer service charges are shown in the table below. The recommended sewer service charges for FY20 and FY21 are \$330 per unit (an initial increase of about 5.4 percent). The recommended sewer service charges for FY22 – FY24 are \$350 per unit (an increase of about 6.1 percent).

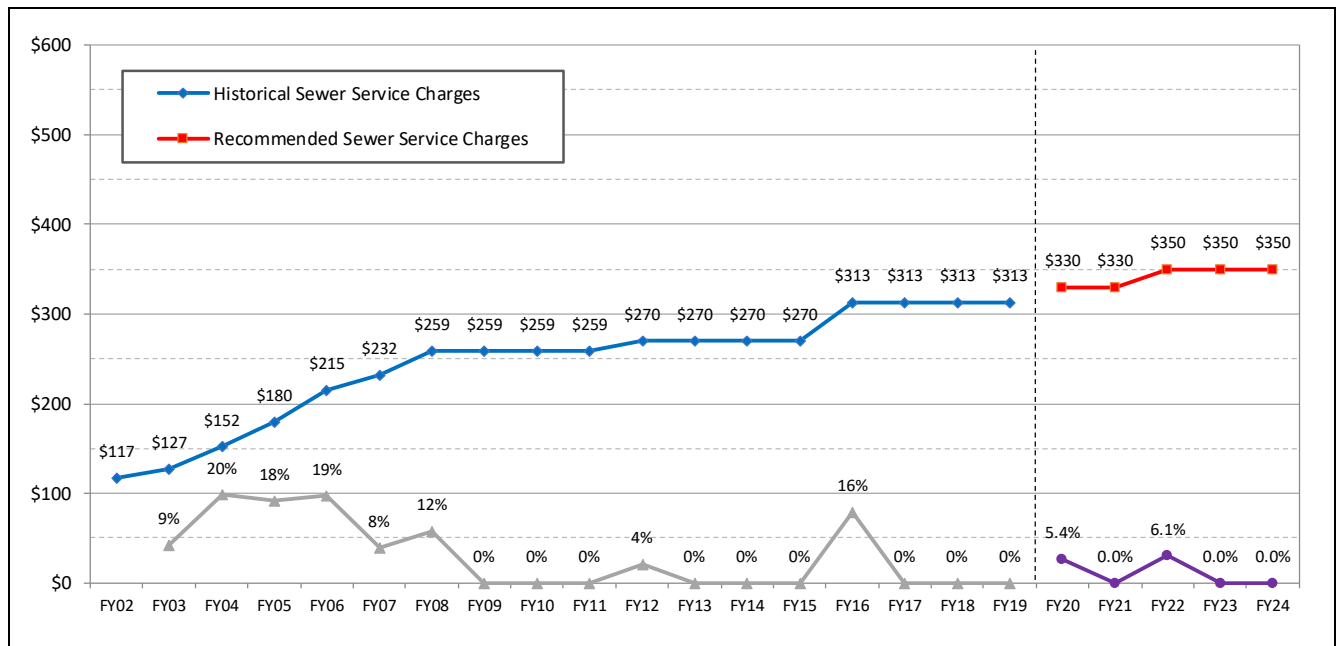


Figure ES-2. Historical and Projected Residential Annual Sewer Service Charges

It is recommended that in FY22, the District evaluate whether revenue from sewer service charges developed in this five-year rate plan will be sufficient to fund capital expenditure increases projected for FY25 – FY29.

Section 1

Introduction

Sewer Service Charges are intended to recover revenues sufficient to adequately fund sewer utility operations, maintenance, and capital replacement expenditures, and meet debt service obligations, while keeping rates as competitive as possible and maintaining a prudent level of reserves.

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

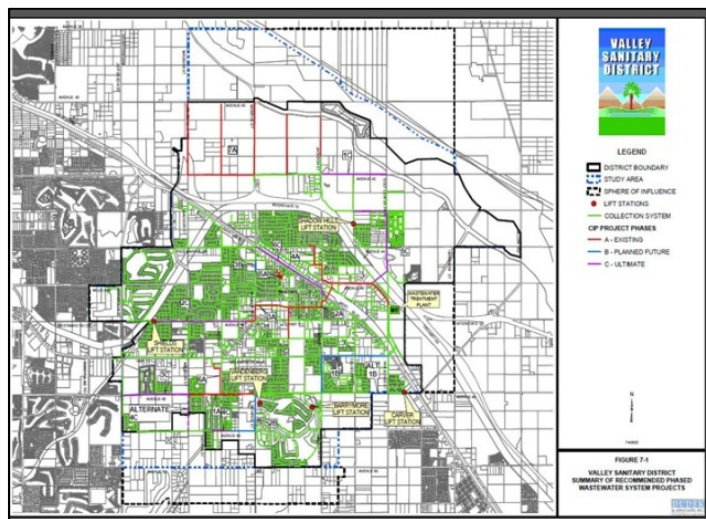
The District provides sewer services to approximately 27,850 connections within its 19.5 square mile service area, located in the eastern desert area of Riverside County. The VSD service area primarily consists of residential areas with moderate commercial, industrial, and public land use encompassing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

The updated Sewer Service Charges recommended in this study should fulfill the requirements found in the *Revenue Program Guidelines* published by the California Environmental Protection Agency's State Water Resource Control Board from its Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities.

1.4 Overview of Utility Rate Setting Process

Sewer rate studies classically have three categories of technical analysis – the development of revenue required from rates, the allocation of costs among functional cost categories (cost-of-service analysis) and the design of a rate structure. An overview of the rate-setting analytical steps is shown in Figure 1-1.

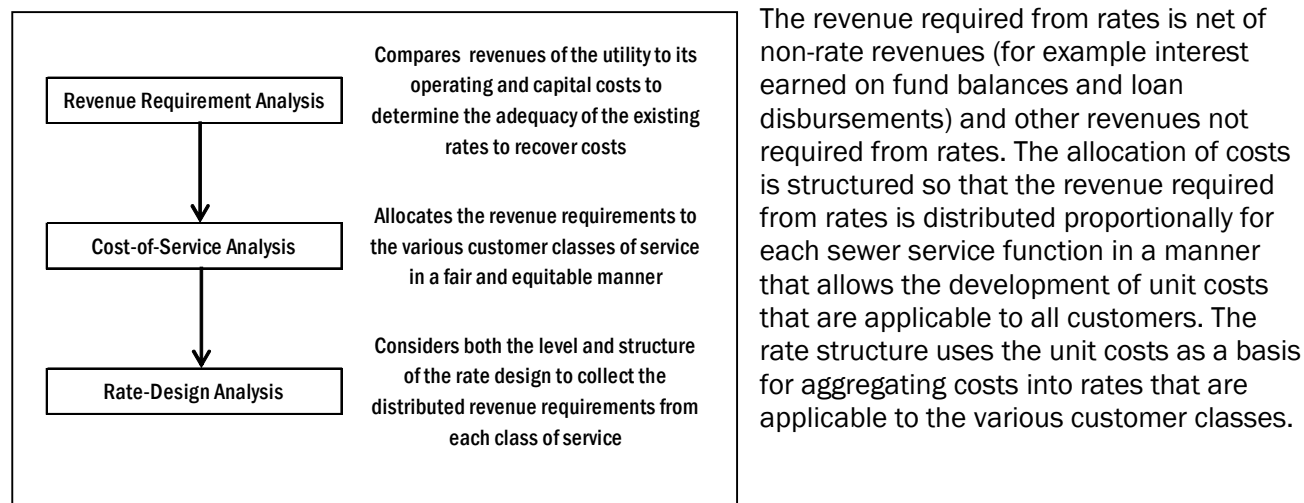


Figure 1-1. Overview of Rate Setting Analytical Steps

1.5 Reserve Policy and Sewer Account Funds

The District adopted a Financial Reserve Policy on April 9, 2013 (Reserve Fund Policy).¹ The Reserve Fund Policy established reserve funds for its long term organizational operational stability and the reserve funds enable the District to minimize significant rate fluctuations due to unforeseen and expected cash flow requirements. The Reserve Fund Policy is to ensure that the District accumulates, manages, maintains, and uses certain financial resources only for specific purposes. The District manages the following reserves:

- Capital Replacement Reserve Fund;
- Capital Improvement Reserve Fund;
- Debt Service Reserve Fund;
- Emergency Reserve Fund;
- Operating Reserve Fund; and
- Vehicle & Equipment Replacement Reserve Fund.

¹ See Resolution No. 2013-1040.

The projected sewer service charges are sufficient to maintain reserves at levels that meet Reserve Fund Policy objectives.

1.6 Methodology for Determination of Sewer Service Charges

Calculation of a Sewer Service Charge is a simple mathematical operation. Defining the wastewater characteristics and revenue requirements data required for that operation are more complex and represent a major emphasis of the Sewer Service Charges study. Basic steps in defining the basis for and computing the Sewer Service Charge are as follows:

Define revenue required from Sewer Service Charges. The District's most recent operating budget, multi-year Capital Improvement Project budget, and target levels of reserve funds are used to project annual expenditures and revenues required from Sewer Service Charges.

Define user wastewater system characteristics. Prior estimates of user characteristics are updated and used to estimate average annual Equivalent Dwelling Units.

Develop Sewer Service Charges. Revenue required from Sewer Service Charges is divided by the estimated number of Equivalent Dwelling Units to yield the Equivalent Dwelling Unit fee. The fee is applied to the estimated number of Equivalent Dwelling Units for each account.

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Section 2

Summary of Users and Wastewater Discharge Characteristics

The purpose of this section is to summarize the identification of residential and commercial users and their corresponding wastewater discharge characteristics.

2.1 Equivalent Dwelling Units

The District's current sewer use fees are shown in Resolution No. 2018-1100. Section 1 of the Resolution defines the "Equivalent Dwelling Unit" (EDU) for single family household accounts. The EDU for single family household accounts is based on estimates of the average daily wastewater flow per household (300 gallons per day).

The District charges sewer use fees using the County of Riverside assessment rolls and, for users that are not billed by the County Tax Collector, the District issues a bill directly to the user.

The number of estimated EDUs on tax rolls and accounts receivable is the sum of the number of single family dwelling units (single family dwellings, condominiums, townhouses, apartments, permanent mobile homes and duplex units) plus the equivalent number of EDUs for non-household accounts.

Section 2 of the Resolution No. 2018-1100 lists the equivalent number of EDUs for the various categories of non-household accounts. Categories include those for different businesses (restaurants, car washes, retail stores, etc.), schools, institutions, industries/manufacturing, Cabazon Band of Mission Indian facilities, movie theaters and RV dump stations. A list of non-household account categories from Section 2 of the Resolution are shown in the table on the next page.

The number of estimated EDUs on tax rolls and accounts receivable used to develop the current (FY 2018-2019) Equivalent Dwelling Unit fee is approximately 35,160.

Table 2-1. Equivalent Dwelling Unit Assignments

User Classification	EDU	per	Unit
1 Single Family Dwellings *	1		each
2 Recreation Vehicle/Motel Rooms	0.5		each
3 Recreation Vehicle w/sewer service connection	1		each
4 Library/Church	1		each
5 Church with Kitchen	2		each
6 Professional Building (Tenant)	1		each
7 Administrative Offices-city, county, state	1	5	employees
8 Hospital	1	2	beds
9 Rest Homes	1	3	beds
10 Laundry/Laundromat	1	3	washers
11 Restaurant/Tavern	3		blank
12 Restaurant and Tavern or Drive-Thru	4		blank
13 Gas Station	2		blank
14 Gas Station with Wash Rack	3		blank
15 Car Wash	3		blank
16 Animal Hospital/Clinic/Kennel	3		blank
17 Barber Shop/Beauty Shop	1	2	sinks
18 Retail Stores	1	2000	square feet
19 Warehousing	1		restroom
20 Food Markets	1	2000	square feet
Plus	12		food grinder
SCHOOLS			
21 Pre-School, K-5	1	23	students
22 Junior High/High/Continuation/Adult	1	14	students
MOVIE THEATERS			
23 Theaters	1	100	seats
24 Other theaters	1	100	seats
INSTITUTIONAL			
25 County Sheriff substation/County Jail	1	3.5	employees
26 County Juvenile Hall	1	5	employees
27 County administration, courts, clinics, mental health	1	20	gallons/fixture
28 Restrooms in parks	1		restroom
INDUSTRIES/MANUFACTURING			
29 For domestic wastewater	1	20	gallons/fixture
For non-domestic wastewater			non-domestic wastewater formula
CABAZON BAND OF MISSION INDIANS FACILITIES			
All uses specifically on this schedule shall be charged the same UOS as others			
30 Casino Facilities	1	20	gallons/fixture
RV DUMP STATIONS			
31 Recreational vehicle park w/hook-up; w/o dump stations	1	6	spaces
32 Recreational "rally field" with dump stations	0.5		acre
33 Dump stations for RV's and buses	15		station

2.2 Current Equivalent Dwelling Unit Fee

The formula for the EDU User Fee of domestic wastewater from Resolution No. 2018-1100 is shown in the table below.

Table 2-2. Calculation Summary of 2018/2019 Equivalent Dwelling Unit Fee				
Balance of Revenue to be Collected	<i>divided by</i>	Estimated EDUs on Tax Rolls and Accounts Receivable	<i>equals</i>	Equivalent Dwelling Unit Fee
\$11,011,086	/	35,160	=	\$313

Estimates of projected revenue requirements are developed in Section 3. Estimates of projected EDUs are developed in the next subsection.

2.3 Projected Equivalent Dwelling Units

Current and projected EDUs are shown in the table below. Projected EDUs are based on annual increases of 245 EDUs for accounts billed on the tax rolls and 5 EDUs for accounts that are direct bills.

Table 2-3. Current and Projected Equivalent Dwelling Units									
Item	Current	Five-Year Rate Plan					Projected		
	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Equivalent Dwelling Units									
Tax Rolls	32,842	32,842	33,087	33,332	33,577	33,822	34,067	34,312	34,557
<i>annual growth ></i>		245	245	245	245	245	245	245	245
Direct Billing	2,318	2,318	2,323	2,328	2,333	2,338	2,343	2,348	2,353
<i>annual growth ></i>		5	5	5	5	5	5	5	5
Total EDUs	35,160	35,410	35,660	35,910	36,160	36,410	36,660	36,910	37,160
Unit increase		250	250	250	250	250	250	250	250
Percent increase		1%	1%	1%	1%	1%	1%	1%	1%

2.4 Equivalent Dwelling Unit Definition

The District's Board annually adopts resolutions related to rates for sewer use. The District's current sewer use fees are shown in Resolution No. 2018-1100 (Resolution).

Section 1 of the Resolution defines an "Equivalent Dwelling Unit" (EDU). One (1) EDU represents an average daily wastewater flow of 300 gallons from one single family household. For non-household uses, the value of equivalency to a household is used for purposes of computing uniform financial obligations.

Section 2 of the Resolution lists assignments of EDUs for classifications of types of property and use (see Table 2-1, above).

Section 3 of the Resolution describes calculation of a Non-domestic Sewer User Fee. A formula for calculating the industrial wastewater treatment surcharge (Non-domestic Sewer User Fee) from Section 3 is shown in the table below. Note that the formula requires detailed information of the wastewater flow and concentration of the discharge and general information of the District's annual expenditures.

Table 2-3. Industrial Wastewater Treatment Surcharge Formula

$$\text{EDU} = \frac{Q}{300} \left[0.42 \begin{matrix} \text{(A)} \\ \end{matrix} + 0.36 \begin{matrix} \text{(B)} \\ \frac{(\text{COD})}{500} \end{matrix} + 0.22 \begin{matrix} \text{(C)} \\ \frac{(\text{SS})}{240} \end{matrix} \right]$$

Where:

Q = daily sewage flow in gallons

COD = quarterly 92-day average COD concentration in mg/L for COD in excess of 500 mg/L
concentrations of 500 mg/L or less will be calculated at 500 mg/L

SS = quarterly 92-day average SS concentration in mg/L for SS in excess of 240 mg/L
concentrations of 240 mg/L or less will be calculated at 240 mg/L

(A) = the portion of annual expenditures related to sewage flow

(B) = the portion of annual expenditures related to sewage COD loadings

(C) = the portion of annual expenditures related to sewage SS loadings

It is recommended that the District update the: 1) definition of an EDU and the wastewater discharge characteristics for a single family household (Section 1 of the annual rate resolution); 2) list of EDU assignments (Section 2 of the annual rate resolution); and 3) formula for calculating the industrial wastewater treatment surcharge (Section 3 of the annual rate resolution).

2.5 Equivalent Dwelling Unit Assignments

The District received water use data from Indio Water Authority for its water meters within the District's sewer service area.

It is recommended that the District evaluate and update Equivalent Dwelling Unit assignments for establishments that have food service functions. The evaluation should include determination of wastewater discharge characteristics of those type of establishments and equating those characteristics to those for a single family dwelling.

Section 3

Revenue Required from Sewer Service Charges

Sewer Service Charges must adequately fund sewer utility operations, capital costs, reserves, and bonded debt related to the provision of sewer service. The revenue required from Sewer Service Charges is developed in this section.

3.1 10-Year Capital Improvement Program

The District's current Capital Improvement Program for FY20 – FY29 is summarized in the table below. CIP projects are to be funded by cash except for the projects related to the Plant Expansion 2B/2C. Projects related to the Plant Expansion 2B/2C totaling approximately \$59,356,000 are anticipated to be funded through a low interest loan from the State of California State Water Resources Control Board.

Table 3-1. Ten-Year Capital Improvement Program

Year Number >	<i>(all values in \$thousands)</i>										Total
	1	2	3	4	5	6	7	8	9	10	
Funds 12 & 13	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	
Sewer Main Repair & Replace	1,090	3,073	5,754	8,113	8,409	8,691	8,983	9,284	6,443	3,401	63,241
Plant Expansion 2B/2C	5,057	27,149	27,149	0	0	0	0	0	0	0	59,356
Plant Expansion Phase 3	60	0	0	0	0	0	0	3,817	14,418	14,851	33,146
Vehicle & Major Equipment	610	610	610	610	610	610	610	610	610	610	6,100
Sewer Siphon Replacement	0	4,000	0	0	0	0	0	0	0	0	4,000
Lateral Grant Program	53	54	55	56	57	59	60	61	62	63	580
Contingency	90	92	94	96	97	99	101	103	105	108	985
Total	6,960	34,979	33,662	8,875	9,174	9,459	9,754	13,875	21,639	19,032	167,409
Cumulative	6,960	41,939	75,602	84,476	93,650	103,109	112,862	126,738	148,377	167,409	

3.2 Current and Projected Debt Service

Wastewater Revenue Refunding Bonds, Series 2015

On August 26, 2006, the District issued the 2006 Certificates of Participation in the amount of \$12,915,000. The purpose of the Certificates was to fund Phase I of the District's treatment plant expansion. Interest ranging from 3.50% to 4.375% is payable semi-annually on February 1st and August 1st commencing February 1, 2007.

On June 18, 2015, the District issued Wastewater Revenue Refunding Bonds, Series 2015 in the amount of \$7,540,000. The purpose of the bond issuance was to provide funds to defease and refund on current basis the District's outstanding 2006 Certificates of Participation (Treatment Plan Expansion) and pay the costs of issuing the bonds. The bonds are payable from and secured by a lien on net revenue of the wastewater system of the District. The aggregate difference in debt service as result of the refinancing was in the amount of \$1,596,780. The economic gain on the refinancing was \$500,181. Interest rate of 5% (except for 2.125% in 2023) is payable semi-annually on each December 1 and June 1 beginning December 1, 2015. The bonds are not subject to redemption prior to maturity. The outstanding balance as of June 30, 2018 was \$5,835,000. The term of the certificates which run through 2026. Repayment of the debt is funded through sewer use fees of the District.²

Clean Water State Revolving Fund Low Interest Loan

The District executed an installment sale agreement with the State Water Resources Control Board (the "SWRCB") for the construction of the Requa Avenue Sewer Interceptor Project. As part of the Requa Avenue Sewer Interceptor Project, the District constructed 4.2 miles of new gravity flow sewer pipeline and related utility improvements designed to collect and convey sanitary sewer flow within an existing public right-of-way through central Indio, California to the existing District's Water Reclamation Plant. The SWRCB provided financial assistance through a Clean Water State Revolving Fund loan - Project No. C-06-8116-110, Agreement No. D1601003-550-0. The total amount of the loan funded was \$12,746,147. Beginning June 2019, the District will repay the principal of the project funds, together with all interest accruing thereon, annually to the SWRCB. As of June 30, 2018, the outstanding balance of the SWRCB revolving fund loan was in the amount of \$12,920,155.³

A reserve account is required to be maintained equal to one (1) year of the SWRCB revolving fund loan debt service payments from unrestricted net revenues. As of June 30, 2018, the reserve requirement was \$553,360. The balance held in the reserve at June 30, 2018 was \$1,059,648. Debt covenants of the SWRCB revolving fund loan require that the District have net revenues that are at least 125% of the total debt service payments (including 2015 Wastewater Revenue Refunding Bonds). Net revenue and total debt service paid during the year ended June 30, 2018 were in the amounts of \$5,690,579 and \$889,687, respectively, which resulted in ratio of 640%.

Projected Low Interest Loan and Debt Service

Projects related to the Plant Expansion 2B/2C totaling \$59,356,000 are anticipated to be funded through a low interest loan from the State Water Resources Control Board. The loan terms are projected to be a 30-year payback period and a 2.0 percent interest rate with the first years' \$2,650,000 principal and interest payments due in FY23.

Detailed debt service schedules are included in Appendix A, Table A-1 (current debt service) and Table A-2 (projected debt service).

² See the Valley Sanitary District Comprehensive Annual Financial Report (CAFR) for the Year Ended June 30, 2018, page 13.

³ Ibid, page 13.

3.3 Operating and Capital Funds Cash Flow

Cash flow for Fund 11, Fund 12 and Fund 13 is summarized in the following sections.

3.3.1 Fund 11 Cash Flow

Cash flow for the Operating Fund (Fund 11), is summarized in the table below. Detailed expenditure and revenue projections are included in Appendix A, Table A-3 (expenditures) and Table A-4 (revenues). Note that expenditures include \$9,000,000 in transfers from Fund 11 to Fund 12 from FY25-FY27 for funding capital projects.

All Values in \$thousands Item	Budget FY19	Five-Year Rate Plan					Projected			Total FY20-FY24
		FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	
Beginning Balance, July 1	\$20,445	\$20,462	\$20,462	\$20,182	\$20,332	\$20,162	\$19,672	\$14,332	\$10,232	
Expenditures										
O & M (net of depreciation)	7,024	7,253	7,489	7,734	7,986	8,248	8,518	8,797	9,086	\$38,710
Capital	400	412	424	437	450	464	478	492	507	2,187
Debt Service 2015 Refunding Bond	499	464	465	463	463	462	463	463	0	2,317
Debt Service 2019 SRF Loan		553	553	553	553	553	553	553	553	2,767
Capital Reserve Transfer to Fund 12	3,973	4,099	4,230	4,364	4,503	4,647	4,795	4,949	5,107	21,843
Add'l Reserve Transfer to Fund 12							3,000	3,000	3,000	0
Total Expenditures	11,896	12,781	13,162	13,551	13,955	14,374	17,807	18,254	18,253	67,824
Revenues										
Sewer Service Charges	11,005	11,691	11,776	12,583	12,648	12,733	14,306	16,056	18,028	61,431
Other Operating	23	23	24	24	24	25	25	26	26	120
Nonoperating	745	760	776	792	808	824	841	858	875	3,959
Interest	140	307	307	303	305	302	295	215	153	1,524
Total Revenues	11,913	12,781	12,882	13,701	13,785	13,884	15,467	17,154	19,083	67,034
Net Revenue	17	0	(280)	150	(170)	(490)	(2,340)	(1,100)	830	(790)
Ending Balance, June 30	20,462	20,462	20,182	20,332	20,162	19,672	14,332	10,232	8,062	

3.3.2 Fund 12 Cash Flow

Cash flow for the Capital Fund (Fund 12), is summarized in the table below. Note that during FY25-FY27 the fund balance becomes negative. It is recommended that the District monitor its projected capital expenditure plan so that additional funds can be made available from rates, loans or some other source.

All Values in \$thousands Item	Budget FY19	Five-Year Rate Plan					Projected			Total FY20-FY24
		FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	
Beginning Balance, July 1	\$19,867	\$21,155	\$23,182	\$19,118	\$16,119	\$9,975	\$3,584	-\$41	-\$3,860	
Expenditures										
Capital Projects	2,557	4,938	24,119	22,803	8,875	9,174	9,459	9,754	11,585	\$69,908
SRF Loan Disbursement	0	-3,034	-16,290	-16,290	0	0	0	0	0	-35,613
SRF New Debt Service	0	61	386	712	1,590	1,590	1,590	1,590	1,590	4,340
Current Debt Service	426	425	426	424	424	424	424	424	0	2,124
Total Expenditures	2,983	2,389	8,642	7,650	10,889	11,187	11,474	11,768	13,175	40,758
Revenues										
Annual Transfer from Fund 11	3,973	4,099	4,230	4,364	4,503	4,647	4,795	4,949	5,107	21,843
Variable Transfer from Fund 11	0	0	0	0	0	0	3,000	3,000	3,000	0
Interest	298	317	348	287	242	150	54	-1	-58	1,343
Total Revenues	4,271	4,416	4,578	4,651	4,745	4,797	7,849	7,948	8,049	23,186
Net Revenue	1,288	2,027	(4,065)	(2,999)	(6,144)	(6,391)	(3,625)	(3,820)	(5,126)	
Ending Balance, June 30	21,155	23,182	19,118	16,119	9,975	3,584	-41	-3,860	-8,987	

3.3.3 Fund 13 Cash Flow

Cash flow for the Capital Fund (Fund 13), is summarized in the table below.

Table 3-4. Fund 13 Cash Flow FY 2019 – FY 2027										
All Values in \$thousands Item	Budget FY19	Five-Year Rate Plan					Projected			Total FY20-FY24
		FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	
Beginning Balance, July 1	\$4,305	\$5,054	\$5,970	\$6,951	\$7,781	\$8,088	\$8,449	\$8,855	\$9,308	
Expenditures										
Capital Projects	211	2,023	10,860	10,860	0	0	0	0	2,290	\$23,742
SRF Loan Disbursement	0	-2,023	-10,860	-10,860	0	0	0	0	0	-23,742
SRF New Debt Service	0	40	258	475	1,060	1,060	1,060	1,060	1,060	2,893
Current Debt Service	0	0	0	0	0	0	0	0	0	0
Total Expenditures	211	40	258	475	1,060	1,060	1,060	1,060	3,350	2,893
Revenues										
Interest	65	76	90	104	117	121	127	133	140	508
Capacity Charges	896	880	1,150	1,200	1,250	1,300	1,340	1,380	1,423	5,780
Total Revenues	960	956	1,240	1,304	1,367	1,421	1,467	1,513	1,562	6,288
Net Revenue	749	915	982	829	307	361	407	453	(1,788)	
Ending Balance, June 30	5,054	5,970	6,951	7,781	8,088	8,449	8,855	9,308	7,520	

3.3.4 Cash Flow and Coverage Ratio – All Funds

Cash flow and coverage ratio for the current fiscal year (2018-19) and the next five fiscal years is summarized in the figure below. Detailed debt service coverage calculations are included in Appendix A, Table A-5. Note that the Fund 12 balance is projected to be depleted during FY25.

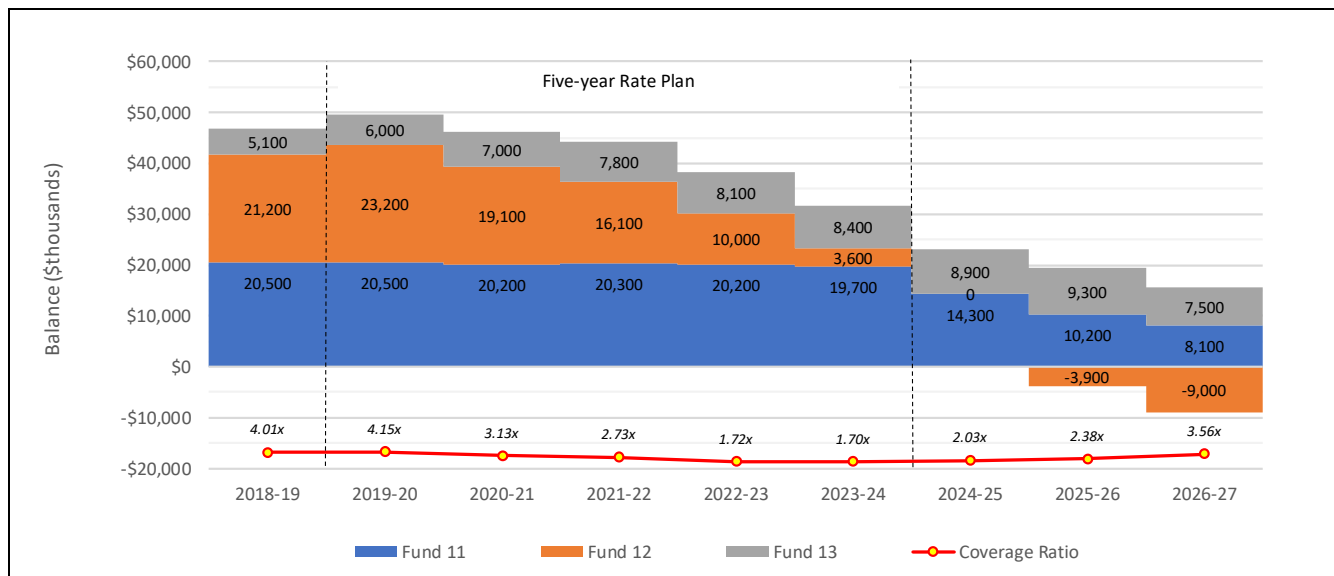


Figure 3-1. Fund Cash Flow and Coverage Ratio, FY 2019 – FY 2027

Section 4

Sewer Service Charges

Sewer Service Charges are developed based on the projected number of Equivalent Residential Dwelling Units and the revenue required from the charges.

4.1 Development of Sewer Service Charges

The annual amount of revenue required from sewer service charges, number of equivalent dwelling units and the calculation of the sewer service charge per Equivalent Dwelling Unit are shown in the table below for FY19 – FY27.

Table 4-1. Current, Recommended and Projected Sewer Service Charges										
All Cash in \$thousands Item	Current FY19	Five-Year Rate Plan					Projected			Total FY20-FY24
		FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	
Revenue Required										
Fund 11 O & M	7,024	7,253	7,489	7,734	7,986	8,248	8,518	8,797	9,086	38,710
Fund 11 Capital	400	412	424	437	450	464	478	492	507	2,187
Debt Service	499	1,017	1,019	1,016	1,016	1,015	1,016	1,016	553	5,084
Capital reserve fund	3,973	4,099	4,230	4,364	4,503	4,647	4,795	4,949	5,107	21,843
<i>Less other taxes, interest & non-operating income</i>	<i>(885)</i>	<i>(1,090)</i>	<i>(1,106)</i>	<i>(1,118)</i>	<i>(1,137)</i>	<i>(1,151)</i>	<i>(1,161)</i>	<i>(1,098)</i>	<i>(1,055)</i>	<i>(5,603)</i>
Add/Use Fund Balance	0	0	-280	150	-170	-490	660	1,900	3,830	-790
Total Revenue Required	11,011	11,691	11,776	12,583	12,648	12,733	14,306	16,056	18,028	61,431
Dollar increase		680	85	808	65	85	1,573	1,750	1,972	
Percent increase		6%	1%	7%	1%	1%	12%	12%	12%	
Equivalent Dwelling Units										
Tax Rolls	32,842	32,842	33,087	33,332	33,577	33,822	34,067	34,312	34,557	
<i>annual growth ></i>		245	245	245	245	245	245	245	245	
Direct Billing	2,318	2,318	2,323	2,328	2,333	2,338	2,343	2,348	2,353	
<i>annual growth ></i>		5	5	5	5	5	5	5	5	
Total EDUs	35,160	35,410	35,660	35,910	36,160	36,410	36,660	36,910	37,160	
Unit increase		250	250	250	250	250	250	250	250	
Percent increase		1%	1%	1%	1%	1%	1%	1%	1%	
EDU Fee										
Revenue Required (\$thousands)	11,011	11,691	11,776	12,583	12,648	12,733	14,306	16,056	18,028	
EDUs	35,160	35,410	35,660	35,910	36,160	36,410	36,660	36,910	37,160	
EDU Fee (round to \$5)	\$313.00	\$330.00	\$330.00	\$350.00	\$350.00	\$350.00	\$390.00	\$435.00	\$485.00	
Fee increase		\$17.00	\$0.00	\$20.00	\$0.00	\$0.00	\$40.00	\$45.00	\$50.00	
Percent increase		5.4%	0.0%	6.1%	0.0%	0.0%	11.4%	11.5%	11.5%	

The figure below shows historical annual Residential Sewer Service Charges from FY02 through FY19 (18 years), recommended annual Sewer Service Charges for FY20 through FY24 (five years) and projected annual Sewer Service Charges for FY25 through FY27 (three years). The annual average percent increase over FY02-FY24 (23 years) is approximately 5.1 percent.

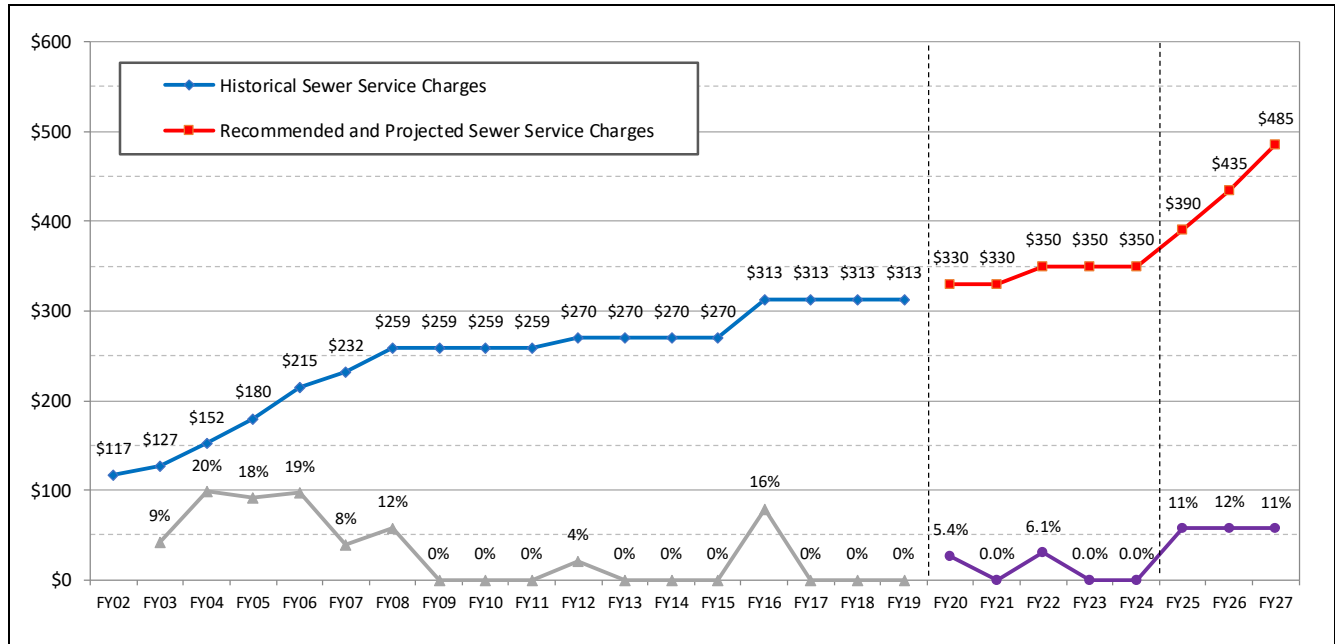


Figure 4-1. Historical, Recommended and Projected Residential Annual Sewer Service Charges

4.2 Residential Sewer Service Charge Survey

The District’s current (FY 2018-19) and recommended (FY 2019-20) Sewer Service Charges were compared to the sewer service charges for other nearby agencies. The comparison is for single family dwelling units. Results of the survey are shown in Table 4-2.

Mission Springs Water District	\$602	
City of Coachella	\$552	
California Statewide Average (FY 2016-17)	\$529	
City of Beaumont	\$489	
Cathedral City (Desert Water Agency)	\$345	
Valley Sanitary District (recommended)	\$330	
Coachella Valley Water District	\$324	
Valley Sanitary District (current)	\$313	
City of Palm Springs	\$288	increases to \$420 by 2031
City of Banning	\$235	



Section 5

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 Service Charges Development Tables

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Table A-1

Current 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	685,000	685,000	715,000	715,000	750,000	750,000	765,000	805,000	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	135,094	119,594	103,344	103,344	86,219	86,219	68,344	60,375	60,375	41,250	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	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											
% alloc																						
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-C

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
12,746,147 < Disbursement																						
174,008 < Construction Period Interest																						
12,920,155 < Construction Period Interest																						
1.7% < Interest Rate																						
30 < Term																						
payment period >																						
FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	
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	475,466
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	77,894
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
% alloc																						
Fund 11-100%	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
Fund 12-0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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

Table A-2
Projected Debt Service Schedule

	CIP Escalated	Issuance Amount	Interest Rate	Number of Years	Annual Payments	Payments			Debt Reserve							
						FY22	FY23	FY24	Cumulative Annual	Interest Rate						
SRF Loan (\$ Thousands)																
State Maximum Loan	\$33,086															
Adjustments	\$0															
Projected Funding Parameters	\$33,086	\$33,086	2.000%	30	\$1,477											
		FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
Cash Flow (\$ Thousands)																
Capital Costs										\$3,817	\$14,418	\$14,851	\$1,477	\$1,477	\$1,477	\$1,477
Percent Funded by SRF										100%	100%	100%				
Dollars Funded by SRF										\$3,817	\$14,418	\$14,851				
Annual Disbursement										\$3,817	\$14,418	\$14,851				
Cumulative Disbursement										\$3,817	\$18,235	\$33,086				
Interest rate										2.000%	2.000%	2.000%				
Interest Only Payments										\$76	\$365	\$662				
Principal & Interest Payment Year Number													1	2	3	4
Principal & Interest Payments													\$1,477	\$1,477	\$1,477	\$1,477
Debt reserve contribution																
Annual Accumulation %													0%	0%	0%	0%
Annual Accumulation \$													\$0	\$0	\$0	\$0
Cumulative Accumulation \$													\$0	\$0	\$0	\$0
Debt reserve interest rate													1.00%	1.00%	1.00%	1.00%
Debt reserve interest earnings													\$0	\$0	\$0	\$0
Summary (\$33,086)													\$0	\$0	\$0	\$0
Interest Only Payments													\$0	\$0	\$0	\$0
Principal Payment													\$816	\$832	\$849	\$865
Principal Portion Outstanding													\$32,271	\$31,439	\$30,590	\$29,725
Principal & Interest Payments													\$1,477	\$1,477	\$1,477	\$1,477
Reserve Fund Accumulation													\$0	\$0	\$0	\$0
Less: Reserve Fund Interest Earnings													\$0	\$0	\$0	\$0
Less: Reserve Fund Accumulation													\$0	\$0	\$0	\$0
SRF Loan Totals													\$1,477	\$1,477	\$1,477	\$1,477

Table A-3
Fund 11 O&M Expenditures

All Expenditures, \$thousands Expenditure Category	Adoptec Prelim		Projected														
	Budget FY19	Budget FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Engineering & Maintenance																	
Salaries & Benefits	1,782	1,836	1,891	1,948	2,006	2,066	2,128	2,192	2,258	3%	3%	3%	3%	3%	3%	3%	3%
Services & Supplies [1]	886	912	939	967	996	1,026	1,057	1,089	1,122	3%	3%	3%	3%	3%	3%	3%	3%
Chemicals & Electricity	4	4	4	4	4	4	4	4	4	3%	3%	3%	3%	3%	3%	3%	3%
Depreciation	605	623	642	661	681	701	722	744	766	3%	3%	3%	3%	3%	3%	3%	3%
Total Collection	3,277	3,375	3,476	3,580	3,687	3,797	3,911	4,029	4,150								
Operations																	
Salaries & Benefits	1,085	1,117	1,151	1,186	1,222	1,259	1,297	1,336	1,376	3%	3%	3%	3%	3%	3%	3%	3%
Services & Supplies [1]	587	605	623	642	661	681	701	722	744	3%	3%	3%	3%	3%	3%	3%	3%
Chemicals & Electricity	871	915	961	1,009	1,059	1,112	1,168	1,226	1,287	5%	5%	5%	5%	5%	5%	5%	5%
Depreciation	1,900	1,957	2,016	2,076	2,138	2,202	2,268	2,336	2,406	3%	3%	3%	3%	3%	3%	3%	3%
Total Operations	4,443	4,594	4,751	4,913	5,080	5,254	5,434	5,620	5,813								
Administration/Board																	
Salaries & Benefits	755	778	801	825	850	876	902	929	957	3%	3%	3%	3%	3%	3%	3%	3%
Services & Supplies [1]	1,054	1,086	1,119	1,153	1,188	1,224	1,261	1,299	1,338	3%	3%	3%	3%	3%	3%	3%	3%
Chemicals & Electricity	0	0	0	0	0	0	0	0	0	3%	3%	3%	3%	3%	3%	3%	3%
Depreciation	3	3	3	3	3	3	3	3	3	3%	3%	3%	3%	3%	3%	3%	3%
Total Administration	1,812	1,867	1,923	1,981	2,041	2,103	2,166	2,231	2,298								
Combined																	
Salaries & Benefits	3,622	3,731	3,843	3,959	4,078	4,201	4,327	4,457	4,591	3%	3%	3%	3%	3%	9%	3%	3%
Services & Supplies [1]	2,527	2,603	2,681	2,762	2,845	2,931	3,019	3,110	3,204	3%	3%	3%	3%	3%	9%	3%	3%
Chemicals & Electricity	875	919	965	1,013	1,063	1,116	1,172	1,230	1,291	5%	5%	5%	5%	5%	16%	5%	5%
Depreciation	2,508	2,583	2,661	2,740	2,822	2,906	2,993	3,083	3,175	3%	3%	3%	3%	3%	9%	3%	3%
Total Combined	9,532	9,836	10,150	10,474	10,808	11,154	11,511	11,880	12,261								
Reserve [2]	3,973	4,099	4,230	4,364	4,503	4,647	4,795	4,949	5,107								
Totals	13,505	13,935	14,380	14,838	15,311	15,801	16,306	16,829	17,368								
Annual Dollar Change		430	445	458	473	490	505	523	539								
Annual Percent Change		3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%								

Notes:

- The District's budget includes Chemicals and Electricity in the Services & Supplies category
Expenditure projections in this model list Chemicals and Electricity in a separate category
Depreciation is excluded
- The reserve amount is calculated as shown below:

<u>Expense Category</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>	<u>FY25</u>	<u>FY26</u>	<u>FY27</u>								
O&M	9,532	9,836	10,150	10,474	10,808	11,154	11,511	11,880	12,261								
Fund 11 Capital																	
E&M - Facilities	340	350	361	372	383	394	406	418	431	3%	3%	3%	3%	3%	3%	3%	3%
Operations	0	0	0	0	0	0	0	0	0	3%	3%	3%	3%	3%	3%	3%	3%
General Facilities	0	0	0	0	0	0	0	0	0	3%	3%	3%	3%	3%	3%	3%	3%
Admin	<u>60</u>	<u>62</u>	<u>64</u>	<u>66</u>	<u>68</u>	<u>70</u>	<u>72</u>	<u>74</u>	<u>76</u>	3%	3%	3%	3%	3%	3%	3%	3%
Total Fund 11 Capital	400	412	424	437	450	464	478	492	507								
Total Expense Base	9,932	10,248	10,574	10,911	11,258	11,618	11,989	12,372	12,768								
% of Base to Reserve	40%	40%	40%	40%	40%	40%	40%	40%	40%								
Reserve Contribution	3,973	4,099	4,230	4,364	4,503	4,647	4,795	4,949	5,107								

Sources:

Adopted Budget: Operation and Maintenance Budget and Capital Improvement Program, Fiscal Year 2018/2019
Preliminary Budget: Draft Operation and Maintenance Budget and Capital Improvement Program, Fiscal Year 2019/2020

Table A-4
Fund 11 Revenue Projections

All Revenues, \$thousands Expenditure Category	Adoptec Prelim		Projected														
	Budget FY19	Budget FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Operating Revenues																	
Sewer Service	11,005	11,691	11,776	12,583	12,648	12,733	14,306	16,056	18,028	varies							
Penalties	1	1	1	1	1	1	1	1	1	2%	2%	2%	2%	2%	2%	2%	2%
Permit/Inspection Fees	10	10	10	11	11	11	11	11	12	2%	2%	2%	2%	2%	2%	2%	2%
Plan Check Fees	10	10	10	11	11	11	11	11	12	2%	2%	2%	2%	2%	2%	2%	2%
Other Services	2	2	2	2	2	2	2	2	2	2%	2%	2%	2%	2%	2%	2%	2%
Total Operating	11,028	11,714	11,799	12,607	12,673	12,758	14,331	16,081	18,054								
Nonoperating Revenues																	
Interest revenue	140	143	146	149	152	155	158	161	164	2%	2%	2%	2%	2%	2%	2%	2%
Taxes-current secured	700	714	728	743	758	773	789	804	820	2%	2%	2%	2%	2%	2%	2%	2%
Taxes-current unsecured	21	22	22	23	24	24	25	26	27	3%	3%	3%	3%	3%	3%	3%	3%
Taxes-prior secured	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	2%	2%	2%	2%	2%	2%	2%	2%
Taxes-prior unsecured	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Taxes-penalties	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5								
Taxes-supplemental current	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.7	3%	3%	3%	3%	3%	3%	3%	3%
Taxes-supplemental prior	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	2%	2%	2%	2%	2%	2%	2%	2%
Homeowner's Tax Relief	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	2%	2%	2%	2%	2%	2%	2%	2%
Non-operating income	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2%	2%	2%	2%	2%	2%	2%	2%
Total Nonoperating	885	903	921	940	959	979	998	1,019	1,039								
Totals	11,913	12,617	12,721	13,547	13,632	13,736	15,330	17,100	19,094	6%	1%	6%	1%	1%	12%	12%	12%
Annual Dollar Change		704	104	827	84	105	1,593	1,770	1,994								
Annual Percent Change		5.9%	0.8%	6.5%	0.6%	0.8%	11.6%	11.5%	11.7%								

Sources:

Adopted Budget: Operation and Maintenance Budget and Capital Improvement Program, Fiscal Year 2018/2019
Preliminary Budget: Draft Operation and Maintenance Budget and Capital Improvement Program, Fiscal Year 2019/2020

Table A-5
Debt Service Coverage

All Dollars in \$thousands Item	Budget	Projected							
	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Income									
Sewer Service	11,005	11,691	11,776	12,583	12,648	12,733	14,306	16,056	18,028
Other Operating	23	23	24	24	24	25	25	26	26
Nonoperating	745	760	776	792	808	824	841	858	875
Interest	140	307	307	303	305	302	295	215	153
Connection Fees	896	880	1,150	1,200	1,250	1,300	1,340	1,380	1,423
Total Income	12,809	13,661	14,032	14,901	15,035	15,184	16,807	18,534	20,506
<i>Operating Expenses</i>	<i>7,024</i>	<i>7,253</i>	<i>7,489</i>	<i>7,734</i>	<i>7,986</i>	<i>8,248</i>	<i>8,518</i>	<i>8,797</i>	<i>9,086</i>
Net Income	5,784	6,408	6,543	7,167	7,049	6,936	8,289	9,737	11,420
Debt Service Principal & Interest									
Wastewater Revenue Refunding Bonds, Series 2015	890	889	892	887	887	886	888	887	0
Clean Water State Revolving Fund Project No. C-06-8116-110	553	553	553	553	553	553	553	553	553
2023 SRF Low Interest Loan	0	101	644	1,187	2,650	2,650	2,650	2,650	2,650
Total	1,444	1,544	2,089	2,628	4,090	4,089	4,091	4,091	3,204
Coverage Ratio	4.01x	4.15x	3.13x	2.73x	1.72x	1.70x	2.03x	2.38x	3.56x
Amount Over / (Under) 1.5x Coverage									



**Valley Sanitary District
Board of Directors Meeting
May 12, 2020**

TO: Board of Directors

THROUGH: Beverli A. Marshall, General Manager

TO: Board of Directors

FROM: Ronald Buchwald, District Engineer

SUBJECT: Agenda Item 4.1 Sewer Service Charges – Explanation of Calculation and Use of EDU

Background:

Resolution 2020-1129 references an average Equivalent Dwelling Units (EDUs) rate of 230 gallons/EDU while the Evaluation of Sewer Service Charges Report (Report), which is Attachment D to the Agenda Item, refers to 300 gallons, which was the previous estimate of average use per EDU. The Report recommends that the average be adjusted to 230, which is reflected in the resolution. However, the gallons per EDU was not itself used in calculating the rates; instead the rates are based on the anticipated expenses divided by the actual number of EDUs.

The sewer rate and capacity fee evaluations, which were completed in May 2019, was requested to establish the sewer rate increase and capacity fee increase required to meet the District's future revenue requirements. The Report established the revenue requirements needed for the District in future years. It also established the current number of EDUs within the District and projects a modest increase of 250 EDUs per year for the future.

Per Table 4-1 of the report, the Sewer Service Charge is calculated by dividing the required revenue by the total estimated EDU's. In other words, the District's required revenue in FY2019 was \$11,011,000 (rounded) and the District had 35,160 EDUs. Dividing \$11,011,000 by 35,160 results in a sewer use rate of \$313. For FY 2020, the required revenue is \$11,691,000 divided by the estimated 35,410 EDUs gives us a sewer use rate of \$330 per EDU. The 230 gallons per day per household was not used to develop sewer use rate.

The Report analyzed water meter data provided by IWA for 2017 and 2018. In the analyses, the daily sewer waste per residential household was determined to be much lower than the 300 gallons per day the District was using. Based on sewer loadings and flow at the treatment plant, the analyses showed that the daily household flow was lower, equal to about 230 gallons per day, but the concentrations were higher. Per

Table 2-5 of the Report, the sewer flow was set at 230 gallons per day per household and the COD was increased to 650 mg/l and the Total Suspended Solids was set at 300 mg/l. These numbers were used to establish the connection capacity fee (the one-time fee to connect a house or business to the District's sewer collection system).



**Valley Sanitary District
Board of Directors Meeting
May 12, 2020**

TO: Board of Directors

FROM: Beverli A. Marshall, General Manager

SUBJECT: **Discuss the Ad Hoc Budget Committee Recommendations and Provide Direction to Staff – Updated May 12, 2020**

<input checked="" type="checkbox"/> Board Action	<input type="checkbox"/> New Budget Approval	<input type="checkbox"/> Contract Award
<input type="checkbox"/> Board Information	<input type="checkbox"/> Existing FY Approved Budget	<input type="checkbox"/> Closed Session

Executive Summary

The purpose of this report is for the Board to discuss the key items discussed and recommended as part of the ad hoc Budget Committee.

Strategic Plan Compliance

This item complies with VSD Strategic Plan Objective 5.1: Align long-term financial planning with strategic priorities.

Fiscal Impact

The fiscal impact of the discussion depends upon the direction provided.

Background

At the April 28 meeting, the Board created an ad hoc Budget Committee, consisting of Directors Sear and Canero, to discuss the impacts that COVID-19 is having in the Coachella Valley economy and the steps that other public agencies are taking in response to those impacts. The Board directed staff to meet with the Committee to discuss their concerns regarding the draft proposed budget considering the current and anticipated economic downturn.

Given the current high level of unemployment in VSD’s service area, as well as the anticipated economic impacts, Directors Sear and Canero discussed the follow issues and re-evaluation of Board priorities.

- Rebranding is not a high priority at this time
- Outreach and social media consultant too costly; staff needs to continue performing these tasks
- Grant writing consultant too costly; staff should take on this task
- Equity adjustments are not sensitive to the economic conditions

- COLA adjustments are not sensitive to the economic conditions; will re-evaluate later in the fiscal year
- Staffing increases are not appropriate; other agencies are freezing or cutting
- Rather add positions than pay for consultants
- Prior to hiring the new GM, there were no complaints from employees about workload or compensation; they've always expressed being happy at VSD
- Everything has been "calm" up to now; need to validate these "new" issues
- On-site IT consultant too costly; staff needs to continue performing these tasks
- Memberships need to be relevant to VSD's services and size
- Budget for sewer rate study is too expensive; need to look at reducing the cost to move forward with it
- GM needs to inform the Board when issues are identified as part of weekly update and indicate that problems have been resolved or propose solutions
- Travel and training need to stay flat for now

Staff took this feedback and applied changes based on discussions with management team. The changes are listed at the bottom of the Combined Budget comparison sheet in preferential order.

Recommendation

Staff recommends that the Board discuss the identified issues and provide direction to staff.

Attachments

Attachment A: Combined Budget Comparison

DEPARTMENT: COMBINED

ACCOUNT #	ACCOUNT TITLE	2019/20 CURRENT BUDGET (31 Staff)	2019/20 ANTICIPATED CLOSE	2020/21 BUDGET REQUEST (35 Staff)	ALTERNATE BUDGET (34 Staff)	VARIANCE
11-5030-400-0	SALARIES	2,615,000	2,570,850	3,145,900	2,811,645	(334,255)
11-5070-400-0	OVERTIME	19,500	24,000	24,500	20,750	(3,750)
11-5080-400-0	CALLOUT	9,000	15,600	13,300	12,500	(800)
11-5090-400-0	STANDBY	38,000	35,500	42,645	35,000	(7,645)
	TOTAL SALARIES	2,681,500	2,645,950	3,226,345	2,879,895	(346,450)
11-5110-400-0	LONGEVITY	37,000	35,100	37,900	37,900	-
11-5112-400-0	RETIREMENT	269,500	247,200	337,355	301,115	(36,240)
11-5116-400-0	PAYROLL TAXES	205,200	205,600	247,100	220,500	(26,600)
11-5118-400-0	UNEMPLOYMENT INSURANCE	-	250	-	-	-
11-5122-400-0	WORKERS COMPENSATION	47,400	47,700	64,505	57,875	(6,630)
11-5124-400-0	GROUP LIFE INSURANCE	6,650	6,100	7,620	7,355	(265)
11-5126-400-0	GROUP HEALTH INSURANCE	440,700	405,500	523,500	477,900	(45,600)
11-5128-400-0	DENTAL/VISION INSURANCE	30,500	38,200	22,620	21,336	(1,284)
11-5132-400-0	DISABILITY INSURANCE	13,750	12,000	10,320	10,030	(290)
11-5152-400-0	CLOTHING/SAFETY	39,625	22,000	29,450	29,450	-
	TOTAL BENEFITS	1,090,325	1,019,650	1,280,370	1,163,461	(116,909)
		3,771,825	3,665,600	4,506,715	4,043,356	(463,359)
11-5150-400-0	DIRECTORS' FEES	36,500	47,250	46,500	46,500	-
11-5225-400-0	ELECTION	-	-	70,000	70,000	-
11-5250-400-0	GAS/OIL	52,000	32,000	52,000	52,000	-
11-5300-400-0	COMPREHENSIVE INSURANCE	296,500	296,500	308,300	308,300	-
11-5350-400-0	MEMBERSHIPS/SUBSCRIPTIONS	32,860	40,000	53,095	41,895	(11,200)
11-5400-400-0	OFFICE EXPENSE	16,000	12,000	16,000	16,000	-
11-5410-400-0	COUNTY/CITY CHARGES	22,000	22,000	22,000	22,000	-
11-5420-400-0	PERMITS & FEES	88,450	90,000	93,650	93,650	-
11-5430-400-0	PRETREATMENT	1,000	1,000	-	-	-
11-5450-400-0	OPERATING SUPPLIES	160,500	140,000	315,200	215,200	(100,000)
11-5470-400-0	CHEMICALS	383,770	330,000	392,560	392,560	-
11-5500-400-0	CONTRACT SERVICES	417,110	350,000	980,985	551,485	(429,500)
11-5550-400-0	PROFESSIONAL/LEGAL	269,230	276,000	355,450	183,250	(172,200)
11-5600-400-0	PUBLICATIONS	4,500	1,900	2,000	2,000	-
11-5700-400-0	REPAIRS/MAINTENANCE	592,200	500,000	624,120	604,120	(20,000)
11-5720-400-0	SMALL TOOLS	31,500	31,500	33,500	33,500	-
11-5750-400-0	RESEARCH	92,800	50,000	100,000	100,000	-
11-5800-400-0	TRAVEL/MTGS/EDUCATION	81,250	105,000	180,000	105,000	(75,000)
11-5801-400-0	CERTIFICATIONS/TCPS	8,794	8,000	13,110	13,110	-
11-5901-400-0	TELEPHONE	19,500	22,000	20,500	20,500	-
11-5902-400-0	ELECTRICITY	519,000	550,000	607,750	607,750	-
11-5903-400-0	NATURAL GAS	5,000	5,000	6,000	6,000	-
11-5904-400-0	TRASH COLLECTION	35,000	30,000	25,500	25,500	-
11-5905-400-0	UTILITY WATER	28,500	20,000	21,500	21,500	-
11-5950-400-0	OTHER EXPENSES	35,000	27,000	50,000	50,000	-
11-9160-000-0	REFUNDING BONDS	466,425	466,425	467,729	467,729	-
11-3650-000-0	CWSRF LOAN PAYMENT	553,361	553,361	553,361	553,361	-
	CAPITAL O & M FUND	235,000	235,000	140,000	140,000	-
	TOTAL SERVICES & SUPPLIES	4,483,750	4,241,936	5,550,810	4,742,910	(807,900)
	TOTAL OPERATING & MAINTENANCE BUDGET	8,255,575	7,907,536	10,057,525	8,786,266	(1,271,259)

Notes: Items removed from the Budget Request:

Equipment to Fund 12	\$ (100,000)
Rebranding	\$ (100,000)
Outreach & Social Media	\$ (100,000)
On-site IT	\$ (39,500)
Grant assistance	\$ (100,000)
State advocate	\$ (30,000)
Federal advocate	\$ (75,000)
Wellness Program	\$ (29,500)
NACWA Membership	\$ (8,000)
WateReuse Membership	\$ (3,200)
Lasefiche annual support	\$ (2,700)
Business continuity plan update	\$ (10,000)
Newsletter (reduce size)	\$ (10,000)
IT contingency	\$ (20,000)
Legal (reduce)	\$ (35,000)
Equity adjustment (Managers)	\$ (150,000)
Equity adjustment (Supervisors)	\$ (75,000)
Equity adjustment (Staff)	\$ (32,914)
Travel & Training (reduce)	\$ (75,000)
Sewer Rate study	\$ (70,000)
Procurement Technician (reallocate to vacancy)	\$ (125,000)
COLA	\$ (80,445)
	\$ (1,271,259)



**Valley Sanitary District
Board of Directors Meeting
May 12, 2020**

TO: Board of Directors
THROUGH: Beverli A. Marshall, General Manager
SUBJECT: **Discuss Director’s Request for Staff Input on Comprehensive Budget for Fiscal Year 2020/21 and Other Issues and Provide Direction to Staff**

<input checked="" type="checkbox"/> Board Action	<input type="checkbox"/> New Budget Approval	<input type="checkbox"/> Contract Award
<input type="checkbox"/> Board Information	<input type="checkbox"/> Existing FY Approved Budget	<input type="checkbox"/> Closed Session

Executive Summary

The purpose of this report is for the Board to discuss directors’ request to seek and receive input from staff on the budget and other operational issues.

Strategic Plan Compliance

This item complies with VSD Strategic Plan Objective 1.4: Maintain and build upon strong staff culture.

Fiscal Impact

There is no fiscal impact from this discussion.

Background

As directed by the Board of Directors at the April 28 meeting, staff met with Directors Sear and Canero to discuss their concerns regarding the draft proposed budget. Several of the issues discussed related to the need for validation by staff.

- No complaints from employees about workload or compensation
- Staff has always been happy here at VSD
- Everything has been “calm” up to now
- Need to validate these “new” issues

Director Sear indicated that an anonymous survey tool is needed to receive employee feedback and input and to validate issues presented by the General Manager.

Recommendation

Staff recommends that the Board discuss this request and provide direction to staff.



**Valley Sanitary District
Board of Directors Meeting
May 12, 2020**

TO: Board of Directors

THROUGH: Beverli A. Marshall, General Manager

FROM: Joanne Padgham, Administration & Finance Manager

SUBJECT: **Certificate of Achievement for Excellence in Financial Reporting for Fiscal Year Ending June 30, 2019**

<input type="checkbox"/> Board Action	<input type="checkbox"/> New Budget Approval	<input type="checkbox"/> Contract Award
<input checked="" type="checkbox"/> Board Information	<input type="checkbox"/> Existing FY Approved Budget	<input type="checkbox"/> Closed Session

Executive Summary

The purpose of this report is for the Board to recognize and commend the Administration Department and Joanne Padgham, Administration & Finance Manager, for receiving this award.

Strategic Plan Compliance

This item complies with VSD Strategic Plan Objective 5.1: Align long-term financial planning with strategic priorities.

Fiscal Impact

None

Background

The Certificate of Achievement is a prestigious national award and represents the highest form of recognition in the area of governmental accounting and financial reporting. This achievement is intended to recognize a significant accomplishment by a government and its management. In order to be awarded a Certificate of Achievement, a government agency must publish an easily readable and efficiently organized Comprehensive Annual Financial Report (CAFR). This report must satisfy both generally accepted accounting principles (GAAP) and applicable legal requirements. The CAFR has been judged by an impartial panel as meeting the high program standards, which include a constructive “spirit of full disclosure” to clearly communicate an agency’s financial story and motivate potential users and user groups to read the CAFR.

In addition, these awards are presented to individuals designated by the agency as primarily responsible for its having earned the certificate. The Administration

Department worked to compile the award-winning CAFR by gathering the required information and statistical data related to District operation for the past ten years, coordinating and preparing the report content, and ensuring that the report fully complied with rigorous GFOA standards.

Receiving the Certificate of Achievement can only be accomplished upon completion of a CAFR, which is a more accurate and meaningful report on the District's financial condition than the basic financial statement typically completed. The District has achieved this recognition for the past eight consecutive years.

Recommendation

Staff recommends that the Board receive the Certificate of Achievement for Excellence in Financial Reporting and recognize and commend the Administration Department and Joanne Padgham, Administration & Finance Manager, for receiving Award of Financial Reporting Achievement (AFRA) for Fiscal Year 2018/19 from the Government Finance Officers Association (GFOA).

Attachments

Attachment A: VSD 2019 CAFR Results

Attachment B: VSD Award



Government Finance Officers Association
203 North LaSalle Street, Suite 2700
Chicago, Illinois 60601-1210
312.977.9700 fax: 312.977.4806

May 5, 2020

Joanne Padgham
Administration & Finance Manager
Valley Sanitary District
45-500 Van Buren Street
Indio, CA 92201

Dear Ms. Padgham:

We are pleased to notify you that your 2019 fiscal year end comprehensive annual financial report (CAFR) qualifies for GFOA's Certificate of Achievement for Excellence in Financial Reporting. The Certificate of Achievement is the highest form of recognition in governmental accounting and financial reporting, and its attainment represents a significant accomplishment. Congratulations for having satisfied the high standards of the program. We hope that your example will encourage others in their efforts to achieve and maintain an appropriate standard of excellence in financial reporting.

A "Summary of Grading" form and a confidential list of comments and suggestions for possible improvements are enclosed. We want to strongly encourage the recommended improvements be made in the next report, and that the report be submitted to the program within six months of your next fiscal year end. Certificate of Achievement Program policy requires that written responses to the comments and suggestions for improvement accompany the next fiscal year's submission. The written responses should provide details about how each item is addressed within this report. These responses will be provided to those Special Review Committee members participating in the review. If a comment is unclear or there appears to be a discrepancy, please contact the Technical Services Center at (312) 977-9700 and ask to speak with a Certificate of Achievement Program in-house reviewer.

When a Certificate of Achievement for Excellence in Financial Reporting is awarded to a government, an Award of Financial Reporting Achievement (AFRA) is also presented to the individual(s) or department designated by the government as primarily responsible for its having earned the Certificate. An AFRA is enclosed for the preparer as designated on the application.

Continuing participants will find a brass medallion enclosed with these results. First-time recipients will receive a plaque in about 10 weeks. We hope that appropriate publicity will be given to this notable achievement. A sample news release has been enclosed.

A current holder of a Certificate of Achievement may include a reproduction of the Certificate in its immediately subsequent CAFR. A camera-ready copy of your Certificate is enclosed for that purpose. If you reproduce your Certificate in your next report, please refer to the enclosed instructions. A Certificate of Achievement is valid for a period of one year.

Over the course of the year, we are anticipating some changes to our application process. We will still be asking governments for the same documents we asked for in the past, but we are encouraging electronic submissions to cafrprogram@gfoa.org and expect to be making other changes going forward. We will keep members informed of any changes via email, and application instructions will be updated on our website.

Your continued interest in and support of the Certificate of Achievement Program is most appreciated. If we may be of any further assistance, please contact the Technical Services Center at (312) 977-9700.

Sincerely,

A handwritten signature in black ink that reads "Michele Mark Levine". The signature is written in a cursive style with a large initial "M".

Michele Mark Levine
Director, Technical Services Center

Certificate of Achievement For Excellence in Financial Reporting

Summary of Grading

Name of Unit: Valley Sanitary District
 Fiscal Year of Report: FY2019 Report #: 250.00 GFOA Member ID Number: 300074117

The Certificate of Achievement Program Special Review Committee (SRC) has completed its review of your comprehensive annual financial report (CAFR). Listed below are the grading categories used and a summary of the SRC's evaluation of your CAFR. The detailed comments and suggestions for reporting improvements on the attached listing are grouped under similar grading categories. Any category which received a grade of "Needs Significant Improvement" indicates an area of particular concern to the SRC and the related comments and suggestions for improvement in this category should be given special attention. An indication is provided on the list by the specific comments(s) or category(ies) that were the cause of receiving this grade. For each item, the notation also states whether it is 1) the basis or part of the basis for the CAFR not receiving the Certificate of Achievement, 2) a serious deficiency which will almost certainly preclude the awarding of the Certificate of Achievement if it is not corrected in your next CAFR, or 3) a deficiency, that if not corrected in future CAFRs, could result in the Certificate of Achievement not being awarded.

<u>Grading Category</u>	<u>Grade</u>
Cover, table of contents, and formatting	Proficient
Introductory section	Proficient
Report of the independent auditor	Proficient
Management's discussion and analysis (MD&A)	Proficient
Basic financial statements (preliminary considerations)	Proficient
Statement of net position/balance sheet	Proficient
Statement of revenues, expenses, and changes in net position/equity	Proficient
Statement of cash flows	Proficient
Summary of significant accounting policies (SSAP)	Proficient
Note disclosure (other than the SSAP and pension-related disclosures)	Proficient
Pension-related note disclosures	Proficient
Required supplementary information (RSI)	Proficient
Statistical section	Proficient
Other considerations	Proficient

Certificate of Achievement For Excellence in Financial Reporting
Detailed Listing of Comments and Suggestions for Improvement
Please call GFOA's Technical Services Center at 312-977-9700 regarding comment questions

Name of Unit:	Valley Sanitary District				
Fiscal Year of Report	FY2019	Report #	250.00	GFOA Member ID Number	300074117

109b - Statement of net position/balance sheet

Checklist Question: 6.7a

Page 15.

Capital assets that are being depreciated (e.g., buildings) should not be reported as a single line item with capital assets that are not being depreciated (e.g., land), as would occur, for example, in the case of a line item such as "land and buildings." At the same time, there is no requirement to indicate on the face of the statement of net position which capital asset line items represent assets that are being depreciated and which do not. [GASB-S34: 20; COD 1400.112; Q&A 7.11.3; GAAFR, page 300; eGAAFR, page 237]

112 - Note disclosure (other than the SSAP and pension-related disclosures)

Checklist Question: 12.13

Pages 34-36.

The notes should disclose summarized information about the following items, separating information regarding direct borrowings and direct placements of debt from other debt: (1) the amount of unused lines of credit; (2) the assets pledged as collateral for debt; and (3) the terms specified in debt agreements related to significant (a) events of default with finance-related consequences, (b) termination events with finance-related consequences, and (c) subjective acceleration clauses. [GASB-S88: 5; COD 1500.130; COD 2300.120]

120 - New Pronouncements

Additional Comment:

The GASB has issued the following statements and implementation guide:

1. Statement No. 84, "Fiduciary Activities." The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2019.
2. Statement No. 90, "Majority Equity Interests—an amendment of GASB Statements No. 14 and No. 61." The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2019.
3. Implementation Guide No. 2019-2, "Fiduciary Activities." The requirements of this Implementation Guide will take effect for financial statements starting with the fiscal year that ends December 31, 2019.

Earlier application of these statements is encouraged. For the original pronouncements and the implementation guides, please visit the GASB's website, www.gasb.org.

120 - New Pronouncements

Additional Comment:

The GASB has issued the following statements and implementation guides:

1. Statement No. 87, "Leases." The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2020.
2. Statement No. 89, "Accounting for Interest Cost Incurred before the End of a Construction Period." The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2020.
3. Statement No. 91, "Conduit Debt Obligations." The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2021.
4. Implementation Guide No. 2019-1, "Implementation Guidance Update—2019." The requirements of this Implementation Guide will take effect for financial statements starting with the fiscal year that ends June 30, 2020.
5. Implementation Guide No. 2019-3, "Leases." The requirements of this Implementation Guide will take effect for financial statements starting with the fiscal year that ends December 31, 2020.

Earlier application of these statements is encouraged. For the original pronouncements and the implementation guides, please visit the GASB's website, www.gasb.org.

***** END OF COMMENTS FOR REPORT # 250.00 / FY2019 *****



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California**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2019

Christopher P. Morrill

Executive Director/CEO

STAFF NOTES
April 2020

ADMINISTRATION & FINANCE

- Principal & interest payment of \$769,593.75 for Wastewater Revenue Refunding Bonds, Series 2015 is due May 15, 2020.
- Principal & interest payment of \$553,360.71 to the Clean Water State Revolving Fund is due by June 1, 2020. This is our second payment for the Requa Interceptor Project.
- The submission of the 2019 Government Compensation in California (GCC) report to the State Controller's Office (SCO) has been completed.
- Continuing work with Caselle to upgrade permitting and accounting software.

DEVELOPMENT SERVICES

- The Preliminary Design Report for the replacement sewer siphon at Westward Ho Drive is complete. This is a FEMA funded project to replace the damaged sewer siphon from the February 2019 storm. The Notice to Proceed has been issued to Carollo Engineering to begin the final design for the replacement sewer siphon. A kick-off meeting will be scheduled in the next couple of weeks. The final plan submittal is estimated to be ready by February 2021.
- Staff is continuing to work with Harris and Associates on the Collections System Rehabilitation and Maintenance project. Currently, Harris is working on putting together bid documents for the CCTV inspection of sewer mains that need special requirements or technology. Harris has provided a preliminary draft of the front-end bid documents which staff has reviewed and returned to Harris for revision. Harris has also developed a first project to begin the rehabilitation portion of the program which staff has also reviewed and submitted revisions. Harris is currently preparing final project documents which are expected by the end of May 2020.
- Staff is working on implementing an asset management system for the treatment plant using Lucity web software. VSD is currently working on building out the Lucity Web system with the help of a Lucity implementor. Staff training has been postponed due to the Covid-19 virus. Onsite training from the implementor has been tentatively scheduled for the beginning of July 2020. Staff has finished the installation of Lucity Mobile and is pursuing the implementation of plant wide WiFi which will allow access of the asset management system from a mobile device anywhere in the plant facility.
- VSD has chosen SGH Architects as the owner's representative and architectural services firm for the design and construction of a new two-story training/office building. Since partial design is included in the current budget, staff is working with the selected firm in this initial design phase to formulate a building plan and

determine some initial construction costs. Construction of the new building has been put on hold a few years or until funding comes available.

- Staff has issued the Notice of Award for the Slurry Sealing project to PMI Inc. and is waiting on the required insurance and bond documents before issuing the Notice to Proceed. Staff is in the process of scheduling the preconstruction meeting before the tentative date of work which is scheduled for May 16th and 17th. PMI utilizes Rubber Emulsified Asphalt Slurry (REAS), which has been used recently by the City of Indio with great success.
- Collection crew is currently working in the area of Avenue 48 and Monroe.
- Void repair in the area of Leroy and Deglet Noor has been successfully completed.

OPERATIONS

- National Coating was onsite to perform warranty inspection and repairs to epoxy coating on secondary clarifier #3.
- Staff replaced the grinder motor on the primary sludge pump for primary clarifier #3.
- Staff cleaned the pond chlorine contact chamber.
- Staff replaced the recirculation pump in pond 3.
- Denali Water Solutions began hauling biosolids for disposal.



VALLEY SANITARY DISTRICT DEVELOPMENT SERVICES REPORT

5-May-20

Plan Check in Progress
Inspection in Progress
New Project

PROJECT NAME	STREET ADDRESS / CROSS STREET	CURRENT PROJECT STATUS	NEXT ACTION ITEM
7-Eleven Golf Center	Intersection of Golf Center/Avenue 45, address TBD	Civil plans submitted for new 7-Eleven store. Completed 1st plan check and returned to the engineer 12/4/19. Completed 2nd plan check and returned to applicant via email 3/25/20.	Perform 3rd plan check upon plan resubmittal.
A&J Nails TI	82151 Avenue 42, Ste 108	Plans submitted for TI of existing nail salon. Completed 1st plan check and returned to the applicant. 5/4/20.	Perform 2nd plan check upon plan resubmittal.
Abel Lupian Commercial Bldg.	45105 Commerce Street	Plans submitted for new commercial building. Completed 1st plan check and returned to the applicant 4/3/20.	Perform 2nd plan check upon plan resubmittal.
Animal Samaritans - TI	42150 Jackson Street, Ste's 104-106	Plans submitted for building TI. Plans approved and returned to the applicant 2/4/2020. Issued permit 3874 on 2/28/2020.	Inspect work improvements as scheduled.
Arbys' Restaurant TI	82111 Avenue 42/Monroe Street	Plans submitted for TI of existing shell building.	In Queue
Bel Cielo - Tr 32425	West of Clinton South of Ave 44	Model homes. No plan check is required. Permit and Inspection fees need to be paid. Issued permit 3840 on 9/13/19.	Inspect work improvements as scheduled.
Buzzbox	42625 Jackson Street #112	Plans submitted existitng building TI. Completed 1st plan check and returned to the City 2/22/19.	Perform 2nd plan check upon plan resubmittal.
Cardenas Single Family Dwelling (SFD)	82266 Stallone Drive	Plans submitted for new SFD. Completed 1st plan check and returned to the applicant 4/27/20.	Perform 2nd plan check upon plan resubmittal.
Chavez Tenant Improvement	45330 Jackson St/Civic Center	Plans submitted for TI of existing building. Demolition of interior walls and facilities. Completed 4th plan check and returned to the City 6/25/18. Issued permit 3755 on 7/9/18.	Inspect work improvements as scheduled.
Chipotle Mexican Grill TI	42213 Jackson Street, Suite 106	Plans submitted for TI of existing shell building. Completed 1st plan check and returned to applicant 4/17/20.	Perform 2nd plan check upon plan resubmittal.
Citadel RV Storage-Phase 1	83667 Dr. Carreon Blvd/Calhoun Street	Plans submitted for construction of new RV storage facility. Plans approved and returned to the applicant 3/17/2020.	Waiting for owner to process permit paperwork.
Donuts Bistro	82151 Avenue 42, Ste 104	Plans submitted for construction of new restaurant. Plans approved and returned to the City 8/28/19.	Waiting for owner to process permit paperwork.
Dunn Edwards Paint Store	81921 Hwy 111/Las Palmas	Plans submitted for new retail building. Plans approved and returned to applicant 4/13/20.	Waiting for owner to process permit paperwork.
El Destino Nightclub - TI	83085 Indio Boulevard/Civic Cnter Mall	Plans submitted for existing building TI 11/30/2015. Plans approved and returned to the City 3/22/16. Issued permit 3577 on 5/24/16. Issued permit 3596 on 8/3/16.	Inspect work improvements as scheduled.
EOS Fitness Ave 42 Gym	SWC of Spectrum Street & Avenue 42	Plans submitted for construction of new gym facility. Completed 2nd plan check and returned to the City 11/13/19.	Perform 3rd plan check upon plan resubmittal.
EOS Fitness Hwy 111	Highway/Jefferson Street	Plans submitted for construction of new gym facility. Completed 2nd plan check and returned to the City 11/13/19.	Perform 3rd plan check upon plan resubmittal.
EOS Fitness Public Sewer Extension	SWC of Spectrum Street & Avenue 42	Civil plans submitted for sewer extension in Spectrum Street. Completed 1st plan check and returned plans to the engineer 5/2/19. Completed 2nd plan check and returned to the engineer 5/15/19. Plans approved and returned to the engineer 6/3/19.	Waiting on developer bonds for sewer agreement.
Fred Young (Villa Hermosa Apts Phase III)	83801 Dr. Carreon Blvd / West of Van Buren	Plans submitted for apts at Fred Young Farm Labor Dev. Plans approved and returned to the applicant 7/17/2019.	Waiting for owner to process permit paperwork.
Gallery at Indian Springs	Jefferson St/Westward Ho Drive	Civil plans submitted for plan check. Completed 1st plan check and returned to the Engineer 1/10/18. Completed 2nd plan check and returned to the Engineer 1/25/18. Plans approved 1/31/18.	Inspect work improvements as scheduled.
Gallery Homes Tract -Indian Palms	Monroe & Avenue 50	Gallery Homes has recently purchased the 106 lots. Staff has inspected the site and prepared a list of improvements that need to be made prior to issuing connection permits. Plans submitted for home plans. Reviewed 1st plan check and returned back to the city on 6/4/2014. 2nd plan check returned to city 7/7/14. Model plans approved and returned to the City 8/22/14. New homes currently under construction.	Inspect work improvements as scheduled.
Gallery Links - 3	Indian Palms Country Club - Monroe/Avenue 48	Plans submitted for installation of 5 sewer laterals for new SFD. Plans approved and returned to the applicant 4/13/20.	Waiting for owner to process permit paperwork.

PROJECT NAME	STREET ADDRESS / CROSS STREET	CURRENT PROJECT STATUS	NEXT ACTION ITEM
George Fregoso SFD	46600 Padua Circle	Plans submitted for new SFD. Completed 1st plan check and returned to the applicant 9/9/19.	Perform 2nd plan check upon plan resubmittal.
Golden Corral Restaurant	Atlantic Ave/Caspian near Ave 42 and Jackson	Plans submitted for new restaurant building. Completed 1st plan check and returned to the applicant 2/7/20.	Perform 2nd plan check upon plan resubmittal.
Habitat for Humanity SFD	43655 Towne Street	Received plans for the construction of a new home on vacant lot. Plans approved and returned to the applicant 3/11/20.	Waiting for owner to process permit paperwork.
Habitat for Humanity SFD	43689 Arabia Street	Received plans for the construction of a new home on vacant lot. Plans approved and returned to the applicant 3/11/20.	Waiting for owner to process permit paperwork.
Hampton Inn	TBD - Spectrum St/Atlantic Ave	Plans submitted for new 93 room, 4 story hotel. Completed 1st plan check and returned to the City. Plans approved and returned to the City 8/30/18. Issued permit 3776 on 10/12/18.	Inspect work improvements as scheduled.
Hampton Inn Sewer Main Extension	North West Corner of Spectrum St and Atlantic Ave	Plans submitted for the extension of a public sewer main for Hampton Inn at Atlantic Ave. Plan check fees paid 7/11/18. Completed 2nd plan check and returned plans to the engineer 8/9/18. Plans approved and returned to engineer 8/27/18.	Inspect work improvements as scheduled.
Indian Water RV Community Bldg.	47202 Jackson Street	Plans submitted for new community building. Completed 1st plan check and returned to applicant. 9/25/19. Issued permit 3873 on 2/26/2020.	Inspect work improvements as scheduled.
Indio Behavioral Health Hospital	81655 JFK Court	Civil plans submitted for new mental health facility. Completed 1st plan check and returned to the engineer 12/2/19.	Perform 2nd plan check upon plan resubmittal.
Indio Juvenile Court	47671 Oasis St/ Ave 48	Plans submitted to demo existing juvenile court building and construct new building on the same site. Completed 1st plan check and returned to the City 2/23/16.	Perform 2nd plan check upon plan resubmittal.
Indio Palms Sewer Main Extension	South East Corner of Avenue 42 and Monroe St	Plans submitted for the extension of a private sewer main for Indio Palms at Spectrum Street. Plan check fees paid 2/1/18. Completed 1st plan check and returned plans to engineer 2/21/18. Completed 2nd plan check and returned plans to engineer 3/20/18. Plans approved and returned to engineer 5/10/18.	Waiting on developer to record sewer agreement.
Jackson Street Liquor Store	44350 Jackson Street/Ruby Avenue	Plans submitted existing building TI. Plans approved and returned to the City 4/29/19. Issued permit 3829 on 7/26/19.	Inspect work improvements as scheduled.
John Nobles Apartments	TBD - Rubidoux Street/John Nobles Ave	Plans submitted new apartment complex. Completed 1st plan check and returned to the City 2/27/19.	Perform 2nd plan check upon plan resubmittal.
Kennedy School Bldg Additions	45100 Clinton Street	Plans submitted for new building additions. Completed 1st plan check and returned to the applicant 11/6/19. Plans approved check and returned to the applicant 2/3/2020. Issued permit 3875 on 2/28/2020.	Inspect work improvements as scheduled.
Maya Cinemas	82900 Avenue 42/Jackson Street	Plans submitted for construction of new building for theater. Completed 2nd plan check and returned to the City 10/16/19.	Perform 3rd plan check upon plan resubmittal.
Mex-American Tax Services	44250 Monroe St./South of Indio Blvd	Plans submitted for an office addition, Returned 1st plan check back to City on 1/21/2014. Received 2nd submittal 3/13/2014. 2nd plan check completed and returned to the city on 3/31/2014. Received 3rd submittal 4/21/14. Reviewed, approved and returned plans back to the city on 5/15/2014. Issued permit 3518 on 8/4/15. Permit expired with the City.	Inspect work improvements as scheduled.
Motorcoach CC - Casita Addition	80501 Avenue 48, Lot 145	Plans submitted for casita addition and storage building. Plans approved and returned to the City 5/9/19. Issued permit 3849 on 10/29/19.	Inspect work improvements as scheduled.
Motorcoach CC - Casita Addition	80501 Avenue 48, Lot 225	Plans submitted for casita addition and storage building. Plans approved and returned to the City 5/8/19. Issued permit 3814 on 5/8/19.	Inspect work improvements as scheduled.
Motorcoach CC - Casita Addition	80501 Avenue 48, Lot 320	Plans submitted for casita addition and storage building. Plans approved and returned to the City 5/9/19. Issued permit 3848 on 10/29/19.	Inspect work improvements as scheduled.
Motorcoach CC - Casita Addition	80501 Avenue 48, Lot 321	Plans submitted for casita addition and storage building. Plans approved and returned to the applicant 12/17/19. Issued permit 3863 on 12/30/19.	Inspect work improvements as scheduled.
Motorcoach CC - Casita Addition	80501 Avenue 48, Lot 328	Plans submitted for casita addition and storage building. Plans approved and returned to the applicant 5/5/20.	Waiting for owner to process permit paperwork.
Nargizyan Dental Group TI	81637 Highway 111, Suite 1-B	Plans submitted for TI of existing suite. Completed 1st plan check and returned to the City 7/1/19.	Perform 2nd plan check upon plan resubmittal.
North Outdoor Resorts - Casita Addition	80394 Avenue 48, Lot 245	Plans submitted for shade structure with outdoor kitchen. Plans approved and returned to the City 5/15/18.	Waiting for owner to process permit paperwork.
North Outdoor Resorts - Casita Addition	80394 Avenue 48, Lot 258	Plans submitted for casita addition and storage building. Plans approved and returned to the applicant 10/29/19. Issued permit 3850 on 10/29/19.	Inspect work improvements as scheduled.

PROJECT NAME	STREET ADDRESS / CROSS STREET	CURRENT PROJECT STATUS	NEXT ACTION ITEM
North Outdoor Resorts - Casita Addition	80394 Avenue 48, Lot 349	Plans submitted for shade structure with outdoor kitchen. Plans approved and returned to the City 5/29/18.	Waiting for owner to process permit paperwork.
Octavio Rosales SFD	43645 Saguaro Street/Avenue 44	Plans submitted for new SFD. Completed 2nd plan check and returned to the City 8/26/19.	Perform 3rd plan check upon plan resubmittal.
Old Navy Shell Building	42200 Jackson Street/Ave 42	Plans submitted for new Building. Plans approved and returned to applicant 3/31/2020.	Waiting for owner to process permit paperwork.
Old Navy TI	42200 Jackson Street/Ave 42	Plans submitted for TI of existing shell building. Completed 1st plan check and returned to applicant via FedEx 3/18/20.	Perform 2nd plan check upon plan resubmittal.
One Stop Shop Grease Interceptor Install	84051 Indio Blvd/Van Buren Street	Preliminary plan submitted for grease interceptor TI 4/19/19. Completed 1st plan check and returned to owner's representative 4/30/19.	Perform 2nd plan check upon plan resubmittal.
Ono Hawaiian BBQ	42550 Jackson Street/ Avenue 42	Plans submitted for new retail building. Completed 1st plan check and returned to applicant 11/7/19. Completed 2nd plan check and notified applicant 3/23/20.	Perform 3rd plan check upon plan resubmittal.
Paradiso Tract 31815	East of Monroe North of Ave 41	New model homes under construction.	Inspect work improvements as scheduled.
Parcel Map 36215	Dr. Carreon west of Van Buren	Civil plans submitted for 1st plan check. Plans approved and returned to the Engineer 1/18/18. Issued permit 3718 on 1/23/18.	Inspect work improvements as scheduled.
Quick Quack Car Wash	The Palms Center - Address TBD	Plans submitted for new drive thru car wash building. Completed 3rd plan check and returned to the applicant. 3/23/20.	Perform 4th plan check upon plan resubmittal.
Renovar Assisted Living - TI	82380 Miles Avenue/Palm Street	Plans submitted for building TI. Plans approved and returned to the applicant 3/20/20.	Waiting for owner to process permit paperwork.
River Springs Charter School	81840 Avenue 46	Received plans for a TI of existing building for a new charter school. Completed 1st plan check and returned to the applicant 2/25/20.	Perform 2nd plan check upon plan resubmittal.
Sater's Apartment Complex / Avenue 44 Easement	Between Avenue 44 & Market St West of Jackson	VSD met with the Developer of an apartment complex and discussed sewer main connection options for the developer to tie into. Plans submitted for 6 building, 60 unit apartment complex. 3rd plan check returned to city 6/28/16. Plan approved and returned to the City 5/18/17. bonds and development agreement have been signed and recorded. Waiting for developer to finalize easement and permit project.	Waiting for owner to process permit paperwork.
Shadow Hills Plaza Ste F-102 TI	82900 Avenue 42/Jackson St	Plans submitted for existing building TI. Completed 1st plan check and returned to the City 6/15/18.	Perform 2nd plan check upon plan resubmittal.

**ORIGINAL RESEARCH**

Water and sewer affordability in the United States: a 2019 update

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Spring Point Partners, Grant/Award Number: N/A

Associate Editor: Peter Mayer**Abstract**

This study uses contemporary metrics and data from an original, representative sample of water and sewer utilities in the United States to calculate the affordability of basic single-family residential water and sewer services for low-income households in 2019. Results show that affordability conditions have worsened on average since the last such study in 2017: low-income households must spend an average of 12.4% of their disposable income (up from 10.9%) and/or work 10.1 h at minimum wage (up from 9.9 h) to pay for basic monthly water and sewer services. Analysis suggests that rising prices combine with underlying economic trends to exacerbate affordability.

KEYWORDS

affordability, drinking water, rates, sewer

1 | INTRODUCTION

Affordability is a mounting concern for the U.S. water sector as long-deferred infrastructure replacement needs and upgrades have driven utilities to raise prices. Combined with rising costs of living and uneven wage growth, rising prices for water and sewer services can create significant economic challenges for low-income customers. Poor measurement and a dearth of representative data have hindered meaningful research, media coverage, and policy discussions on affordability for these critical services. In an effort to depict affordability more accurately and meaningfully, Teodoro advanced a set of new affordability metrics (2018) and used them to analyze basic residential water and sewer affordability in 2017 across hundreds of utilities in a nationally representative sample (2019).

This study replicates, updates, and expands upon Teodoro's (2019) study of affordability in 2017 with similar nationally representative sample rates in 2019. Following the same measurement methodology, we eschew the conventional focus on average demands and median incomes and instead focus on *basic* water demands and *low-income* affordability. Specifically, we evaluate affordability with Teodoro's affordability ratio at the 20th percentile income

(AR_{20}) and the transformation of monthly water and sewer bills into hours of labor at minimum wage (HM). Comparisons of affordability in 2017 and 2019 provide a useful picture of short-term national trends in affordability.

The main results of this updated analysis indicate that low-income households must now spend an average of 12.4% of their disposable income and/or work 10.1 h at minimum wage to pay for basic monthly water and sewer services—up from 10.9% and 9.9 h in 2017—but these values vary considerably across utilities. Although about two-thirds of the utilities that appeared in the two samples changed their water and/or sewer rates between 2017 and 2019, the changes were relatively small, with a weighted average increase of US\$4.07 a month, not enough to drastically change the affordability measures for most customers. The most analytically notable change over the 2-year period is that utility size was strongly correlated with both measures of affordability in 2017; in the 2019 data, utility size remains significantly correlated with HM but not with AR_{20} . This indicates that the affordability challenge is increasingly acute in larger systems due to a combination of rising essential nonwater expenditures and, in some places, declining 20th percentile income.

We begin with a brief review of research on water and sewer affordability, with an emphasis on measurement that culminates in a summary of the measurement methodology. Discussion then turns to data sources, with a review of past approaches. We review the findings from the prior U.S. national affordability assessment, which used data collected in 2017. We then describe our update, provide a snapshot of water and sewer affordability in the United States in 2019, and discuss changes in affordability since 2017. The article concludes by discussing the meaning of the changes between the 2017 and 2019 results, with a focus on the empirical contributions, directions for further inquiry, and implications for utility management and policy.

2 | ASSESSING AFFORDABILITY

Water and sewer affordability is a function of utility prices relative to the prices of other things and the resources that customers have available to pay for them. As in the earlier study, we analyze the affordability of basic water and sewer utility services at the household level. The phenomenon of interest this time is both the extent to which the price of water and sewer services necessary for human health forces tradeoffs by economically vulnerable households in 2019 and the changes in these various measures between 2017 and 2019. Our concern here is for *basic* water and sewer service for drinking, cooking, cleaning, and sanitation. We are interested in *household* affordability rather than utility-level *financial capability*, which refers to a community's overall capacity to pay for its capital and operating needs (Davis & Teodoro, 2014).

Popular interest in water and sewer affordability in the United States continues to grow, but rigorous, systematic research on the subject remains rare. Most studies that attempt to gauge affordability nationally or across large numbers of utilities emerge from the nonrefereed “gray literature” (Bartlett, Cisneros, Decker, Hartwell, & Warnock, 2017; Jones & Moulton, 2016; Rockowitz et al., 2018; Standard & Poor's, 2018). Before 2019, only a pair of refereed studies attempted to gauge affordability in the United States across large numbers of communities (Mack & Wrase, 2017; Miroso, 2015). These works provided important insights but suffered from empirical problems that limited their validity. In particular, measurement problems and sample bias plague the majority of past water and sewer affordability studies.

2.1 | Measurement

Past empirical assessments of water affordability generally rely on a flawed convention: average water and

sewer bills as a percentage of median household income (%MHI), with a combined value less than 4.0 or 4.5 designated as “affordable.” Often erroneously cited as a U.S. Environmental Protection Agency (USEPA) standard for household affordability, the %MHI guidelines as developed by the USEPA were intended to measure community-level *financial capability* for purposes of negotiating regulatory compliance (USEPA, 1995, 1997; see also National Academy of Public Administration, 2017).

The %MHI convention is an inappropriate method of measuring household-level affordability for at least four reasons. First, average residential demand inflates the cost of water and sewer services because average residential water consumption is much higher than basic needs would dictate. Much of the high-volume consumption that comprises average demand is used for residential outdoor irrigation, not basic health and sanitation (DeOreo, Mayer, Dziegielewski, & Kiefer, 2016). Second, the %MHI convention's focus on *median* income neglects the most relevant subject of affordability analysis: low-income households (see also Baird, 2010; Rubin, 2001; Stratus Consulting, 2013). Gauging affordability with %MHI obscures these low-income customers. The degree to which %MHI conceals affordability problems worsens as income inequality in a community increases. Third, the %MHI convention does not account for other essential costs of living. For meaningful evaluation of affordability, water and sewer prices as a percentage of total income is less relevant than their prices relative to disposable income or market-adjusted effective buying power (Standard & Poor's, 2018). Finally, the 2.0%MHI or 4.5%MHI thresholds that the USEPA uses as financial capability guidelines have been misapplied arbitrarily as a standard of affordability. Those guidelines are not based on any theory, empirical analysis, or deliberative process, and yet, affordability studies still commonly invoke them (e.g., Cromer & Draper, 2019). Applying these simple binary standards—either “unaffordable” or “affordable” depending on whether average bills fall above or below a threshold—masks important variations within and across utilities.

Seeking to establish a more meaningful and accurate methodology for measuring water and sewer affordability, Teodoro (2018) advanced a pair of alternative metrics: the *AR* and *HM*. The *AR* accounts for basic household water needs and essential nonutility costs:

$$AR = \frac{(\text{Cost of basic water} + \text{Sewer services})}{(\text{Household income} - \text{Essential nonwater costs})} \quad (1)$$

This *AR* reflects basic water and sewer costs as a share of disposable income. Assessing *AR* at the 20th percentile

income (AR_{20}), rather than at median income, focuses analysis on low-income households. Assessments of welfare economics typically identify the 20th percentile as the lower boundary of the middle class. These “working poor” households have very limited financial resources but may not qualify for many income assistance programs. Basic household water and sewer costs expressed in *HM* is an intuitively appealing complementary metric.

2.2 | Sampling and sources

No comprehensive, national, publicly available data set on water and sewer rates in the United States currently exists. Consequently, studies of affordability often rely on secondary compilations of rates and/or discuss rising system-level expenses, rather than measuring household affordability directly (e.g., Bartlett et al., 2017; Jones & Moulton, 2016). Others rely on proprietary data sets made up of convenience samples (Standard & Poor’s, 2018) or nonrandom, skewed samples (Mack & Wrase, 2017). Inferring national affordability conditions from biased samples risks under- or overestimating costs with errors of unknown direction and magnitude. Seeking to address these shortcomings, Teodoro (2019) developed a nationally representative set of U.S. water and sewer rates data by using a randomized, stratified sampling design.

3 | AFFORDABILITY UPDATE

This study calculates affordability metrics using original data collected during the summer of 2019, following the same sampling techniques used in the earlier study but significantly expanding the total sample. The data analyzed here constitute a representative sample of U.S. water utilities and are used to calculate the affordability of basic single-family residential water and sewer services for low-income households. The following section of the article discusses the data sources and sampling and measurement methodology.

3.1 | Frame and sample

The present study’s sampling frame is the USEPA’s Safe Drinking Water Information System (SDWIS). The SDWIS contains basic system information and regulatory compliance data for each of the country’s nearly 50,000 community water systems. The overwhelming majority of the utilities in the United States serve populations of less than 3,000. Therefore, a purely random sample

would likely result in a sample of mostly utilities with populations less than 3,300 and very few medium and large utilities, where the majority of the U.S. population resides. In addition, almost half of the very small utilities are privately owned, while larger systems are more frequently owned by local governments.

To obtain a representative sample that provides empirical leverage on important correlates of affordability, we stratified the sampling frame in two ways: by public versus private ownership and then by the USEPA’s five population strata. This study uses the same sample of water utilities analyzed in the prior study, plus an additional 70 utilities sampled using the same SDWIS sampling frame. The smallest stratum (systems serving fewer than 3,300 people) was dropped from the sample due to the difficulty of securing data on reliable rates for very small systems and because they collectively serve a very small minority of the total U.S. population. Utilities serving U.S. territories are also excluded from the sample. In the present study, the final sample includes 82 public utilities and 22 private, utilities in each of the four population strata, for a total of 414 utilities. We applied inverse probability poststratification weights to parametric calculations and regression estimates, which allows us to obtain unbiased population inferences with the stratified data set.

As this study explores the combined affordability of both essential drinking water and sanitary sewer services, an accompanying sewer system was identified for each sampled water utility. In 67% of the cases in the 2019 sample, a single organization provided both water and sewer services to the same geographic location (e.g., a city government that operates water and sewer utilities for its own city or a joint water–sewer special district). In the remaining cases, we identified separate organizations that provided the sewer service for the city or county identified in the SDWIS service area.

3.2 | Data sources

We collected single-family residential water and sewer rates for the sampled utilities directly between May and July, 2019. The 2019 sample was expanded from 2017, with 82 local government utilities randomly sampled from each of four size strata (up from 75 per stratum in 2017) and 22 private utilities in each stratum (up from 16 in 2017). For 86% of the utilities, rates were available online on the utility websites. We contacted the remaining 14% of utilities directly by telephone, email, and postal mail. Sewer rates were unavailable in 14 cases because the water system’s service area had no sanitary sewer service or refused to provide the information;

accordingly, those utilities are excluded from the analysis presented here. Only one utility was entirely unwilling to provide rates information. The final data set of utilities with complete water and sewer rate data includes 399 of the 416 sampled utilities (95.9%). Table 1 shows the final number of utilities in each of the four strata used in the 2017 and 2019 analyses. The utilities in the 2019 sample serve a combined population of almost 44 million, covering an additional 6 million more customers than the 2017 sample.

The remaining data used in this study come from SDWIS, the U.S. Census Bureau's 2017 American Community Survey (ACS) 5-year estimates, and the 2016 and 2017 Consumer Expenditure Surveys. The SDWIS provided data on the population served, ownership, primary water source, and Safe Drinking Water Act (SDWA) violations over the past 5 years. Demographic and income data for the cities served by the water utilities were obtained from the ACS. Accurately matching demographic and income data to special-district, county, and private utility jurisdictions is challenging because utility service areas do not always correspond perfectly with municipal boundaries. We used the same method to match demographic and income data to special-district, county, and private utility jurisdictions, as in the earlier study, to ensure consistency between samples: where utilities served multiple cities or unincorporated areas, the city identified with the city's mailing address in SDWIS was used. We also directly collected the applicable minimum wage data for 2019 for every utility's jurisdiction.

3.3 | Affordability measurement

We measured affordability using the two-pronged approach detailed in Teodoro (2018). The monthly price of basic single-family residential water and sewer services was calculated for a family of four at 50 gallons per capita per day (gpcd) or 6,200 gal per month. The present study does not assess the affordability of private wells and septic systems or the affordability of water service for

agricultural, commercial, or industrial uses. The 50-gpcd standard is a typical assumed minimal residential wastewater flow for purposes of sewer system design (Bowne, Naret, & Otis, 1994), meant to reflect basic indoor water use. The Texas Water Development Board (2004) and California State Water Resources Control Board (2018) have adopted 50 gpcd as a standard for basic indoor water use. The value of customer-assistance programs was not included in price calculations as the goal is to measure affordability in the absence of policy intervention. The sample-weighted average monthly price was \$39.99 for water and \$43.72 for sewer services, for a total of about \$83.72. These prices were the numerators for AR_{20} and HM calculations. Combined, these prices reflect an overall increase in average water and sewer prices of about 5.1% relative to 2017 (discussed further, below).

Values of AR_{20} require estimates of disposable monthly income for a family of four at the 20th percentile income in a given utility's service population. Data for gross income at the 20th percentile were drawn from the ACS' lowest-quintile upper limit. Essential nonwater expenditures were estimated with a regression model, which used Bureau of Labor Statistics Consumer Expenditure Survey data to estimate expenditures on taxes, housing, health care, food, and home energy. Coefficients from that model were combined with ACS data on demographics and income for each utility to estimate essential expenditures at the 20th percentile income for a family of four. Subtracting these essential expenditures from 20th percentile income yielded the denominator for AR_{20} . Calculating HM simply required dividing monthly combined basic water and sewer prices by the locally applicable minimum wage.

4 | RESULTS: WATER AND SEWER AFFORDABILITY IN THE UNITED STATES, 2019

Table 2 provides a descriptive summary of AR_{20} , HM , and the other variables used in the subsequent analysis.

TABLE 1 Sampled U.S. utilities, 2017 and 2019

Strata (population served)	2017		2019	
	Local government	Private	Local government	Private
Very large (100,000+)	75	16	81	21
Large (50,001–100,000)	70	15	82	20
Medium (10,001–50,000)	60	13	77	22
Small (3,300–10,000)	57	10	79	17
Total	262	54	319	80

TABLE 2 Descriptive summary of 2019 U.S. data

Variable	Mean	95% mean CI	Minimum	Maximum
<i>HM</i>	10.14	[9.5, 10.74]	1.57	27.04
<i>AR</i> ₂₀	12.42	[10.91, 13.93]	1.42	100
Special district	0.23	[0.18, 0.29]	0	1
Private	0.20	[0.15, 0.25]	0	1
Groundwater source	0.49	[0.42, 0.55]	0	1
Purchased water source	0.30	[0.24, 0.36]	0	1
SDWA violations	32.87	[25.94, 39.79]	0	2,257
Population served (log)	9.42	[9.31, 9.52]	8.12	14.66
Population served (thousands)	25.25	[25.21, 35.28]	3.32	2,319.60

Note: *n* = 399. Poststratification weights applied in parameter calculations.

Abbreviations: *AR*₂₀, affordability ratio at the 20th percentile income; CI, confidence interval; *HM*, hours of labor at minimum wage; SDWA, Safe Drinking Water Act.

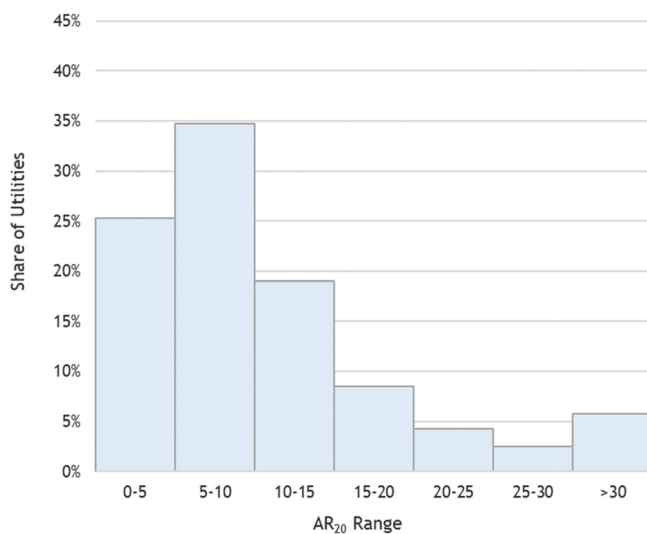


FIGURE 1 Single-family residential affordability ratio at the 20th percentile income (*AR*₂₀) in the United States, 2019

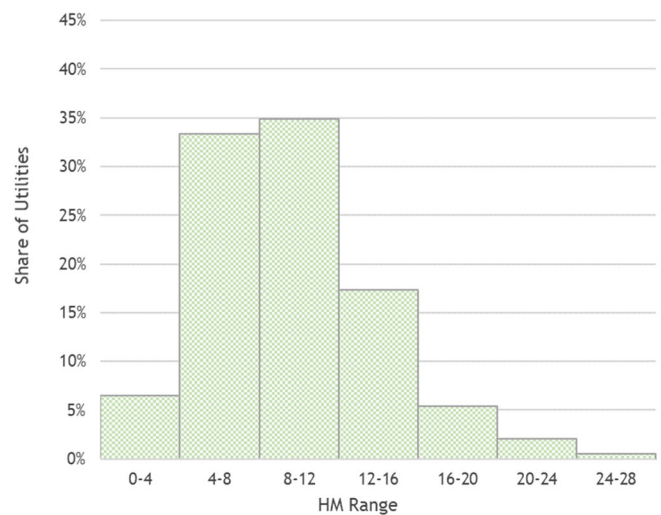


FIGURE 2 Basic single-family residential water and sewer prices in hours of labor at minimum wage (*HM*) in the United States, 2019

Figures 1 and 2 show the overall distribution of *AR*₂₀ and *HM*, respectively. The weighted average *AR*₂₀ is 12.4, ranging from 1.4% to greater than 100%; for analytical purposes, *AR*₂₀ is capped at 100.0%. Values of *HM* range from 1.6 to 27.0 with a weighted average of 10.1. Although *AR*₂₀ and *HM* were moderately correlated in 2017 ($\rho = .61$), in 2019, the correlation between the two affordability metrics is considerably weaker ($\rho = .33$). We discuss the reasons for this change in greater depth below.

4.1 | Affordability by ownership

Differences in rates between publicly owned and private utilities continue to be subjects of frequent interest. Figure 3 depicts average *AR*₂₀ and *HM* by three types of utility ownership (private, municipal

government, and special districts); Figure 4 shows affordability by region. Average *AR*₂₀ does not vary significantly by ownership. Private utilities' *AR*₂₀ average of 11.3 was less than municipal utilities' average of 12.6 and less than special-districts' 13.4, but none of these differences are statistically significant by conventional standards. Affordability measured as *HM* also does not vary significantly by ownership, although private utilities average 12.0 *HM*, which is about an hour and 45 min more than the special-district average and 2 h and 30 min more than the weighted average for municipal utilities. The differences between the two measures of affordability suggest that 20th percentile incomes are, on average, higher in communities served by private utilities relative to special-district and municipal utilities.

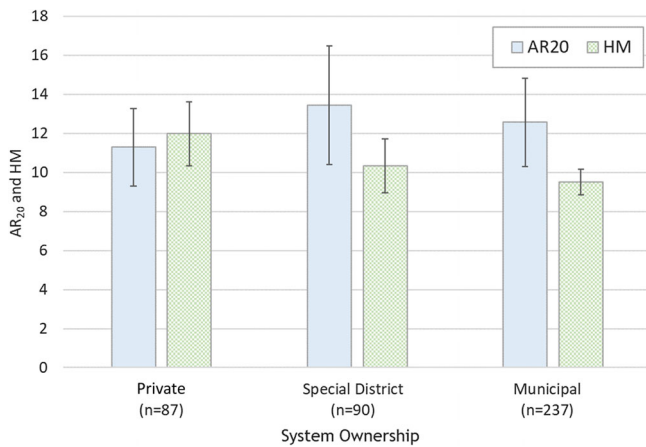


FIGURE 3 Mean affordability ratio at the 20th percentile income (AR_{20}) and hours of labor at minimum wage (HM) by U.S. utility ownership, 2019

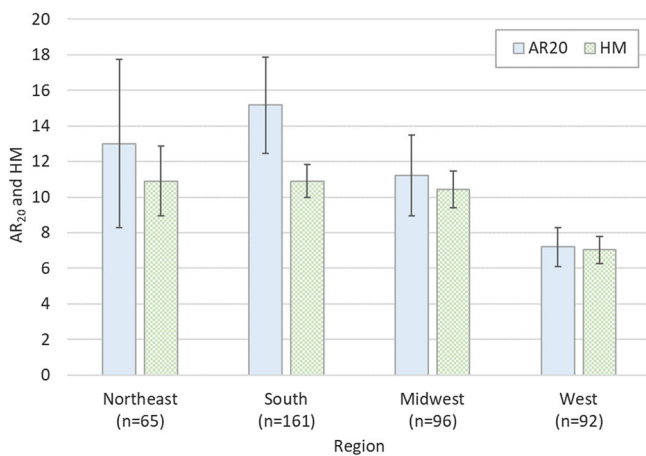


FIGURE 4 Mean affordability ratio at the 20th percentile income (AR_{20}) and hours of labor at minimum wage (HM) by U.S. region, 2019

4.2 | Correlates of affordability

A large set of affordability data on diverse utilities provides an opportunity to investigate the relationship between affordability and organizational variables. To that end, some simple statistical models are offered here as a descriptive exploration. The goal here is not to evaluate theoretical claims but rather to provide an initial picture of important correlates of affordability.

Table 3 reports the results of ordinary least-squares regression models that estimate AR_{20} - and HM -only utility characteristics drawn from the SDWIS. The models include dummies (1/0) for *special-district* and *private* ownership (*municipal utilities* are the reference category) and primary water source (*groundwater* or *purchased water*, with *surface water* as the reference category). The

models also include a count of Safe Drinking Water Act (SDWA) health violations over the past 5 years to account for changes in performance that might correlate with affordability. Finally, the models include utility size, measured as the natural log of the *population* served by the utility. The logarithmic transformation is important because the effects of scale on affordability are expected to be nonlinear, with the greatest effects at the lower end of the distribution. For example, the substantive difference between a utility that serves a population of 10,000 and one that serves 75,000 is greater than the difference between utilities that serve 500,000 and 565,000. All models use poststratification weighting.

Among utility characteristics, no characteristic emerges as a consistently strong, statistically significant predictor of affordability, and the overall model fit is weak. Although utility size negatively predicts AR_{20} and HM —that is, affordability improves as a utility's size increases—for AR_{20} , the correlation falls short of conventional standards of statistical significance ($p = .10$). The strong relationship between size and HM is consistent with the idea that larger utilities enjoy economies of scale that translate into more affordable rates. The somewhat weaker correlation with AR_{20} suggests that underlying distributions of income and other essential costs of living may affect larger systems more than they do smaller systems.

4.3 | Changes in affordability, 2017–2019

Resampling the same utilities that were analyzed in 2017 affords us the unique opportunity to analyze how affordability changes over time. We calculated the mean weighted changes discussed throughout this section by subtracting the mean weighted averages from 2017 from the mean weighted averages in 2019 (Table 4). The mean weighted change in total water and sewer charges is +\$4.07 in 2019, which can be broken down into a +\$3.23 mean change in water charges and a +\$0.84 mean change in sewer charges.

Subtle but important shifts in the distribution of incomes and expenditures contributed to a worsening affordability picture overall. From 2017 to 2019, weighted mean monthly essential expenditures for a family of four at the 20th percentile income increased by \$86.92, and weighted mean monthly income at the 20th percentile rose by \$98.79; Table 5 reports these changes. However, the changes in 20th percentile income and essential expenditures were uneven, as Figure 5 shows. Over this 2-year period, 20th percentile income crept slightly higher, but the distribution of essential expenditures were markedly higher: the share of utilities with essential expenditures under \$750 per month fell from 37.8% to just 15.7%. Meanwhile, the share of utilities with essential

TABLE 3 Correlates of U.S. water and sewer affordability at the 20th percentile income and hours of labor at minimum wage

	Dependent variable: AR_{20}		Dependent variable: HM	
	Coefficient (robust SE)	p value	Coefficient (robust SE)	p value
Special district ownership	0.35 (1.89)	.86	0.58 (0.77)	.46
Private	-1.04 (1.54)	.50	2.51 (0.90)	<.01
Groundwater source	-2.61 (1.96)	.18	-0.63 (0.77)	.42
Purchased water source	-2.42 (2.11)	.25	0.01 (0.82)	.90
SDWA violations	0.01 (0.01)	.20	0.00 (0.00)	.31
Population served (log)	-0.95 (0.56)	.09	-0.52 (0.23)	.02
Intercept	23.12 (5.84)		14.65 (2.40)	
R^2	0.02		0.06	
n	399		399	

Note: Ordinary least-squares regression. Poststratification weights applied in estimation.

Abbreviations: AR_{20} , affordability ratio at the 20th percentile income; HM , hours of labor at minimum wage; SDWA, Safe Drinking Water Act.

TABLE 4 Descriptive summary of change in U.S. rates between 2017 and 2019

Variable	Mean 2017 (US\$)	Mean 2019 (US\$)	Change in means (US\$)	Change in means (%)
Total water and sewer charges	79.65	83.72	4.07	5.1
Water charges	36.77	39.99	3.23	8.78
Sewer charges	42.89	43.72	0.84	1.94
First gallon, total	36.68	40.89	4.22	11.50
First gallon, water	16.53	18.68	2.15	13.03
First gallon, sewer	20.16	22.20	2.05	10.19
Change in AR_{20}	10.97	12.42	1.45	13.20
Change in HM	9.90	10.14	0.24	2.44

Abbreviations: AR_{20} , affordability ratio at the 20th percentile income; HM , hours of labor at minimum wage.

TABLE 5 Essential expenditures and 20th percentile income in the United States, 2017 and 2019

	2017		2019	
	Mean	95% CI	Mean	95% CI
Essential expenditures	\$853.68	[\$815.10, \$892.25]	\$940.60	[\$910.46, \$970.75]
20th percentile income	\$1,845.07	[\$1,720.10, \$1,963.43]	\$1,943.79	[\$1,836.54, \$2,051.04]

Abbreviation: CI, confidence interval.

expenditures ranging from \$750 to \$1,250 jumped from 51% to greater than 70%. The rest of the distribution remained roughly similar from 2017 to 2019. These results reflect an uneven impact of overall economic changes: sluggish income growth at the low end of the distribution, coupled with rising costs of living for low-income households.

These changes affect water and sewer affordability. Between 2017 and 2019, HM increased by just over 2%, and AR_{20} increased sharply from 10.87 to 12.42—a 13.2% increase. In terms of region (Figure 6), the South and Northeast experienced the greatest mean changes in AR_{20}

(+3.3 and -1.96, respectively), while the West increased by 1.52 relative to 2017. The results for change in HM are slightly different, with the Midwest experiencing the greatest average change in HM at approximately +1.3 h in 2019 and other regions experiencing only slight increases by 2019. Municipal utilities and special districts saw greater average increases in AR_{20} (+2.05 and +2.44, respectively) compared with private utilities (+0.53). Changes in HM did not vary as much by ownership (Figure 7), with special district HM increasing by +0.61 and municipal utilities by +0.31 but private utilities experiencing a decrease in HM by -0.04.

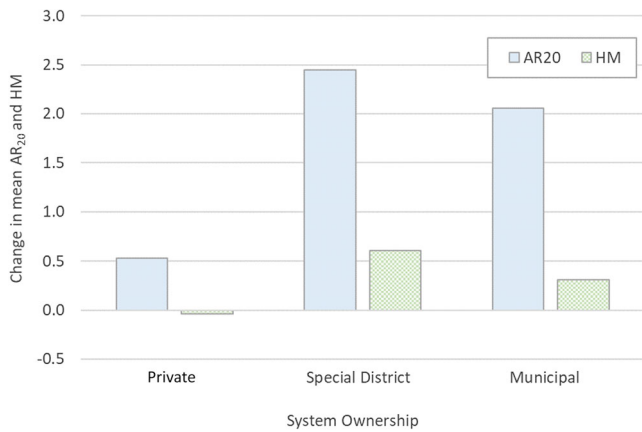


FIGURE 5 Percentage change in mean affordability ratio at 20th percentile income (AR_{20}) and hours of labor at minimum wage (HM) by US utility ownership

A handful of utilities experienced reductions in water and sewer charges, HM , and AR_{20} , but these were rare, and mostly due to changes in rate structure. Although more than two-thirds of the 325 utilities that appeared in both the 2017 and 2019 samples changed their water prices, only 60 changed their rate structures. Table 6 summarizes these changes. The results are similar for sewer rates as about two-thirds changed prices, but just 56 of 296 sewer utilities changed their rate structures between 2017 and 2019. For water utilities, the most common rate structure change was from uniform or declining block to inclining block, with 23 utilities changing, opting for more progressive rates. Nineteen changed to declining block, and 11 changed to uniform block. For sewer service, the most common rate structure change was also to inclining block (21 utilities), followed by 17 changing to uniform and 9 changing to declining block.

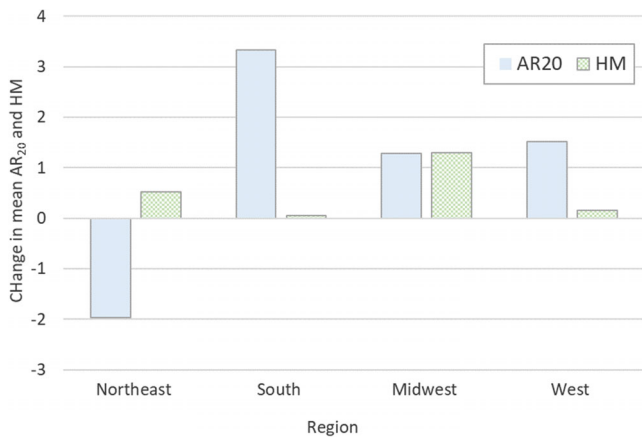


FIGURE 6 Percentage change in mean affordability ratio at 20th percentile income (AR_{20}) and hours of labor at minimum wage (HM) by US region

To understand where in the pricing scheme these increases are coming from, we analyzed the first-gallon prices for water and sewer services. The *first-gallon price* is the price a customer pays for using any water at all: any fixed charges plus the price of the first unit of water or sewer service. For example, if there is a \$20 fixed charge for water service and the first 100 cubic feet of water is \$2.00, then the first-gallon price for water service is \$22.00. Figure 8 shows the percentage change in average combined first-gallon water and sewer bills, as well as the percentage change in total bill at 6,000, 12,000, and 20,000 gal. As Figure 8 shows, the first-gallon water and sewer prices increased at a far greater rate (14.2%) than the bills at moderate to high volumes. In contrast, the average bill at 20,000 gal increased by only 8.0%. Considered together, these results show how changes in rate structure have shifted water and sewer systems' relative cost burdens from high-volume to low-volume customers.

5 | DISCUSSION

This study provides a descriptive summary of water and sewer affordability for low-income households in the United States in 2019. Results indicate that households at the local 20th percentile income level must spend an average of 12.4% of their disposable income and/or work 10.1 h at minimum wage to pay for basic monthly water and sewer services. These figures are markedly increased compared with their values in 2017.

The main drivers behind the increase in AR_{20} between 2017 and 2019 were increases in total water and sewer charges, increases in essential expenditures, and stagnant or—more alarmingly—decreasing 20th percentile incomes in some cases. All three of these factors contributed to increasing the mean AR_{20} in 2019. The increase in essential expenditures was especially meaningful in communities where essential expenditures were already high and the 20th percentile income was already low. Even small changes in water and sewer charges can have a substantial impact on affordability where disposable income is very low. This reality is reflected in the far more dramatic rise in AR_{20} (+13.2%), compared with the more modest increase in HM (+2.4%).

The effect of essential expenditures and 20th percentile income can also be seen in Figure 3, where private utilities have a lower average AR_{20} than municipal utilities or special districts. The main reason for this counter-intuitive result is that 20th percentile income is, on average, about \$1,000 higher for customers served by private utilities compared with municipal-utility customers. The difference between private utilities and

FIGURE 7 Distribution of monthly 20th percentile income and essential expenditures in the United States, 2017–2019

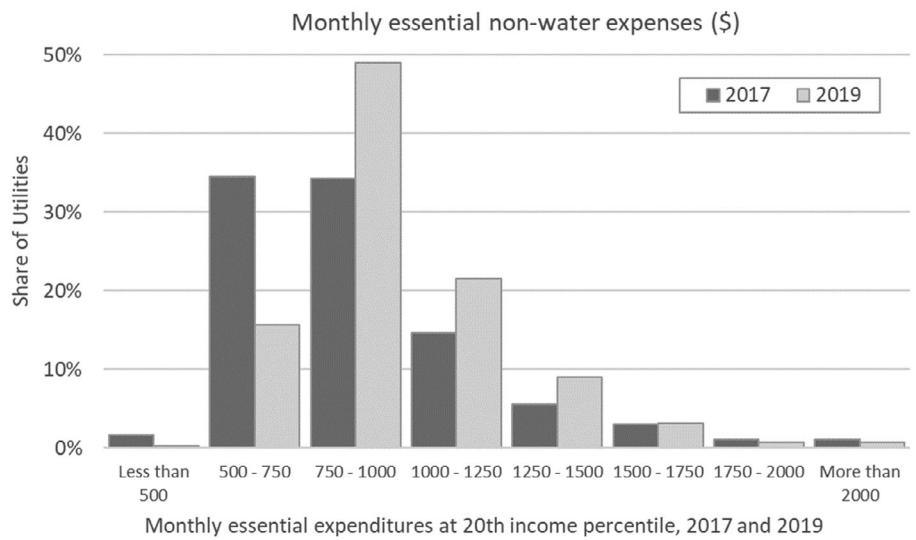
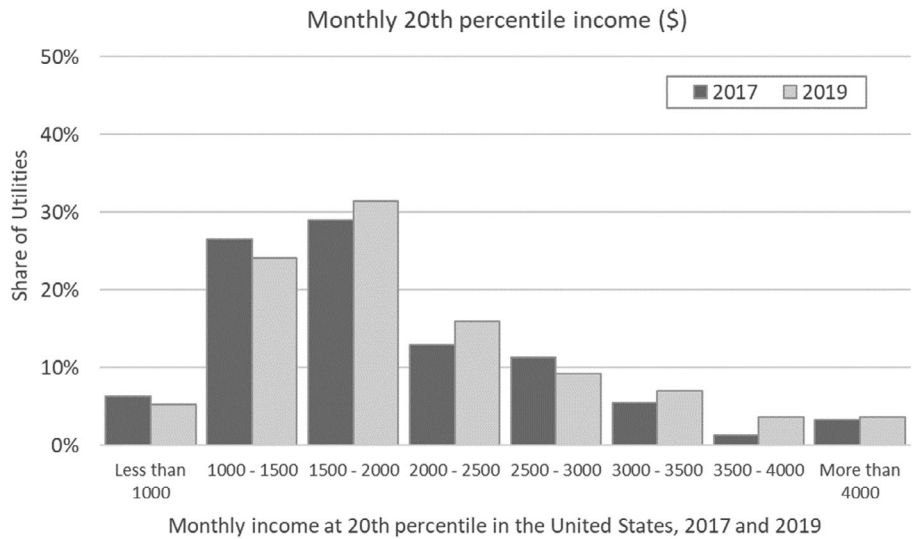


TABLE 6 Summary of changes in U.S. rate structures between 2017 and 2019

	Water	Sewer
Changed in rate structure	60	56
Changed in total price	221	208
Added fixed charge	11	14
Changed to inclining block	23	21
Changed to declining block	19	9
Changed to uniform	6	17
Total	325	296

special districts even more striking: average 20th percentile income is around \$4,000 higher for private utilities than for special districts. Meanwhile, customers of municipal and private utilities have almost the same average essential expenditures, \$967.58 and \$964.58,

respectively; special-district customers have lower average essential expenditures at \$878.23 monthly. These underlying differences help explain why private utilities' average AR_{20} is relatively low, even as their average HM remains relatively high.

The changes in rate structure and first-gallon price shows that utilities are continuing to push more of their total costs into the fixed costs as part of their pricing strategies (Walton, 2018). Eleven water utilities and 14 sewer utilities that did not previously have fixed charges added them between 2017 and 2019. Moreover, as observed earlier, first-gallon prices increased faster between 2017 and 2019 than did the overall water and sewer prices analyzed here.

Among the system characteristics analyzed here, utility size remains the most notable correlate of HM , although it is not as strongly correlated with AR_{20} as it was in 2017. Larger utilities may enjoy economies of scale

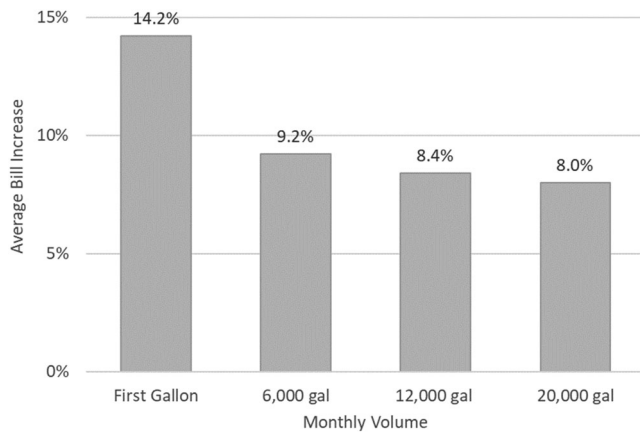


FIGURE 8 Percentage change in average monthly water and sewer bill, 2017–2019

that translate into more affordable rates for low-income customers. However, nonwater/sewer essential expenditures appear to be rising faster in larger systems, and for that reason, AR_{20} and HM are less closely correlated than they were 2 years ago.

5.1 | Limitations

As with any empirical study, this one has limitations. The AR_{20} calculations here rely on estimates of disposable income developed with a regression model built with national data, which necessarily introduces measurement error to AR_{20} values. The degree to which this measurement error mischaracterizes affordability for a given utility depends on how much local consumer expenditures vary from national patterns, but so long as the error is randomly distributed across the data set, estimates of AR_{20} and parametric calculations do not suffer from significant bias, and any inferential analyses will favor a null finding. Similarly, the 50-gpcd basic water use level assumed in the analysis may not align with basic use in all utilities. This assumption is reasonable for crafting an overall national assessment and identifying important correlates of affordability but may not be appropriate for evaluating affordability in a particular utility.

The purpose of the present study is to measure and describe affordability in terms of the financial tradeoffs created by water and sewer rates; the present data set includes no information about water supply conditions, demand patterns, sewer flows, wastewater strength, service quality, or system financial and physical conditions. In other words, the present analyses do not account for water and sewer services' *quality* (except insofar as SDWA violations measure quality). As such, the affordability figures provided here do not reflect the *value* of

water and sewer services or capture utility-level tradeoffs involving cost and quality. Affordability is important but not necessarily the most important aspect of water and sewer service. This national assessment of water and sewer price impacts on low-income customers allows water sector leaders and policymakers to evaluate affordability alongside other utility goals.

Although this study's sample allows for more nationally representative analysis than most previous research, it is nonetheless limited. For example, the present sample does not provide the statistical power necessary to analyze state-level policy effects on water and sewer affordability. The labor intensity of data collection for water and sewer rates (especially for very small systems) remains a serious barrier to larger-sample studies. Finally, the two-wave time series (2017 and 2019) limits our ability to infer trends in affordability. We hope, in the future, to capture changes in these utilities over a longer period.

5.2 | Directions for future research

A clear avenue of study is to connect affordability with utility-level financial policies and practices. Capital financing arrangements and rate design, for example, have potential implications for low-income affordability. How do fixed and volumetric rate structures relate to low-income affordability? How do inclining-block, declining-block, and uniform rates affect affordability? Does affordability necessarily stand in tension with other ratemaking goals such as equity, efficiency, and revenue stability? Or can rate design help accomplish these goals simultaneously? What is the relationship between affordability and system development charges and other capital connection fees? An analysis of affordability across many utilities can provide empirical leverage on these questions.

The relationship between utility operating and capital costs and affordability is another important direction for future inquiry. Which aspects of utility organization and management account for the relationship between size and affordability observed here? How do present and deferred capital maintenance and replacement costs relate to affordability? How do regulatory requirements affect affordability? How does affordability relate to other aspects of utility performance, such as water quality, system loss, capital replacement schedules, workplace safety, financial strength, and so on? Do state and federal grant and loan programs simply lower utility costs, or do they translate into more affordable water and sewer service for low-income households? Unfortunately, no comprehensive national data for utility system conditions and performance currently exist beyond the USEPA's compliance data sets.

Finally, the increasing use in the United States of utility rates to fund stormwater and surface water management may require analysts and researchers to include these prices in future assessments of affordability, at least for communities that fund surface water management in this way.

5.3 | Implications and applications

Are water and sewer service affordable in the United States? What is “affordable” is ultimately a normative question and suggests a philosophical inquiry beyond the scope of this study. Although no specific level of AR_{20} or HM defines affordability in an objective sense, Teodoro (2018) suggests values of AR_{20} less than 10% and HM less than 8.0 as rules of thumb to guide policy consideration. By these guidelines, 60% of the sampled utilities are affordable as measured by AR_{20} , and 39% are affordable according to HM . However, affordability varies considerably across utilities, providing managers, regulators, and policymakers with a valuable snapshot of the varied affordability landscape. This picture and the preliminary analyses reported here suggest that smaller utilities and communities with severe income inequality may be particularly vulnerable to affordability challenges. These factors bear consideration as governments and water sector leaders seek to maintain affordability while fulfilling their environmental and public health missions.

We close with a reminder about the dangers of comparing affordability metrics across utilities when making policy or management decisions. A national profile of affordability and comparative analyses are useful for developing broad regulatory strategy or assessing the water sector nationally. However, comparative affordability analysis is not appropriate for setting policy in any specific utility, as local infrastructure and socioeconomic conditions vary in ways that can make comparisons deceptive. More fundamentally, affordability is a household-level phenomenon, and for this reason, cross-utility comparisons are not especially useful. The price of basic water service in Denver and Detroit is not meaningful to a low-income family in Dayton. Utility leaders should seek to maintain affordability levels that are consistent with their own communities' goals and values.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Teodoro MP, Saywitz RR. Water and sewer affordability in the United States: a 2019 update. *AWWA Wat Sci.* 2020;e1176. <https://doi.org/10.1002/aws2.1176>