

City of Houston

WATER AND WASTEWATER COST OF SERVICE RATE STUDY

FINAL AMENDED | August 2021

carollo®

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Abbreviations

AWWA	American Water Works Association
BOD	biochemical oxygen demand
Carollo	Carollo Engineers, Inc.
CAS	Customer Account Services
CIP	Capital Improvement Plan
City	City of Houston
CUS	Combined Utility System
DSCR	debt service coverage ratio
DWO	Drinking Water Operations
EBS	emergency backup service
FYE	fiscal year ending
G&A	General & Administrative
GRP	Groundwater Production Plan
HPC	Houston Permitting Center
MEU	meter equivalent unit
MFR	multifamily residential
O&M	operations and maintenance
PAYGO	Pay As You Go
PPI	Producer Price Index
SFR	single A residential
TCEQ	Texas Commission on Environmental Quality
TSS	total suspended solids
WEF	Water Environment Federation
WPP	water production plant
WWO	Wastewater Operations

EXECUTIVE SUMMARY

ES.1 Introduction

The City of Houston, Texas (City), provides water and wastewater service to nearly 500,000 customer accounts through its water and wastewater utility, the Combined Utility System (CUS) or "Houston Water," as it is called throughout this report. Houston Water is financially self-sufficient, with funding for operating and capital requirements derived primarily from user charge revenues, impact fees, and other miscellaneous charges. This executive summary documents the results of the cost-of-service rate study and recommends water and wastewater rates that are appropriate to meet Houston Water's funding needs and achieve pricing objectives.

Following a competitive proposal process, the City hired Carollo Engineers (Carollo) to complete a comprehensive study to update water and wastewater rates and impact fees, as well as miscellaneous fees charged by Customer Account Services (CAS) and the Houston Permitting Center (HPC), to support the utility. The findings and recommendations of the impact fee update and the miscellaneous fees update are summarized in separate reports.

The objectives of the cost-of-service rate study were to:

- Fund water and wastewater revenue requirements through fiscal year ending (FYE) 2026,
- Determine cost-of-service by customer type, and
- Develop fair and equitable water and wastewater rates.

ES.2 Resilient Houston

Resilient Houston provides a framework for action that works to protect Houston against future disasters and to build a more resilient City. Part of this strategy is to protect the integrity of the City's Water and Wastewater system through unforeseen disasters. Hurricane Harvey and Winter Storm Uri are examples that tested the limits of the System's capabilities. Through these events, we have learned that disasters come in all shapes and forms and that the System needs to be ready in various circumstances. In order to align with the strategy and goals of Resilient Houston, Houston Water has taken into consideration what it would take to get us there. This means proactively responding to the needs of the aging water and wastewater infrastructure, increasing backups that support drinking water and wastewater plants, and identifying the vulnerabilities in the entire system and strengthening them. In order to respond to these needs Houston Water has built into this Rate Study the costs that are required to take steps towards a more Resilient Houston Water.

ES.3 Background and System Overview

Houston Water's mission is to protect public health, protect the environment, and provide superior customer service. The utility serves approximately 2.2 million customers across a service area of more than 600 square miles and an additional 2.4 million contract and wholesale customers outside the city limits. Houston Water must generate sufficient revenues to fully fund revenue requirements, maintain appropriate cash balances, and meet all requirements of the Master Ordinance, including adequate debt service coverage. Ordinance No. 2004-299, Houston Water's "Master Ordinance," provides for the issuance of Houston Water revenue obligations and contains restrictions and covenants regarding the issuance of Houston Water debt, to be issued pursuant to supplemental ordinances. The City completes a cost-of-service rate study at least every five years to update water and wastewater rates to continue to meet its financial goals.

Houston Water's Drinking Water Operations (DWO) Branch operates and maintains three water purification plants and 51 groundwater plants, in addition to an extensive transmission and distribution system. The Wastewater Operations (WWO) Branch operates and maintains 39 wastewater treatment plants and the collection system, including 381 lift stations and 6,200 miles of sanitary sewer lines.

ES.4 Cost of Service Approach

The cost-of-service rate study provides a rational basis for distributing the costs of the City's water and wastewater systems to each customer type, including wholesale and contract customers, in proportion to the demands they place on the systems. Figure ES.1 provides an overview of the study process and the questions answered at each step.

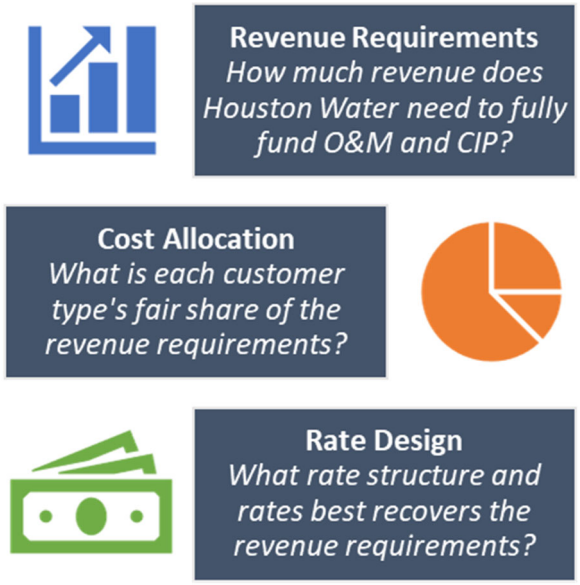


Figure ES.1 Cost of Service Rate Study Process

The revenue requirements analysis prepared a financial plan for each system to determine the revenue increases needed for each to support itself while also considering key metrics of the combined utility system. A detailed cost allocation was developed for both the water and wastewater systems based on the unique attributes of each system to determine the portion of total revenue requirements that should be recovered from each customer type. Finally, recommendations were made to improve the equity and ease of understanding of the existing rate structure and rates were calculated to recover sufficient revenue from each customer type.

The rates presented within this report adhere to cost-of-service principles, as well as industry standards set by the American Water Works Association (AWWA) and the Water Environment Federation (WEF). The City should continue to perform a cost-of-service study at least every five years so that revenues from rates adequately fund utility operations, maintenance, and ongoing capital needs, and equitably recover costs from system users.

ES.4.1 Assumptions

The study incorporated the key assumptions below into the analysis. Changes in these assumptions could have a material effect on study findings and recommendations.

- An automatic adjustment of 1.5 percent was implemented on April 1, 2021.
- With the exception of the initial adjustment recommended in this report, which will go into effect on September 1, 2021, all recommended adjustments will be implemented on April 1 of each year.
- Houston Water will use commercial paper to finance capital projects. Commercial paper debt is converted to first lien bonds, which are assumed to have a 30-year term and 5 percent interest rate.
- The target debt service coverage ratio (DSCR) range is 1.35x for first lien and junior lien combined. DSCR is evaluated for the combined water and wastewater utility.
- The target for Pay-As-You-Go (PAYGO) or cash funding of capital projects is 20.0 percent of the annual Capital Improvement Plan (CIP) up to a maximum of $200 million for the combined utility.
- Annual interest earnings on cash balances is 1.0 percent.

- The number of accounts increases by 0.2 percent per year.
- The target cash balance is 300 days of operating and maintenance (O&M) expense. This is calculated by dividing the ending cash balance by the annual O&M expenses.
- For the purpose of developing cost-of-service rate recommendations, costs are not escalated for inflation or growth, as Carollo understands that an automatic adjustment to Houston Water's rates and charges based on inflationary indices occurs annually in accordance with the Master Ordinance and Ordinance 2010-305.
- The analysis includes a bad debt allowance of 2.0 percent.
- Water and wastewater impact fees will increase to 25.0 percent and 35.0 percent, respectively, of the fees as calculated in the 2020 impact fee update, effective on July 1, 2021. Subsequent increases equal to the regional Producer Price Index (PPI) will take effect on July 1 of each year. An additional 5.0 percent will be added to the PPI increase for the water impact fee in 2023 and 2025 so that the ratio of the adopted fee to the calculated fee is the same for water and wastewater.

ES.4.2 Customer Demand Analyses

Carollo analyzed FYE 2019 customer billing data to understand how different types of customers use the water and wastewater systems. This analysis drives the allocation of costs to improve equity among customers. Figure ES.2 illustrates the findings of this analysis for single family residential, multifamily residential, and commercial customers, although the full analysis included all retail and wholesale customers. Additional detail from the customer demand analysis is provided in Appendix F.

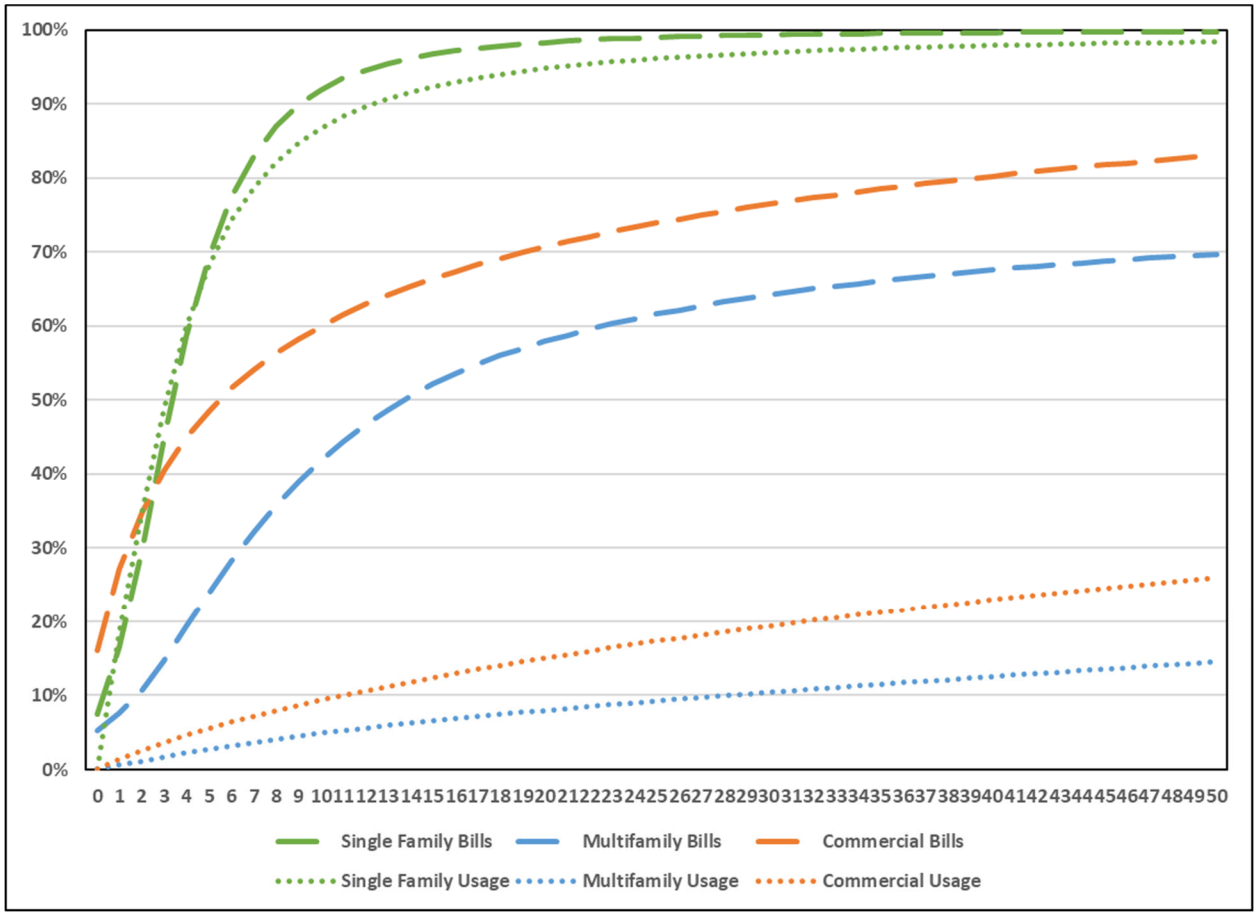


Figure ES.2 Bill Frequency and Usage Analysis

ES.5 Revenue Requirements Analysis

The purpose of the Revenue Requirements Analysis is to determine the adequate and appropriate funding for the utility. Revenue requirements are the summation of expenses or costs for providing safe drinking water and handling wastewater to return clean water to the environment. They are determined on an annual basis, and they include:

- **Operations & Maintenance** – salaries and benefits, chemicals, power, vehicles, equipment, supplies, etc. Some costs vary by the volume of treatment such as chemicals and power, but other costs are fixed and independent of volume such as salaries and vehicles.
- **Capital Improvements** – design and construction of new and replacement infrastructure, including labor for Houston Water employees and fees for consultants and contractors that perform this work.
- **Financing** – debt service payments, bond issuance costs, commercial paper fees, etc.

In addition to expenses, most debt instruments (bonds and loans) require the utility to keep a certain amount of cash in reserve dependent upon the amount of the debt. This cash reserve is restricted and cannot be used to pay for the utility's expenses.

ES.5.1 Water System

The study analyzed the revenue requirements to test the fiscal health of the water system, evaluate the adequacy of current rates and charges, and set the basis for the five-year rate plan. The revenue requirement analysis covers the study period FYE 2021 through FYE 2030 with the primary focus for rate setting given to the five years, FYE 2022 through FYE 2026, of the study period as Houston Water has approved an automatic rate increase of 1.5 percent planned for FYE 2021. Carollo recommends Houston Water increase water rate revenue according to the following schedule:

September 1, 2021	9.0 percent	April 1, 2024	7.0 percent
April 1, 2022	7.5 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	6.5 percent

ES.5.2 Wastewater System

The study analyzed the revenue requirements to test the fiscal health of the wastewater system, evaluate the adequacy of current rates and charges, and set the basis for the five-year rate plan. Like for water, the wastewater revenue requirement analysis covers the study period FYE 2021 through FYE 2030 with the primary focus for rate setting given to the five years, FYE 2022 through FYE 2026, of the study period as Houston Water approved an automatic rate increase of 1.5 percent planned for FYE 2021. Carollo recommends Houston Water increase wastewater rate revenue according to the following schedule:

September 1, 2021	20.0 percent	April 1, 2024	11.0 percent
April 1, 2022	11.0 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	6.5 percent

These recommended increases for both water and wastewater are necessary to fund operational and capital needs, as well as to meet debt service obligations associated with the CIP.

Table ES.1 summarizes key elements of the revenue requirements for the water and wastewater systems, including recommended revenue increases.

Table ES.1 Revenue Requirements for Water and Wastewater Systems ($ millions) [1]

Description	FYE 2021	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*April 2021*	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
Water System:							
Recommended Revenue Increase	1.5%	9.0%	7.5%	6.0%	7.0%	6.0%	6.5%
Water Sales with Increase [2]	$601.0	$652.6	$665.4	$723.1	$768.4	$820.1	$870.4
Impact Fee Revenue	9.9	20.6		21.4	26.7	27.7	33.6
O&M Expenses	291.3	294.7		297.8	304.0	308.2	322.2
Capital Improvements	483.4	673.3		541.6	526.2	772.6	763.8
Annualized Revenue Requirement [3]	**$607.7**	**$662.4**	**$712.1**	**$754.8**	**$807.6**	**$856.1**	**$911.7**
Wastewater System:							
Recommended Revenue Increase	1.5%	20.0%	11.0%	6.0%	11.0%	6.0%	6.5%
Wastewater Sales with Increase [2]	$517.7	$609.4	$627.2	$708.0	$759.9	$833.0	$884.1
Impact Fee Revenue	15.1	20.6		21.2	22.0	22.7	23.5
O&M Expenses	286.3	290.6		290.6	290.6	290.7	290.7
Capital Improvements	429.7	597.1		673.0	622.6	681.0	848.3
Annualized Revenue Requirement [3]	**$523.4**	**$628.1**	**$697.2**	**$739.0**	**$820.3**	**$869.5**	**$926.0**

Notes:
(1) Values are in million dollars, unless otherwise noted, and are rounded.
(2) Projected annual rate revenue, including recommended revenue increase and all previous recommended revenue increases.
(3) Annualized revenue requirement represents the projected revenue if the recommended increase, as well as all previous recommended increases, is in effect for the full 12-month period.

ES.5.3 Combined Utility System

Although the study analyzed the water and wastewater systems separately, Houston Water's financial performance is measured as a combined utility. The two primary indicators of the utility's financial health are the DSCR and the number of days of O&M expenses that can be supported by the cash balance.

Many water and wastewater utilities use revenue bonds to fund a portion of their capital expenses. The DSCR test measures the ability of a utility to meet both legal and target revenue obligations associated with debt. To ensure that Houston Water retains financial flexibility for contingencies and is able to operate in accordance with sound business principles, it targets higher standards than the Master Ordinance minimum DSCR requirements of 1.20x for first lien debt and 1.00x for total debt. The utility's target DSCR for first lien and junior lien combined is 1.35x.

The utility's cash balance indicates its ability to financially sustain operations during unforeseen circumstances that may restrict its revenues. This is especially important for a utility like Houston Water that is prone to extreme weather events. To ensure that Houston Water retains financial flexibility for contingencies and is able to operate in accordance with sound business principles, it targets higher standards than the Master Ordinance minimum cash balance of 60 days of O&M expenses. The utility's target cash balance is 300 days.

Table ES.2 summarizes the revenue requirements for the combined system, including cash and DSCR.

Table ES.2 Combined Utility System Revenue Requirements ($ millions) [1]

Description	FYE 2021 [2]	FYE 2022 [3]	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Expenses:						
O&M Expenses	$577.6	$585.2	$588.4	$594.6	$598.8	$612.9
Jr./1st Debt Service	542.2	625.0	713.3	789.3	875.0	965.3
Other Debt Service	39.9	43.5	45.1	47.5	49.5	50.5
Cash-funded CIP (adjusted) [4]	(39.9)	29.0	181.7	159.9	173.3	137.3
Total Expenses	**$1,119.8**	**$1,282.7**	**$1,528.5**	**$1,591.3**	**$1,696.6**	**$1,766.0**
Plus: Required Debt Coverage [5]	82.2	171.0	18.3	40.1	26.7	62.7
Plus: Required Cash [6]	474.7	481.0	483.6	488.7	492.2	503.8
Required Revenue + Cash	**$1,676.7**	**$1,934.7**	**$2,030.4**	**$2,120.1**	**$2,215.5**	**$2,332.5**
Less: Cash Balance	(931.6)	(746.5)	(603.6)	(477.2)	(382.8)	(289.1)
Less: Impact Fee Revenue	(25.0)	(41.2)	(42.7)	(48.7)	(50.4)	(57.1)
Less: Other Non-Rate Revenue	(17.6)	(15.7)	(11.1)	(8.8)	(6.2)	(4.3)
Less: Rate Revenue (pre-increase)	(1,118.7)	(1,131.1)	(1,409.3)	(1,493.8)	(1,627.9)	(1,725.6)
Cash Test (Surplus)/Deficit	($416.2)	$0.3	($36.2)	$91.6	$148.1	$256.4
DSCR Test (Surplus)/Deficit	$82.2	$171.0	$18.3	$40.1	$26.7	$62.7
Rate Revenue (Surplus)/Deficit [7]	**$82.2**	**$171.0**	**$18.3**	**$91.6**	**$148.1**	**$256.4**
Recommended Increase [8]	---	24.6%	6.0%	9.0%	6.0%	6.5%
Additional Revenue	$0.0	$161.5	$21.8	$34.5	$25.1	$28.9
First/Junior Lien DSCR	**1.21x**	**1.33x**	**1.35x**	**1.34x**	**1.35x**	**1.31x**
Cash (Days O&M)	**589**	**466**	**374**	**293**	**233**	**172**
Annualized Revenue Requirement [9]	$1,131.1	$1,409.3	$1,493.8	$1,627.9	$1,725.6	$1,837.8

Notes:
(1) Values are in million dollars, unless otherwise indicated, and are rounded.
(2) FYE 2021 values are based on FYE 2021 budget.
(3) FYE 2022 through FYE 2026 values are projected based on FYE 2021 budget.
(4) Cash-funded CIP is reduced from the target of 20 percent or $200 million by the additional revenue required to meet debt service coverage requirements, which can be used to cash-fund capital projects and other expenses.
(5) Required debt service coverage is based on a target of 1.35x. Debt service coverage is a revenue requirement, but not a cash expense. This revenue may be used to pay for cash-funded CIP or debt service payments (not junior or first lien since the coverage shown is to cover these bonds). As such, the required debt coverage shown may be reduced from the full 35% of the junior/first debt service payment to avoid double-counting revenue requirements.
(6) Required cash is based on a target of 300 days of O&M expenses.
(7) Rate revenue deficit is the maximum deficit from the cash reserves test and DSCR test.
(8) Recommended increase shown for FYE 2022 includes the September 1, 2021, and the April 1, 2022, increases, as shown in Table ES.1.
(9) Annualized revenue requirement represents the projected revenue if the recommended increase, as well as all previous recommended increases, is in effect for the full 12-month period.

Figure ES.3 shows the year-end cash balance from FYE 2019. Year-end balances for FYE 2022 through FYE 2026 are projected with and without the recommended revenue increases. These projections do not include inflationary cost increases or revenue associated with the annual automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.



Figure ES.3 Projected Cash Balance (Days of O&M)

Figure ES.4 shows the DSCR from FYE 2019. DSCRs for FYE 2022 through FYE 2026 are projected with and without the recommended revenue increases. These projections do not include inflationary cost increases or revenue associated with the annual automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

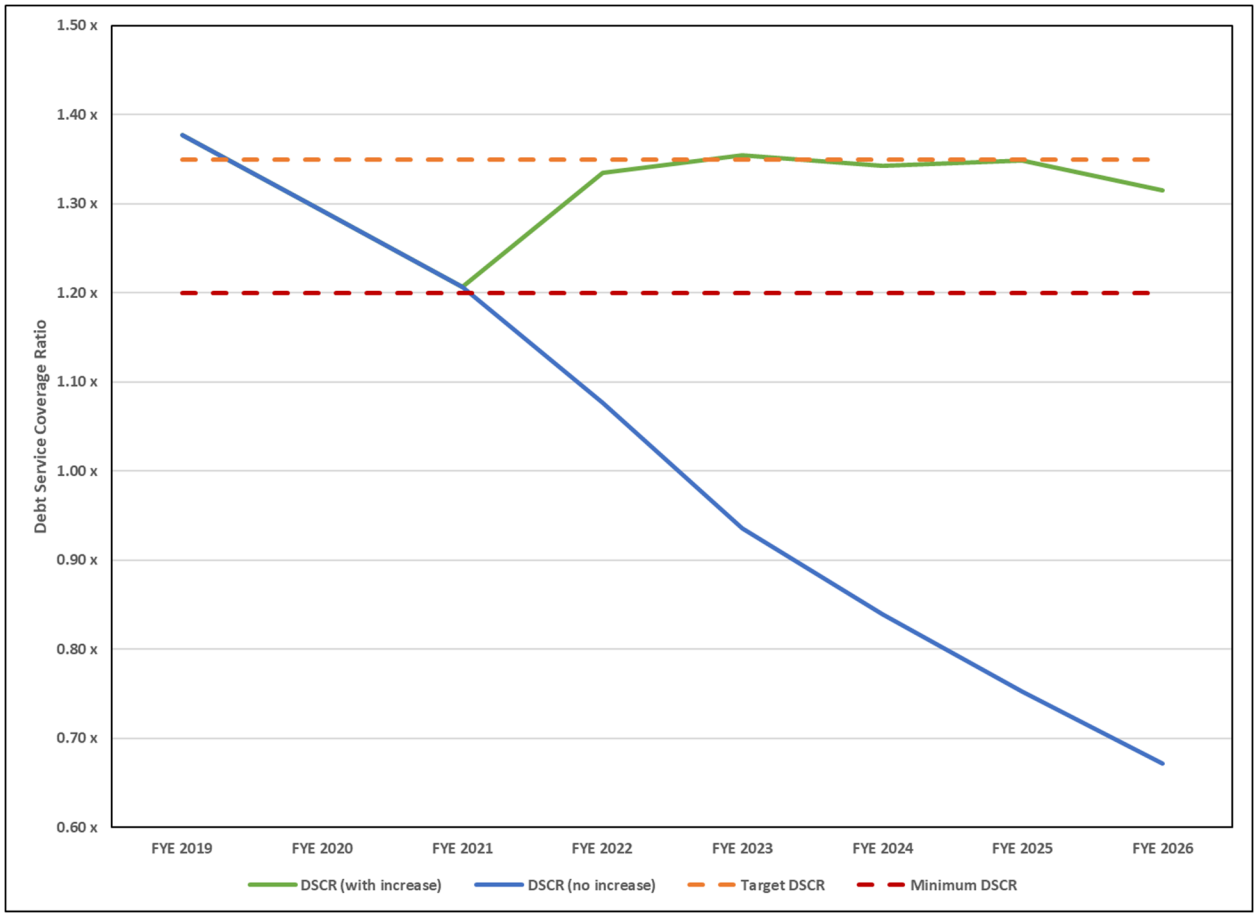


Figure ES.4 Projected Debt Service Coverage Ratio

ES.6 Cost of Service Analysis

The cost-of-service analysis serves as a rational basis for distributing the full costs of Houston Water's services to each customer type in proportion to the demands placed on the system. The analysis is typically completed in three steps:

1. Allocate costs to functional categories (e.g., water production, pumping, collection system).
2. Allocate functionalized costs to rate components:
    a. Water – base, extra capacity, customer.
    b. Wastewater – flow, loadings, customer.
3. Allocate costs to customer types using rate component unit costs.

The study followed this approach to develop a detailed cost allocation that serves as the basis for the proposed rate adjustments. This analysis yields an appropriate method for allocating costs, which could be sustained unless substantial changes in cost drivers or customer consumption patterns occur.

ES.6.1 Water System

The cost-of-service analysis is consistent with the AWWA *M1 Manual Principles of Water Rates, Fees and Charges, Seventh Edition*, standard methods to allocate the revenue requirements among the various customer types based on their usage characteristics. Table ES.3 summarizes the results of the water cost-of-service analysis.

Table ES.3 Water System Cost of Service Results ($ millions) [1]

Customer Type	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
Retail:						
Single Family Residential	$179.8	$194.0	$203.4	$216.2	$228.5	$239.8
Multifamily Residential	153.5	165.6	174.3	186.4	198.2	208.9
Commercial/Industrial	184.1	198.9	209.6	224.2	238.5	251.4
Irrigation	19.7	21.3	22.4	24.0	25.5	26.9
Transient	5.3	5.7	6.0	6.5	6.9	7.3
Resale	0.1	0.1	0.1	0.1	0.1	0.1
Emergency Backup	0.8	0.9	0.9	1.0	1.1	1.1
Metered Fire	1.1	1.2	1.2	1.3	1.4	1.5
Unmetered Fire	9.3	10.0	10.4	10.9	11.3	11.7
Wholesale:						
Contract Treated with Airgap	32.2	34.8	36.1	38.6	41.0	43.3
Contract Treated without Airgap	4.4	4.8	5.0	5.3	5.6	6.0
GRP Participants	13.2	14.3	21.7	23.2	24.7	26.0
Contract Water – Untreated	21.5	23.2	23.3	23.3	23.2	23.3
Contract Treated – SEWPP Co-participants	15.4	15.4	15.4	15.4	15.4	15.4
Contract Treated – EWPP Water Authorities	9.6	9.6	9.6	9.6	9.6	9.6
Contract Treated – NEWPP Water Authorities	12.6	12.6	15.3	21.7	25.2	39.5
Total Revenue Requirements	**$662.4**	**$712.1**	**$754.8**	**$807.6**	**$856.1**	**$911.7**

Note:
(1) Values are in million dollars and are rounded.

ES.6.2 Wastewater System

The cost-of-service analysis is consistent with the WEF *Manual of Practice No. 27, Financing and Charges for Wastewater Systems*, standard methods to allocate the revenue requirements among the various customer types based on their wastewater contributions. The results of the wastewater cost-of-service analysis are summarized in Table ES.4.

Table ES.4 Wastewater System Cost of Service Results ($ millions) [1]

Customer Type	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
Retail:						
Single Family Residential	$212.8	$235.8	$248.5	$274.8	$290.4	$307.9
Multifamily Residential	210.2	233.6	248.7	276.8	294.1	314.3
Commercial	170.2	189.2	201.3	224.0	237.9	254.2
Industrial Surcharge	28.4	31.5	33.3	37.0	39.1	41.6
Sewer Only (Unmetered)	0.5	0.5	0.5	0.6	0.6	0.7
Wholesale:						
Capital without Collection System	3.9	4.3	4.2	4.5	4.5	4.5
No Capital with Collection System	1.8	2.0	2.1	2.3	2.4	2.6
Connection-based	0.3	0.3	0.4	0.4	0.4	0.4
Total Revenue Requirements	**$628.1**	**$697.2**	**$739.0**	**$820.3**	**$869.5**	**$926.0**

Note:
(1) Values are in million dollars and are rounded.

ES.7 Rate Design

Carollo worked with Houston Water staff to analyze various adjustments with the goals of simplifying the water and wastewater rate structures and improving equity and understanding among customers. The allocated revenue requirements serve as the basis for the rate design, although some accommodations were made to improve affordability, especially as the proposed rates transition toward cost-of-service. Existing rates shown are FYE 2021 rates, which went into effect on April 1, 2021.

ES.7.1 Water System

The water rate design analysis determines rates required to achieve cost recovery, proportionately for each customer. Houston Water's existing rate structure consists of two components: a volumetric rate (variable) and a monthly meter charge (fixed). The volumetric component is assessed based on metered water usage per 1,000 gallons (kgal) and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly meter charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption.

ES.7.1.1 Monthly Meter Charge

By design, the monthly meter charge includes a customer component and a capacity component based on meter size. The customer component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The capacity component captures maintenance costs related to meters and services, as well as a portion of the water system capital costs. This component varies based on meter size to reflect the difference in potential demand that can be placed on the system by different sized meters. The capacity charge is then added to the customer unit cost to calculate the total monthly meter charge.

In addition to the monthly meter charge, the study recommends a second fixed monthly charge, which would be assessed per connection, to equitably recover the annual fee paid to the Texas Commission on Environmental Quality (TCEQ).

Residential, Commercial, Industrial, Irrigation, and Emergency Backup Customers

Table ES.5 shows the existing monthly meter charges, which vary by customer type and meter size.

Table ES.5 Existing Water Monthly Meter Charges by Customer Type

Meter Size	SFR	MFR	Com/Ind	Irrigation	Emergency
5/8"	$5.82	$6.05	$6.05	$30.10	$8.68
3/4"	5.82	6.24	6.24	30.10	8.68
1"	7.21	7.50	7.50	33.74	12.34
1½"	10.92	11.35	11.35	89.57	18.20
2"	12.86	13.36	13.36	138.44	24.22
3"	12.86	35.35	35.35	300.56	50.73
4"	---	48.19	48.19	508.83	80.53
6"	---	82.59	82.59	1,047.84	155.57
8"	---	215.64	215.64	1,515.30	230.44
10"	---	215.64	215.64	1,515.30	238.54

Notes:
(1) SFR is Single Family Residential
(2) MFR is Multifamily Residential

Table ES.6 summarizes the proposed monthly meter charges for September 1, 2021, which vary by meter size, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305. Carollo recommends charging the same monthly meter charge for single family and multifamily residential, commercial/industrial, irrigation, and emergency backup rather than varying them by customer type.

Table ES.6 Proposed Water Monthly Meter Charges and Future Adjustments

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges	*Future Adjustments*				
5/8"	$6.25	+$0.32	+$0.19	+$0.17	+$0.14	+$0.03
3/4"	6.25	+0.32	+0.19	+0.17	+0.14	+0.03
1"	8.80	+0.40	+0.32	+0.28	+0.25	+0.05
1½"	12.43	+0.52	+0.50	+0.45	+0.42	+0.06
2"	14.61	+0.59	+0.60	+0.56	+0.52	+0.07
3"	32.76	+1.20	+1.49	+1.40	+1.34	+0.17
4"	63.27	+2.21	+2.99	+2.81	+2.72	+0.32
6"	147.88	+5.02	+7.14	+6.72	+6.56	+0.75
8"	184.20	+6.21	+8.93	+8.41	+8.19	+0.95
10"	244.84	+8.23	+11.90	+11.22	+10.94	+1.26
12"	341.44	+11.43	+16.64	+15.69	+15.31	+1.76
TCEQ Fee per connection	0.21	+0.00	+0.00	+0.00	+0.00	+0.00

Note:
(1) Monthly meter charges and adjustments shown are proposed for single family residential, multifamily residential, commercial/industrial, irrigation, and emergency backup customers.

Transient, Resale, and Fire Customers. Houston Water has several other customer types receiving water service, and these customers are charged different monthly meter charges based on customer type and meter size. Table ES.7 shows existing and proposed September 1, 2021, monthly meter charges for these other customer types, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.7 Existing and Proposed Water Monthly Meter Charges and Future Adjustments – Transient, Resale, and Fire Customers

Meter Size	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges		*Future Adjustments*				
Transient:							
1"	$20.17	$95.00	+$11.96	+$7.75	+$12.88	+$7.71	+$12.84
2"	26.90	185.00	+20.00	+15.00	+25.00	+15.00	+25.00
3"	33.62	460.00	+51.36	+37.69	+62.86	+37.78	+62.99
Resale:							
5/8" and 3/4"	$22.83	$24.05	+$0.20	+$0.09	+$0.06	+$0.03	+$0.00
1"	26.47	39.00	+0.27	+0.12	+0.10	+0.07	+0.04
1½"	65.31	60.40	+0.31	+0.19	+0.16	+0.13	+0.11
2"	99.60	73.25	+0.33	+0.22	+0.20	+0.17	+0.15
3"	215.61	180.00	+0.83	+0.51	+0.50	+0.48	+0.46
4"	363.21	360.00	+1.00	+1.00	+1.00	+1.00	+1.00
6"	744.47	859.00	+1.76	+2.34	+2.40	+2.45	+2.49
8"	1,078.45	1,075.00	+0.25	+2.94	+2.97	+3.08	+3.13
Metered Fire:							
5/8"	$6.05	$4.70	+$0.23	+$0.08	+$0.05	+$0.09	+$0.01
3/4"	6.24	4.70	+0.23	+0.08	+0.05	+0.09	+0.01
1"	7.50	6.15	+0.27	+0.11	+0.09	+0.18	+0.07
1½"	11.35	8.20	+0.35	+0.16	+0.14	+0.31	+0.14
2"	13.36	9.45	+0.38	+0.19	+0.17	+0.38	+0.19
3"	35.35	20.00	+0.48	+0.44	+0.42	+1.01	+0.58
4"	48.19	37.00	+1.37	+0.85	+0.84	+2.07	+1.21
6"	82.59	85.00	+3.00	+2.00	+2.00	+5.00	+3.00
8"	215.64	105.00	+4.30	+2.49	+2.50	+6.26	+3.77
10"	215.64	140.00	+4.87	+3.32	+3.33	+8.36	+5.05

Meter Size	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges		*Future Adjustments*				
Unmetered Fire [1]:							
5/8" and 3/4"	$15.83	$6.70	+$0.21	+$0.05	+$0.05	+$0.04	+$0.00
1"	15.83	9.55	+0.23	+0.07	+0.09	+0.09	+0.02
1½"	63.05	13.60	+0.29	+0.09	+0.14	+0.17	+0.07
2"	93.00	16.05	+0.30	+0.11	+0.17	+0.22	+0.10
3"	93.00	36.00	+0.87	+0.23	+0.42	+0.59	+0.37
4"	93.00	70.00	+1.35	+0.44	+0.84	+1.24	+0.79
6"	103.59	165.00	+2.00	+1.00	+2.00	+3.00	+2.00
8"	176.82	205.00	+3.05	+1.24	+2.50	+3.76	+2.52
10"	238.53	275.00	+1.60	+1.65	+3.33	+5.03	+3.38
12"	238.53	380.00	+5.79	+2.30	+4.66	+7.05	+4.75

Note:
(1) Monthly meter charges and adjustments for unmetered fire customers are based on the size of the service line.

ES.7.1.2 Volume Rates

Variable volume rates include a base component, which represents the cost to meet the average day demand; a maximum day component, which represents the incremental cost to meet the maximum day demand; and a maximum hour component, which represents the incremental cost to meet the maximum hour demand. These costs are allocated to the different customer types based on the demands they place on the water system. The three allocated components are then summed and divided by the projected usage to calculate the average rate per 1,000 gallons for each customer type.

Single Family Residential Customers. The existing single-family residential rate structure is made up of rates that vary for each incremental 1,000 gallons for the first 6,000 gallons, increasing and decreasing as a customer uses more water. This results in large bill increases at specific usage intervals. Transitioning to a water conservation rate structure with rates for usage blocks that increase as a customer uses more water was a key focus of this study.

Table ES.8 shows existing and proposed September 1, 2021, single family residential water volume rates for the study period, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.8 Existing and Proposed Single Family Residential Water Volume Rates and Future Adjustments

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Rates		*Future Adjustments*				
Customers with usage up to 3,000 gallons per month:							
First 1 kgal	$0.16	$1.00	+$0.20	+$0.10	+$0.20	+$0.15	+$0.10
Next 1 kgal	7.65						
Next 1 kgal	0.45						

** Single family residential customers who use 3,000 gallons or less per month receive a conservation credit.*

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Rates		*Future Adjustments*				
Customers with usage in excess of 3,000 gallons per month:							
First 1 kgal	$0.16	$5.50	+$0.60	+$0.40	+$0.50	+$0.50	+$0.50
Next 1 kgal	7.65						
Next 1 kgal	0.45						
Next 1 kgal	12.56						
Next 1 kgal	5.29						
Next 1 kgal	5.29						
Next 6 kgal	5.74	8.00	+0.65	+0.45	+0.65	+0.55	+0.70
Next 8 kgal	9.46	11.00	+0.65	+0.35	+0.80	+0.50	+0.70
Over 20 kgal	9.46	15.00	+0.65	+0.35	+0.65	+0.35	+0.50

To calculate the monthly water bill, customers add the appropriate monthly meter charge derived from Table ES.5 (existing charges) or Table ES.6 (proposed charges) and add the volume rate for each incremental 1,000-gallon unit derived from Table ES.8. Table ES.9 shows existing and proposed September 1, 2021, monthly water bills for single family residential customers with usage up to 6,000 gallons in one month, as well as the incremental amount added to the bills each year as a result of the recommended adjustments.

Table ES.9 Existing and Proposed Single Family Residential Bills and Future Adjustments – Water Only

Billed Usage	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Bills		*Incremental Bill Amounts*				
Meter Charge + TCEQ Fee	$5.82	$6.46	+$0.32	+$0.19	+$0.17	+$0.14	+$0.03
1,000 gallons	5.98	7.46	+0.52	+0.29	+0.37	+0.29	+0.13
2,000 gallons	13.63	8.46	+0.72	+0.39	+0.57	+0.44	+0.23
3,000 gallons	14.08	9.46	+0.92	+0.49	+0.77	+0.59	+0.33
4,000 gallons	26.64	28.46	+2.72	+1.79	+2.17	+2.14	+2.03
5,000 gallons	31.93	33.96	+3.32	+2.19	+2.67	+2.64	+2.53
6,000 gallons	37.22	39.46	+3.92	+2.59	+3.17	+3.14	+3.03

Figure ES.5 illustrates the existing and proposed single family residential water rates and bills for the first 6,000 gallons in 1,000-gallon increments. The amounts shown in this figure do not include future automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

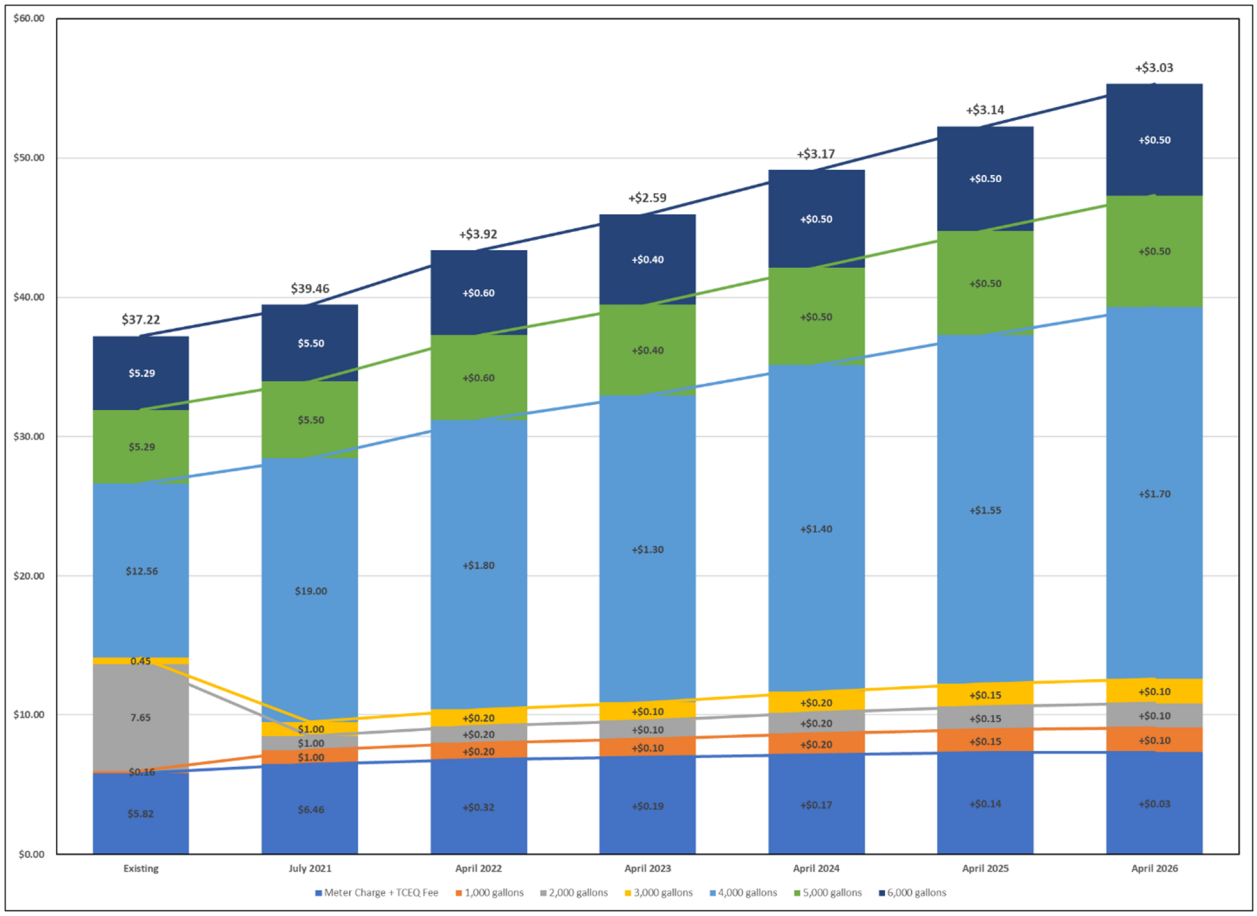


Figure ES.5 Existing and Proposed Single Family Residential Water Rates and Bills

Other Retail Customer Types. With the exception of irrigation customers, all other retail customer types pay a uniform rate per 1,000 gallons for all usage, which varies by customer type. Irrigation customers pay a reduced rate for a "defined quantity" of water that is set based on their meter size; all usage in excess of that amount is assessed a higher rate. Carollo recommends Houston Water continue to charge uniform rates for all retail customer types other than single family residential, including irrigation.

Table ES.10 shows existing and proposed September 1, 2021, volume rates for all retail customer types except single family residential, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.10 Existing and Proposed Retail Water Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Multifamily Residential	All Usage	$4.65	$5.45	+$0.49	+$0.36	+$0.45	+$0.47	+$0.42
Commercial/ Industrial	All Usage	4.77	5.55	+0.60	+0.40	+0.60	+0.57	+0.52
Irrigation (1)	Block 1	3.50	---	---	---	---	---	---
	Block 2	8.06	---	---	---	---	---	---
	All Usage	---	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Transient	All Usage	5.35	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Resale	All Usage	5.73	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Emergency Backup	All Usage	8.85	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Metered Fire	All Usage	4.77	10.00	+0.45	+0.27	+0.45	+0.44	+0.39

Note:
(1) Irrigation customers with meters larger than 1 inch receive a "defined quantity" of water at a reduced Block 1 rate. The defined quantity is based on the meter size. Irrigation customers with 1-inch or smaller meters do not receive any water at the reduced Block 1 rate.

The study recommends maintaining the wholesale and contract customers' rate structures. Contract Treated Water customers pay a uniform rate for all usage and an excess surcharge for all usage above their contract minimum volume. Groundwater Reduction Plan (GRP) customers' rate is based on the Contract Treated Water – Airgap rate although it is reduced based on the required groundwater reduction for each Area. Areas 1 and 2 pay 80 percent of the Contract Treated rate, and Area 3 currently pays 30 percent, but that increases to 60 percent in FYE 2023. These rates, as well as the Contract Untreated rate, are shown for September 1, 2021, in Table ES.11, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.11 Existing and Proposed Wholesale Water Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Contract w/Airgap	Minimum	$3.31	$3.35	+$0.35	+$0.02	+$0.11	+$0.17	+$0.10
	Excess	0.82	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
Contract w/o Airgap	Minimum	4.04	4.05	+0.15	+0.02	+0.05	+0.15	+0.15
	Excess	0.82	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
GRP Areas 1 & 2	All Usage	3.23	2.68	+0.28	+0.02	+0.08	+0.14	+0.08
GRP Area 3	All Usage	1.21	1.01	+0.11	+1.12	+0.07	+0.10	+0.06
Contract Untreated	All Usage	0.7573	0.8500	+0.0000	+0.0000	+0.0000	+0.0000	+0.0000

ES.7.2 Wastewater System

The wastewater rate design analysis determines rates required to achieve cost recovery, proportionately for each customer. Like the water rates, Houston Water's existing wastewater rate structure consists of two components: a volumetric rate (variable) and a monthly service charge (fixed). The volumetric component is assessed based on metered water usage per 1,000 gallons and, by design, is intended to recover the cost incurred for collecting and treating each unit of wastewater. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of wastewater service, which must be recovered independent of monthly wastewater flow.

ES.7.2.1 Monthly Meter Charge

By design, the monthly meter charge includes a customer component and a capacity component based on water meter size. The customer component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The capacity component captures a portion of the wastewater system capital costs. This component varies based on water meter size to reflect the difference in potential flow that can be discharged to the system by customers with different sized water meters. The capacity charge is then added to the customer unit cost to calculate the total monthly meter charge.

Residential, Commercial, and Industrial Customers. Table ES.12 shows the existing monthly meter charges by customer type and water meter size.

Table ES.12 Existing Wastewater Monthly Meter Charges by Customer Type

Meter Size	SFR	MFR[1]	Commercial	Industrial
5/8"	$12.37	$10.64	$10.64	$17.98
3/4"	12.37	10.64	10.64	17.98
1"	13.00	11.17	11.17	17.98
1½"	15.06	12.96	12.96	17.98
2"	15.69	13.49	13.49	17.98
3"	28.11	24.17	24.17	23.95
4"	---	27.37	27.37	27.37
6"	---	39.12	39.12	39.12
8"	---	95.00	95.00	95.00
10"	---	115.47	115.47	115.47

Notes:
(1) SFR is Single Family Residential.
(2) MFR is Multifamily Residential.
(3) Monthly meter charges for industrial customers in this table are for all industrial customers, including those who pay surcharges.

Table ES.13 summarizes the proposed monthly meter charges for September 1, 2021, which vary by water meter size, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305. Carollo recommends charging the same monthly meter charge for single family residential, multifamily residential, commercial, and industrial (with and without surcharges) customers rather than varying them by customer type.

Table ES.13 Proposed Wastewater Monthly Meter Charges and Future Adjustments

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges	*Future Adjustments*				
5/8"	$10.00	+$1.50	+$1.00	+$1.10	+$0.60	+$0.60
3/4"	10.00	+1.50	+1.00	+1.10	+0.60	+0.60
1"	12.45	+1.79	+2.15	+1.61	+0.96	+1.08
1½"	15.93	+2.23	+3.78	+2.25	+1.57	+1.49
2"	18.03	+2.47	+4.76	+2.62	+1.96	+1.70
3"	35.46	+4.60	+12.60	+5.92	+4.63	+4.03
4"	64.76	+8.16	+25.37	+11.87	+9.09	+7.97
6"	146.02	+18.05	+60.80	+28.36	+21.47	+18.89
8"	180.90	+22.29	+76.01	+35.43	+26.79	+23.58
10"	239.14	+29.38	+101.40	+47.26	+35.66	+31.40
12"	331.92	+40.65	+141.85	+66.09	+49.79	+43.87
16"	805.89	+98.31	+348.49	+162.30	+122.00	+107.56

Note:
(1) Monthly meter charges and adjustments shown are proposed for single family residential, multifamily residential, commercial, and industrial customers, including those who pay surcharges.

Industrial Surcharge and Sewer Only (Unmetered) Customers. Houston Water manages an Industrial Wastewater Program for permitted industrial customers who discharge high-strength wastewater into the system. These customers are sampled regularly and pay surcharges based on the loadings concentrations of their sampled wastewater. As part of the cost-of-service rate study, Carollo worked with Houston Water staff to identify and isolate the cost of this program and allocate it to the industrial surcharge customers. The study recommends implementation of an Industrial Program Charge, which would be added to the industrial surcharge customers' bills, in addition to the monthly service charge, to pay for the cost of the program. The recommended September 1, 2021, industrial program charge and future adjustments in Table ES.14 phase in this charge over the 5-year study period. Table ES.14 also shows proposed September 1, 2021, monthly service charges, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, for sewer only customers, which are based on customer type.

Table ES.14 Existing and Proposed Wastewater Monthly Service Charges and Future Adjustments – Industrial Customers with Surcharges and Sewer Only Customers

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges		*Future Adjustments*				
Industrial with Surcharge:							
Industrial Program	---	$100.00	+$200.00	+$200.00	+$200.00	+$200.00	+$250.00
Sewer Only:							
Single Family Res.	$30.51	$36.00	+$5.00	+$4.00	+$5.00	+$5.00	+$5.00
Duplex	64.71	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Multifamily Res.	37.85	36.00	+5.00	+4.00	+5.00	+5.00	+5.00
Commercial	71.41	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Industrial	71.39	72.00	+10.00	+8.00	+10.00	+10.00	+10.00

Note:
(1) Charges and adjustments shown for sewer only customers are monthly, but sewer only customers are billed and will continue to be billed bimonthly. The existing multifamily charge is per unit for multifamily accounts with 3 or more units. The existing commercial and industrial charges are per unit as defined in §47-1002.

ES.7.2.2 Volume Rates

Variable volume rates include a flow component, which represents the cost to collect and treat wastewater flow; a biochemical oxygen demand (BOD) component, which represents the cost to treat BOD; a total suspended solids (TSS) component, which represents the cost to treat TSS; and an ammonia component, which represents the cost to treat ammonia. These costs are allocated to the different customer types based on their contributed flows and assumed loadings (BOD, TSS, and ammonia). The allocated components are then summed and divided by the projected flow to calculate the average rate per 1,000 gallons for each customer type. The billable volume for each customer is equal to the metered water usage, with the exception of unmetered sewer only customers and those customers with effluent meters.

Single Family Residential Customers. Similar to the existing single family residential water rate structure, the existing single family residential wastewater rate structure is made up of rates that vary for each incremental 1,000 gallons for the first 6,000 gallons, increasing and decreasing as a customer's billable volume goes up. This results in large bill increases at specific usage intervals. Carollo recommends simplifying this structure to two blocks with a reduced rate per 1,000 gallons for the first 3,000 gallons and a higher rate per 1,000 gallons for all usage in excess of 3,000 gallons per month.

Table ES.15 shows the existing and proposed September 1, 2021, single family residential wastewater volume rates for the study period, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.15 Existing and Proposed Single Family Residential Wastewater Volume Rates and Future Adjustments

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Rates		*Future Adjustments*				
First 1 kgal	$0.20	$4.00	+$0.50	+$0.30	+$1.00	+$0.75	+$0.40
Next 1 kgal	0.41						
Next 1 kgal	0.33						
Next 1 kgal	17.20	10.50	+0.75	+0.25	+0.75	+0.30	+0.70
Next 1 kgal	6.22						
Over 5 kgal	9.05						

To calculate the monthly wastewater bill, customers add the appropriate monthly meter charge derived from Table ES.12 (existing charges) or Table ES.13 (proposed charges) and add the volume rate for each incremental 1,000-gallon unit derived from Table ES.15. Table ES.16 shows existing and proposed September 1, 2021, monthly wastewater bills for single family residential customers with usage up to 6,000 gallons in one month, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.16 Existing and Proposed Single Family Residential Bills and Future Adjustments – Wastewater Only

Billable Volume	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Bills		*Incremental Bill Amounts*				
Meter Charge only	$12.37	$10.00	+$1.50	+$1.00	+$1.10	+$0.60	+$0.60
1,000 gallons	12.57	14.00	+2.00	+1.30	+2.10	+1.35	+1.00
2,000 gallons	12.98	18.00	+2.50	+1.60	+3.10	+2.10	+1.40
3,000 gallons	13.31	22.00	+3.00	+1.90	+4.10	+2.85	+1.80
4,000 gallons	30.51	32.50	+3.75	+2.15	+4.85	+3.15	+2.50
5,000 gallons	36.73	43.00	+4.50	+2.40	+5.60	+3.45	+3.20
6,000 gallons	45.78	53.50	+5.25	+2.65	+6.35	+3.75	+3.90

Figure ES.6 illustrates the existing and proposed single family residential wastewater rates and bills for the first 6,000 gallons in 1,000-gallon increments. The amounts shown in this figure do not include future automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

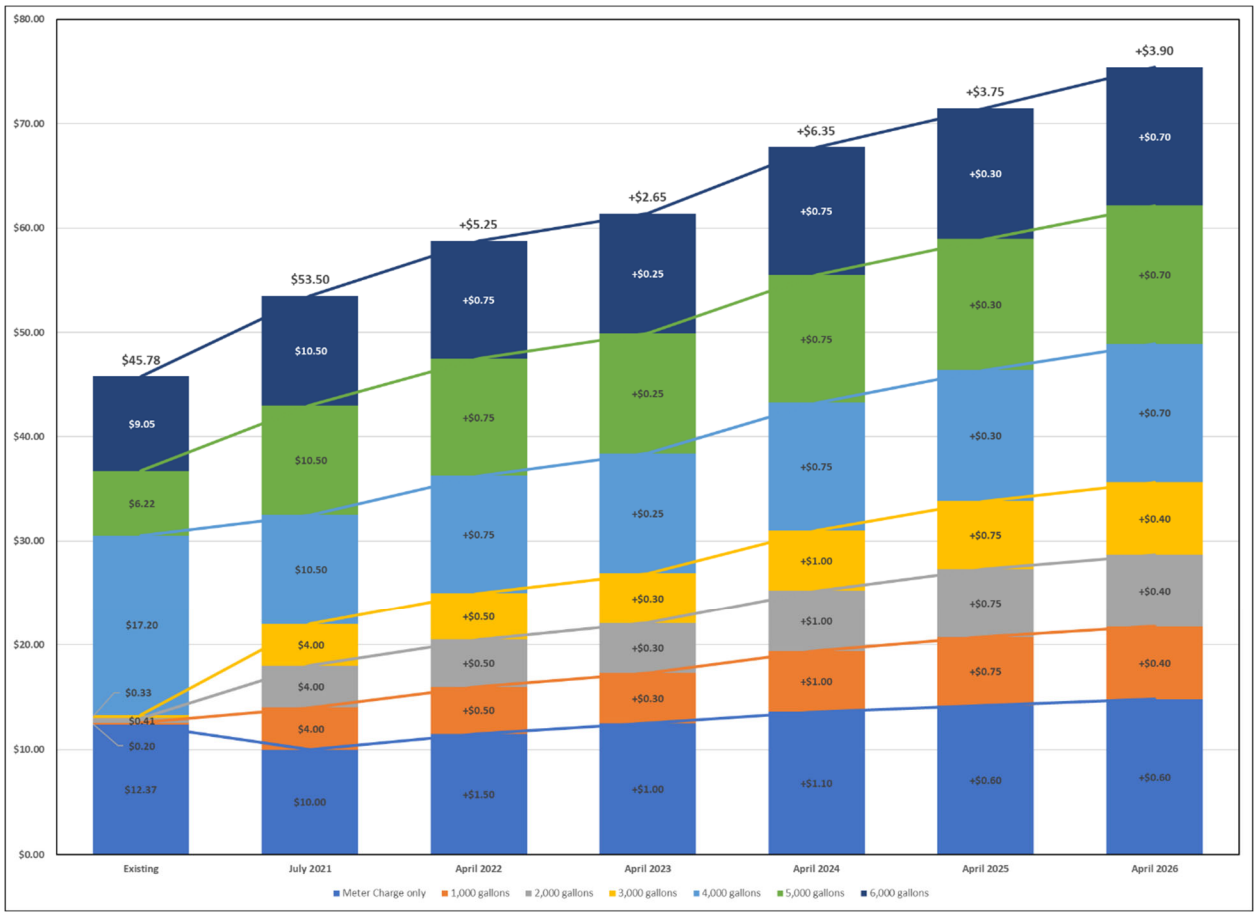


Figure ES.6 Existing and Proposed Single Family Residential Wastewater Rates and Bills

Other Retail Customer Types. With the exception of industrial customers who do not pay surcharges, all other retail customer types pay a uniform rate per 1,000 gallons for all billable volume, which varies by customer type. Non-surcharge industrial customers pay a reduced rate for the first 2,000 gallons; all usage in excess of 2,000 gallons is assessed a higher rate. Carollo recommends Houston Water continue to charge uniform rates for all retail customer types other than single family residential, including all industrial customers. Table ES.17 shows existing and proposed September 1, 2021, volume rates for all retail customer types except single family residential, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.17 Existing and Proposed Retail Wastewater Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Multifamily Residential	All Flow	+$6.76	+$7.40	+$0.66	+$0.29	+$0.90	+$0.53	+$0.60
Commercial	All Flow	6.76	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial (no surcharge)	First 2 kgal	4.16	---	---	---	---	---	---
	Over 2 kgal	7.40	---	---	---	---	---	---
	All Usage	---	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial with Surcharge	All Flow	4.90	8.00	+0.60	+0.10	+0.65	+0.25	+0.25
	BOD (1)	0.8440	0.4437	+0.0512	+0.0376	+0.0638	+0.0402	+0.0386
	TSS (1)	0.3331	0.3384	+0.0347	+0.0122	+0.0349	+0.0184	+0.0180
	Ammonia[1]	---	0.6253	+0.0549	-0.0126	+0.0351	+0.0079	-0.0080

Note:
(1) BOD, TSS, and ammonia surcharges are assessed per pound.

Carollo recommends maintaining the existing wholesale and contract customers' rate structures. There are currently three types of contract wastewater customers:

1. Customers who have contributed capital and discharge directly to the wastewater treatment plant (billed per 1,000 gallons). These customers pay a reduced rate that does not include capital costs or costs related to collecting wastewater and conveying it to the treatment plant.
2. Customers who have not contributed capital and discharge into the collection system. These customers pay the full cost of collecting and treating wastewater based on how they are billed:
    a. Billed per 1,000 gallons,
    b. Billed per connection.

In addition to these existing contract rates, Houston Water requested a fourth rate for contract customers who have contributed capital and discharge into the collection system. This rate does not include capital costs. Existing and proposed September 1, 2021, contract wastewater rates are shown in Table ES.18, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table ES.18 Existing and Proposed Wholesale Wastewater Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Capital w/o Collection System	All Flow	$1.64	$1.65	+$0.00	+$0.00	+$0.00	+$0.00	+$0.00
Capital with Collection System	All Flow	---	3.00	+0.12	+0.00	+0.05	+0.01	+0.00
No Capital w/Collection System	All Flow	6.25	6.25	+0.00	+0.15	+0.67	+0.40	+0.44
Connection-based	All Connections	8.86/24.71	25.00	+0.30	+1.42	+2.87	+1.71	+1.93

ES.7.3 Customer Bill Impacts

Figure ES.7 illustrates the impact of the recommended September 1, 2021, rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for single family residential customers with a 5/8-inch meter across various usage levels. The incremental percentage of single-family residential bills is shown between usage levels. The estimated per capita usage at each level is shown at the far right of each line. This estimate assumes 2.6 people per account.

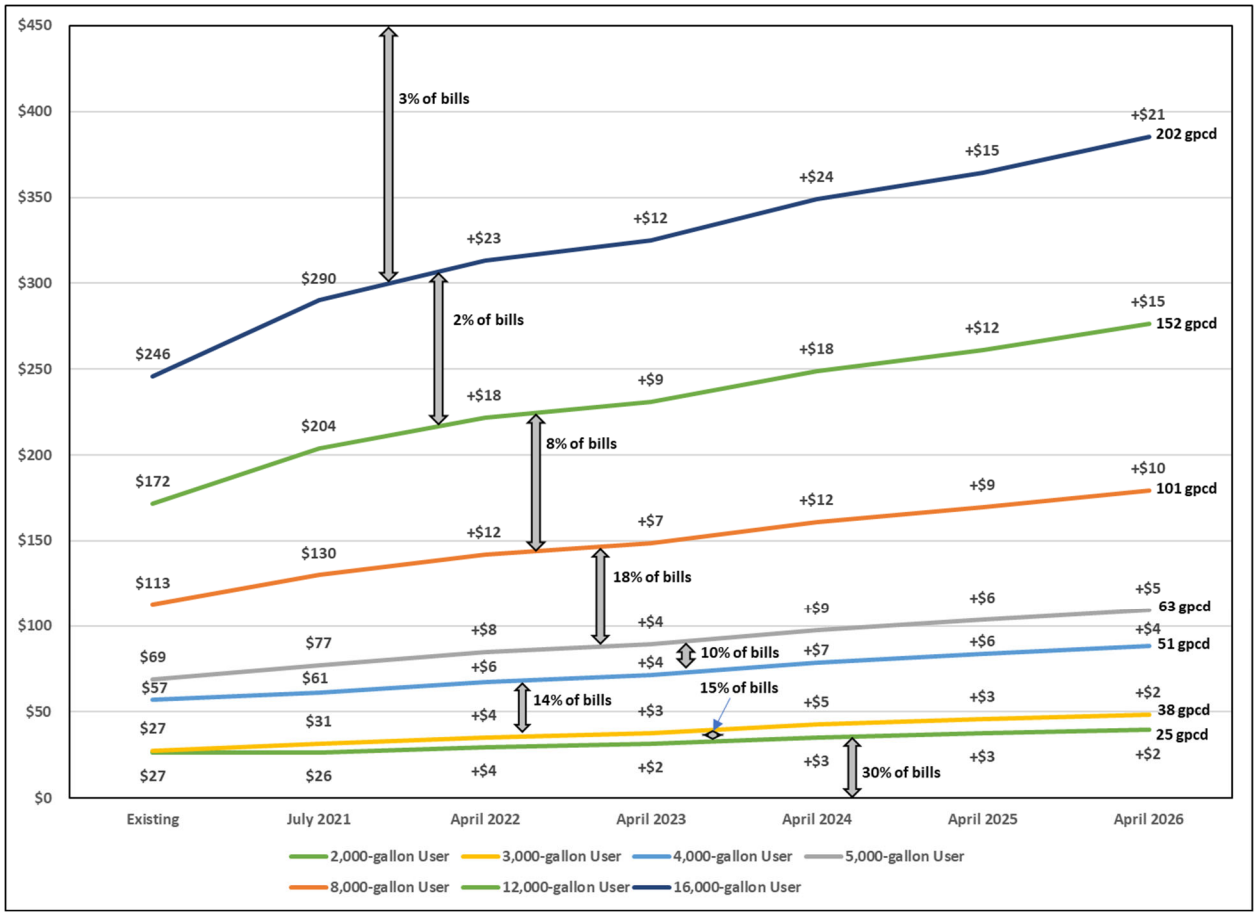


Figure ES.7 Single Family Residential Monthly Combined Bill Impact

Figure ES.8 illustrates the impact of the recommended rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for multifamily residential customers with varied meter sizes and usage levels. The incremental percentage of multifamily residential bills is shown between usage levels.

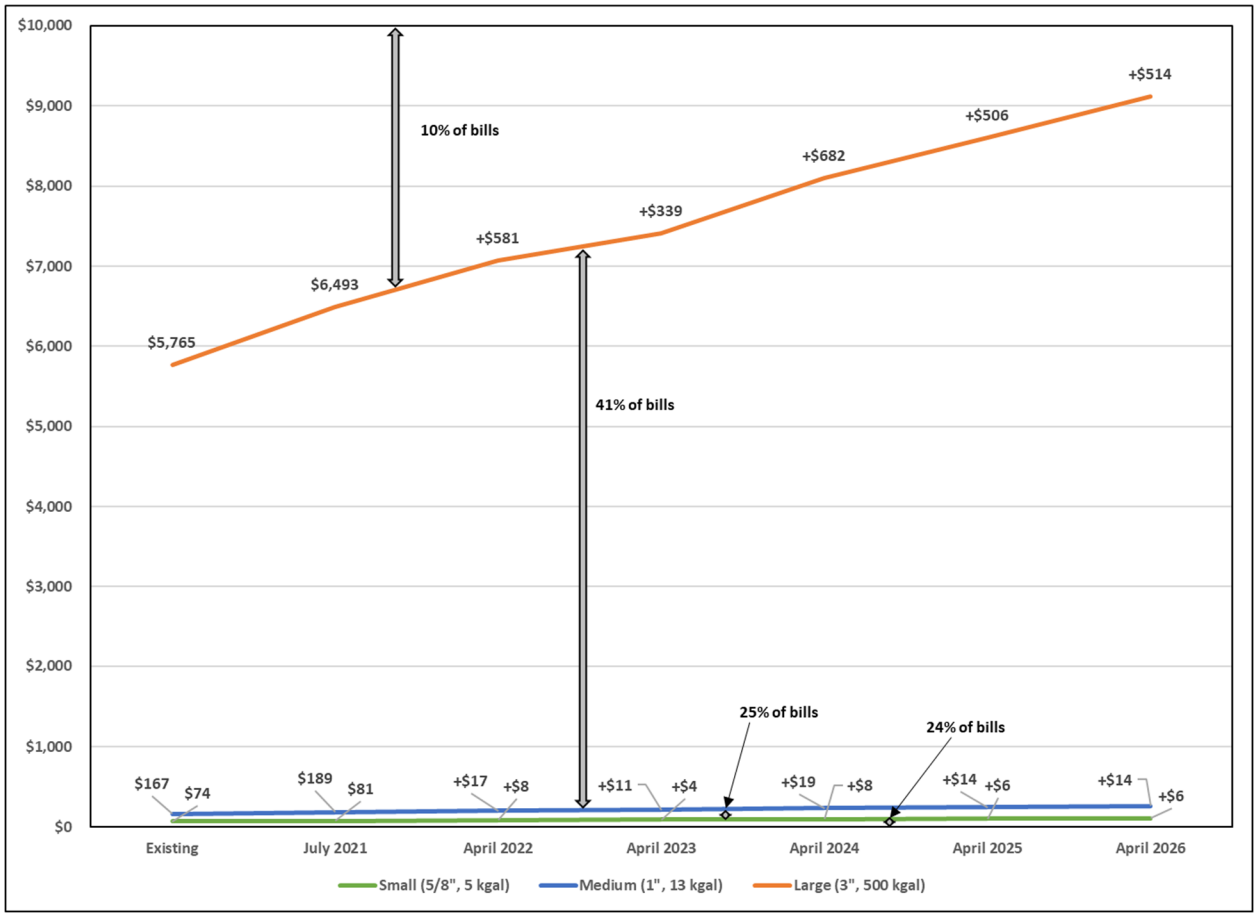


Figure ES.8 Multifamily Residential Monthly Combined Bill Impact

Figure ES.9 illustrates the impact of the recommended rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for commercial and industrial customers with varied meter sizes and usage levels. The incremental percentage of commercial and industrial bills is shown between usage levels.

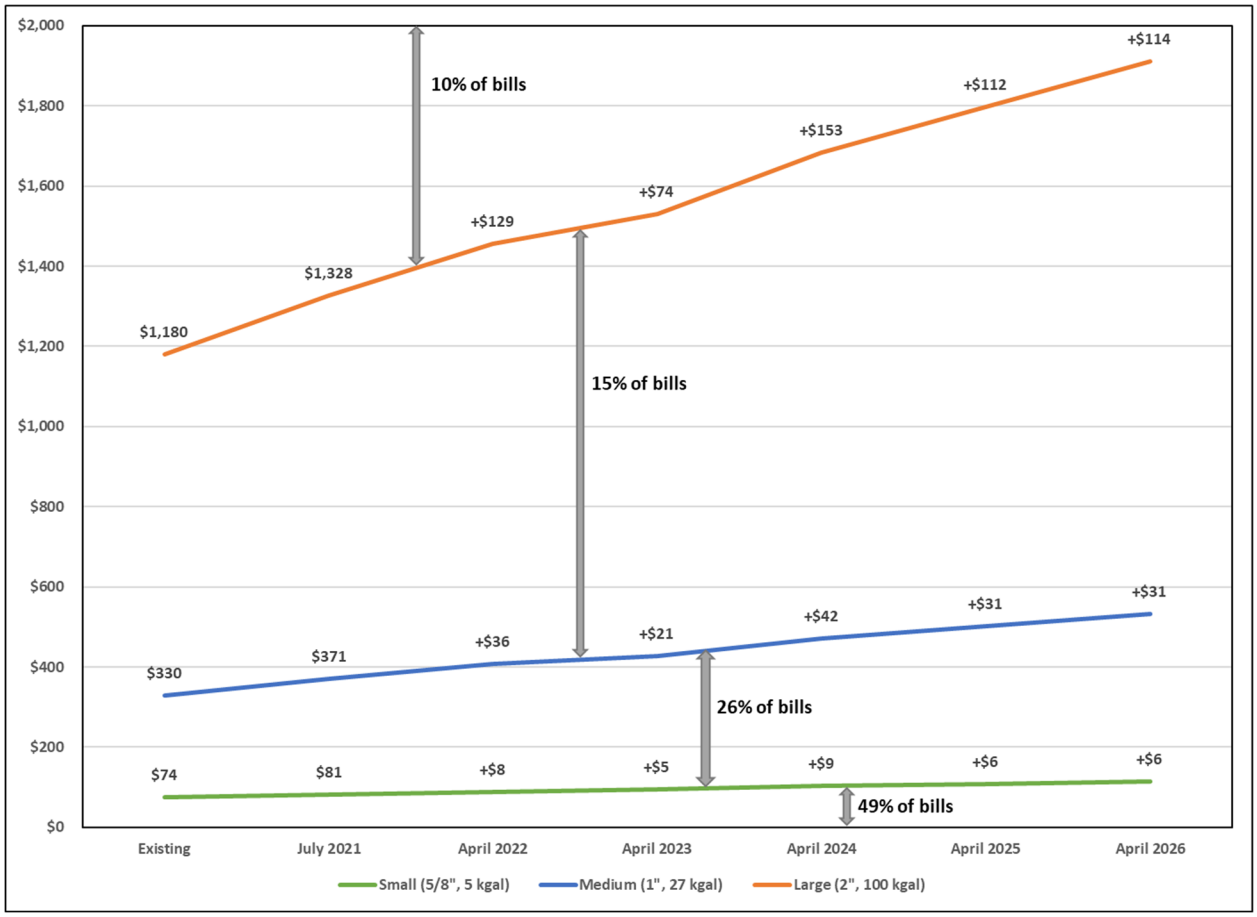


Figure ES.9 Commercial/Industrial Monthly Combined Bill Impact

Figure ES.10 illustrates the percentage of single-family residential customers with varying levels of monthly bill adjustments for the proposed rate schedule effective September 1, 2021.

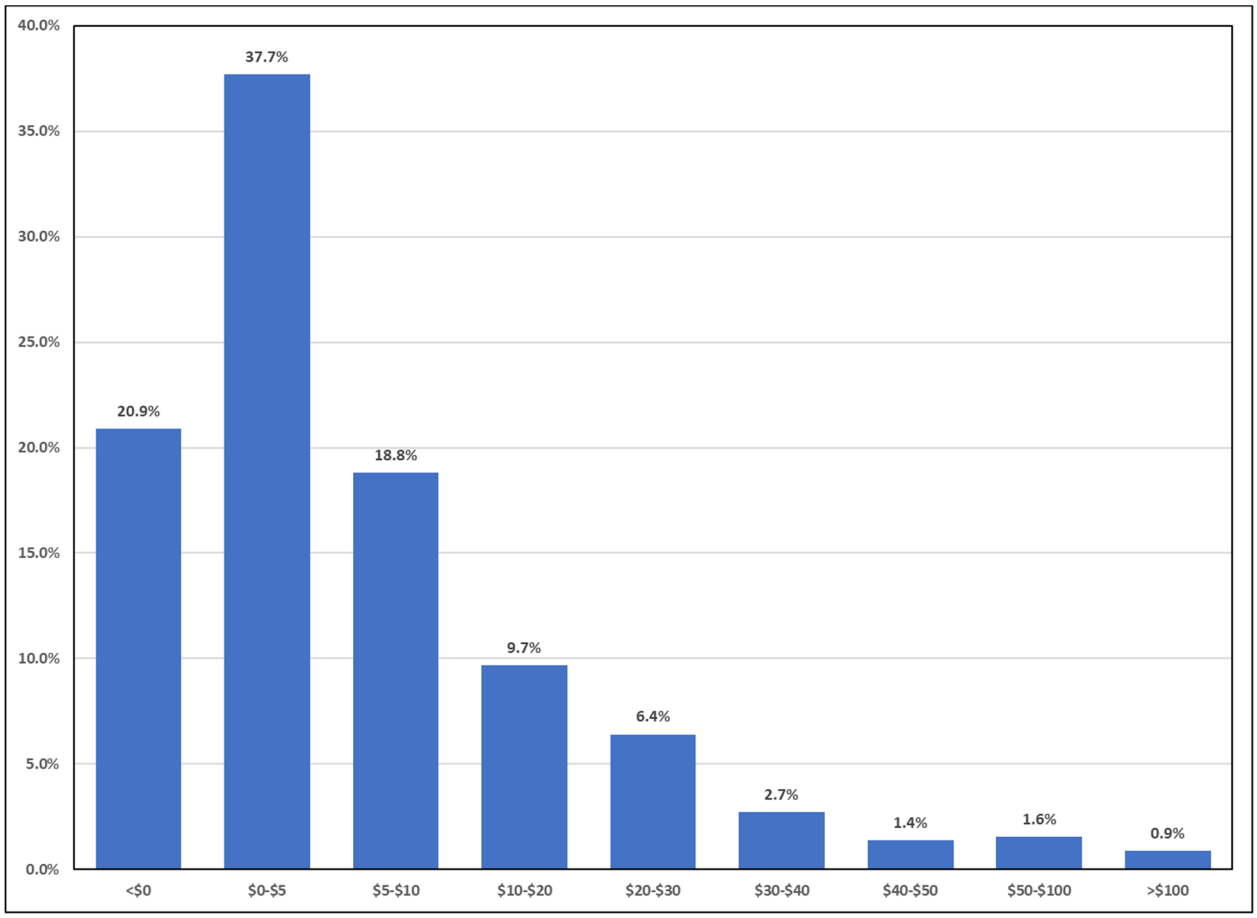


Figure ES.10 Distribution of September 2021 Monthly Combined Bill Impacts for Single Family Residential Customers

ES.8 Recommendations

Carollo recommends implementation of the September 1, 2021, water and wastewater rates and future adjustments as proposed in this Executive Summary and described below:

- Water sales revenue increases by 9.0 percent on September 1, 2021, by 7.5 percent on April 1, 2022, by 6.0 percent on April 1, 2023, and April 1, 2025, by 7.0 percent on April 1, 2024, and by 6.5 percent on April 1, 2026.
- Wastewater user charge revenue increases by 20.0 percent on September 1, 2021, by 11.0 percent on April 1, 2022, and April 1, 2024, by 6.0 percent on April 1, 2023, and April 1, 2025, and by 6.5 percent on April 1, 2026.
- Water monthly service charge based on meter size and uniform for single family residential, multifamily residential, commercial/industrial, and irrigation customers. Other customer types pay monthly service charges based on meter size that differ based on the customer type and service provided.

For single family residential customers, Carollo recommends a four-tier inclining block water rate structure with a conservation credit for customers who use 3,000 gallons or less in a month:

- Block 1 – First 6,000 gallons;
- Block 2 – Next 6,000 gallons;
- Block 3 – Next 8,000 gallons; and
- Block 4 – Over 20,000 gallons.

Figure ES.11 compares the existing and proposed volume water rate structures for single family residential customers.

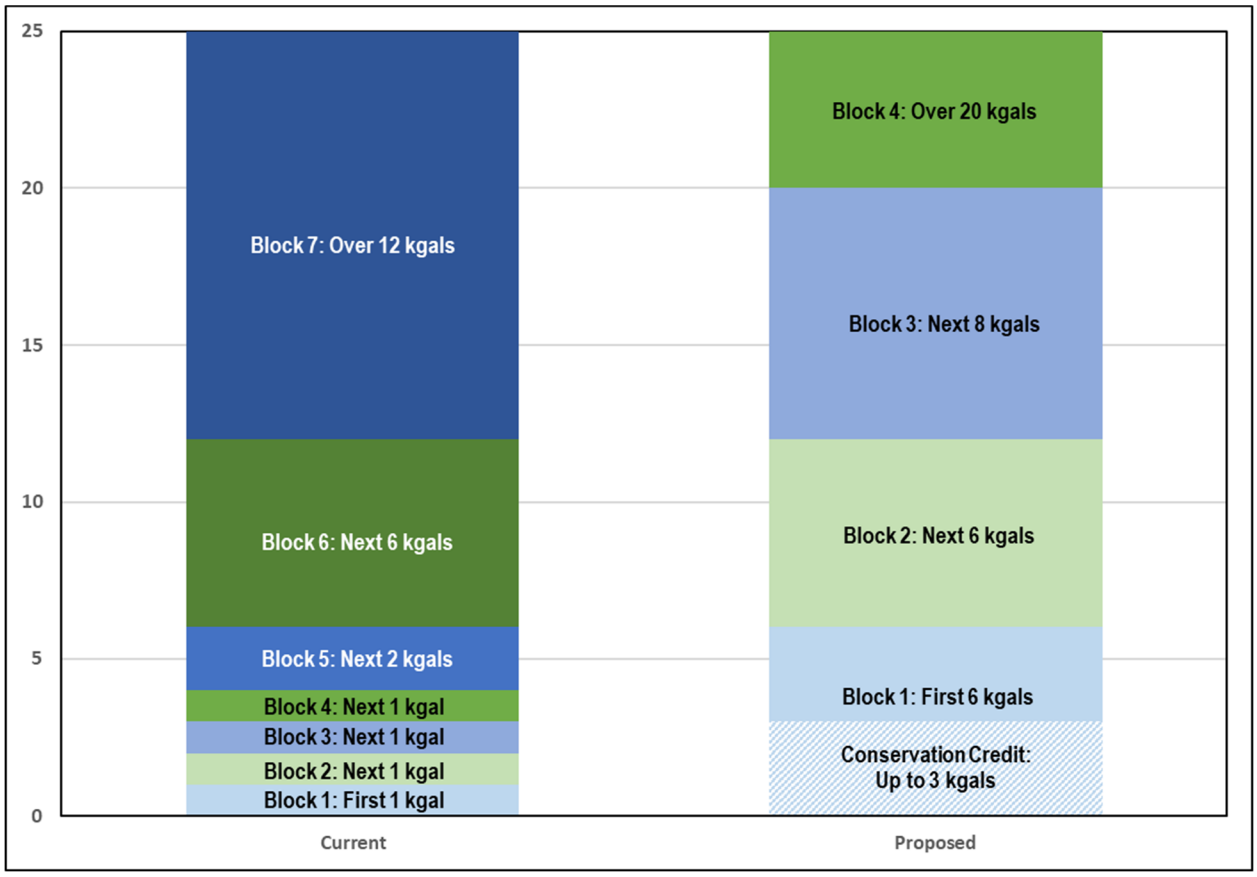


Figure ES.11 Existing and Proposed Single Family Residential Volume Water Rate Structures

For wastewater, Carollo recommends simplifying the single-family residential rate structure to two tiers:

- Block 1 – First 3,000 gallons; and
- Block 2 – Over 3,000 gallons.

Figure ES.12 compares the existing and proposed volume water rate structures for single family residential customers.

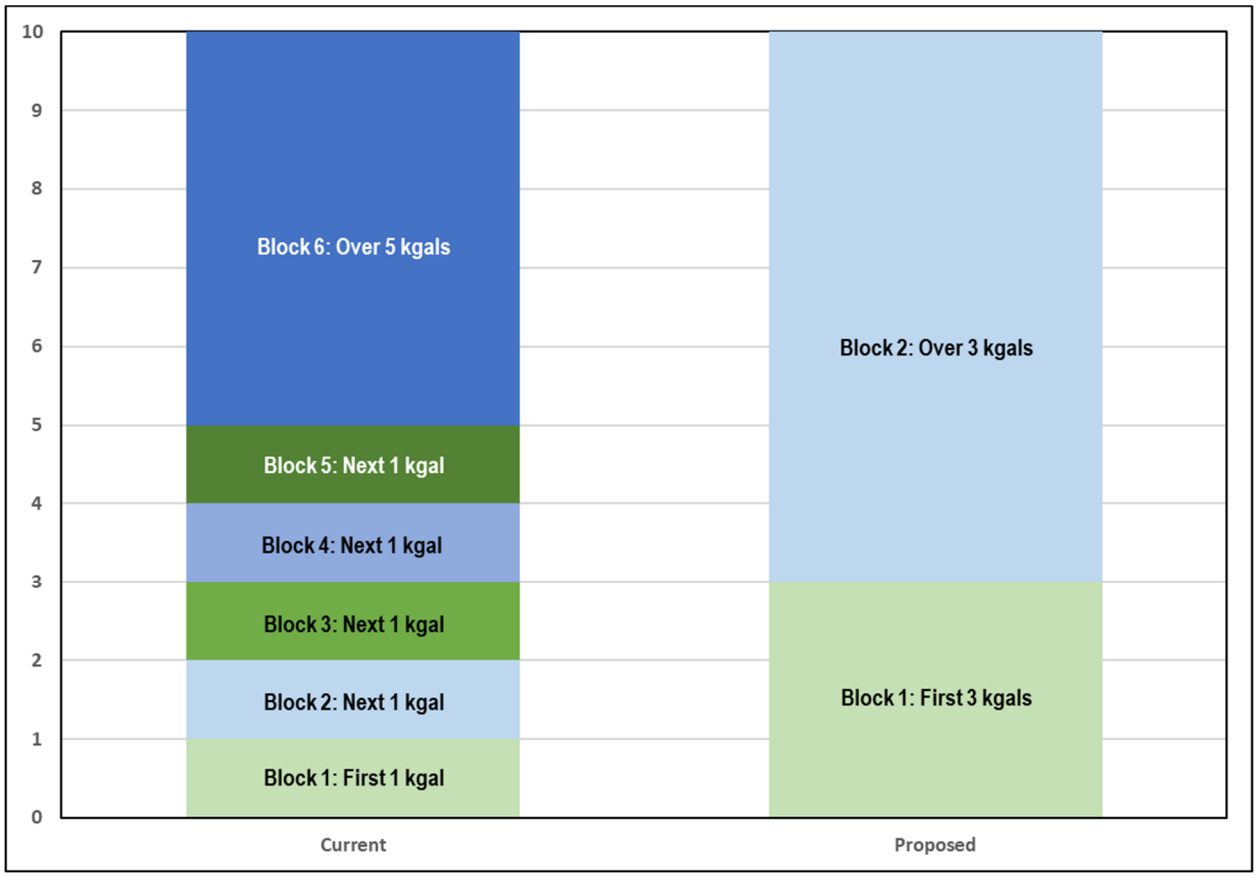


Figure ES.12 Existing and Proposed Single Family Residential Volume Wastewater Rate Structures

Carollo recommends a uniform rate per 1,000 gallons for both water and wastewater for multifamily residential and nonresidential customers.

Finally, Carollo recommends Houston Water update this cost-of-service rate study within five years to maintain revenue sufficiency and equity among customers.

Chapter 1

REVENUE REQUIREMENT ANALYSIS

1.1 Overview

The study analyzed the revenue requirements to test the fiscal health of the water and wastewater system, evaluate the adequacy of current rates and charges, and set the basis for the five-year rate plan. The adequacy of the existing rate structure can be measured by comparing revenue requirement projections against revenue projections under existing rates. If revenue projections under existing rates do not meet forecasted requirements, rates need to be adjusted.

The revenue requirement analysis covers the study period FYE 2021 through FYE 2030. However, the primary focus of this report is the five-year rate setting period, FYE 2022 through FYE 2026. Houston Water approved an automatic rate increase of 1.5 percent, which became effective on April 1, 2021.

1.1.1 Revenue Requirement Purpose and Components

The purpose of the Revenue Requirements Analysis is to determine the adequate and appropriate funding for the utility. Revenue requirements are the summation of expenses or costs for providing safe drinking water and handling wastewater to return clean water to the environment. They are determined on an annual basis, and they include:

- **Operations & Maintenance** – salaries and benefits, chemicals, power, vehicles, equipment, supplies, etc. Some costs vary by the volume of treatment such as chemicals and power, but other costs are fixed and independent of volume such as salaries and vehicles.
- **Capital Improvements** – design and construction of new and replacement infrastructure, including labor for Houston Water employees and fees for consultants and contractors that perform this work
- **Financing** – debt service payments, bond issuance costs, commercial paper fees, etc.

In addition to expenses, most debt instruments (bonds and loans) require the utility to keep a certain amount of cash in reserve dependent upon the amount of the debt. This cash reserve is restricted and cannot be used to pay for the utility's expenses. Houston Water also maintains unrestricted cash, which can be used to pay for expenses in the event of unforeseen circumstances that result in insufficient revenues or unplanned expenses.

1.1.2 Revenue Requirement Tests

The revenue requirement analysis uses two tests to evaluate Houston water's fiscal health and measure the adequacy of current rates. If revenues are not sufficient to satisfy both tests, the greater deficiency (shortfall) drives the planned revenue increase.

1.1.2.1 Debt Service Coverage Test

Many water and wastewater utilities use debt, such as revenue bonds, to fund a portion of their capital expenses. Debt financing typically comes with a coverage requirement, which refers to the collection of revenues to meet all operating expenses and debt service obligations. An additional multiple of that debt service. Debt service coverage is dictated by the utility's bond covenants and establishes a threshold above basic debt service that the agency must collect in revenues. The debt service coverage test measures the ability of a utility to meet both legal and target revenue obligations associated with debt.

To ensure that Houston Water retains financial flexibility for contingencies and is able to operate in accordance with sound business principles, the City targets higher standards than the Master Ordinance minimum DSCR requirements of 1.20x for first lien debt and 1.00x for total debt. The utility's target DSCR for first lien and junior lien combined is 1.35 x. This means Houston Water strives to generate revenue sufficient to pay all of its operating expenses and debt service on first and junior liens, plus an amount equal to 35 percent of first and junior lien debt service. When all other debt service is factored into this formula, the net revenue should be equal to at least 20 percent of the total debt service payment.

1.1.2.2 Cash Balance Test

The utility's cash balance indicates its ability to financially sustain operations during unforeseen circumstances that may restrict its revenues and/or require unplanned expenses. This is especially important for a utility like Houston Water that is vulnerable to extreme weather events. To ensure that Houston Water retains financial flexibility for contingencies and is able to operate in accordance with sound business principles, the City targets higher standards than the Master Ordinance minimum cash balance of 60 days of O&M expenses. The utility's target cash balance is 300 days of O&M expenses.

The cash balance test determines if the cash flow generated from projected revenues is sufficient to fully fund all revenue requirements, including maintaining the ending cash balance target of 300 days. Since O&M expenses are projected to increase each year, the target cash balance must also increase, which is factored into the revenue requirements.

1.2 Water System

1.2.1 Expenses

Houston Water's total revenue requirements are comprised of operating expenses and capital expenses, which are described in detail in this section. For FYE 2022, total revenue requirements are 40 percent operating and 60 percent capital. By FYE 2026, that split has shifted to 35 percent operating and 65 percent capital.

1.2.1.1 Operating Expenses

Houston Water's FYE 2021 O&M budget for the water system is organized into cost centers under three categories – (1) Drinking Water Operations, (2) Operation Services General and Administrative (G&A), and (3) Other O&M. Drinking Water Operations is approximately 71 percent of the total O&M budget, while Operation Services and Other O&M make up 7 percent and 22 percent, respectively. The study projects O&M expenses for the five-year study period using the FYE 2021 budget. The exception to this is Cost Center 40016 for the Northeast WPP Expansion. The O&M expenses for this cost center are projected based on engineering cost estimates provided by Carollo to Houston Water in a technical memorandum dated July 16, 2018. Table 1.1 summarizes the O&M budget projections by cost center.

Table 1.1 Water O&M Budget Projections ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Drinking Water Operations:						
40011 – DWO Executive Support G&A	$16.4	$16.6	$16.6	$16.7	$16.7	$16.7
40012 – DWO Regulatory / Compliance	8.0	8.1	8.1	8.1	8.1	8.1
40013 – DWO Ground Water Operations	23.7	24.0	24.0	24.0	24.0	24.0
40014 – DWO East WPP	28.7	29.1	29.1	29.1	29.1	29.1
40015 – DWO Technical Services G&A	9.8	10.0	10.0	10.0	10.0	10.0
40016 – DWO NEWPP Expansion	6.5	5.7	8.8	15.0	19.1	33.2
40017 – DWO Southeast WPP	11.9	12.1	12.1	12.1	12.1	12.1
40018 – DWO Northeast WPP	15.6	15.9	15.9	15.9	15.9	15.9
40019 – DWO System Maint – North	18.8	19.0	19.0	19.0	19.0	19.0
40020 – DWO System Maint – South	18.6	18.9	18.9	18.9	18.9	18.9
River Authority Contributed Debt Service	48.0	48.7	48.7	48.7	48.7	48.7
Total Drinking Water Operations	**$206.0**	**$208.1**	**$211.2**	**$217.4**	**$221.5**	**$235.6**
Operation Services (G&A):						
40021 – OPS Fin / Support Op Svcs G&A	$2.9	$2.9	$2.9	$2.9	$2.9	$2.9
40022 – Houston Water Planning	1.6	1.6	1.6	1.6	1.6	1.6
40023 – OPS Maint Op Svcs – Restoration	6.0	6.1	6.1	6.1	6.1	6.1
40024 – OPS Maint Op Svcs-COS/DIS	1.4	1.4	1.4	1.4	1.4	1.4
40025 – HW GIS Services	1.7	1.7	1.7	1.7	1.7	1.7
40026 – OPS Executive Support	1.3	1.3	1.3	1.3	1.3	1.3
40027 – OPS Support Services	1.1	1.1	1.1	1.1	1.1	1.1
40028 – HW Infrastructure Planning	1.1	1.1	1.1	1.1	1.1	1.1
40029 – HW Utility Analysis	2.9	3.0	3.0	3.0	3.0	3.0
Total Operation Services (G&A)	**$19.9**	**$20.2**	**$20.2**	**$20.2**	**$20.2**	**$20.2**
Other O&M:						
30001-30009 – Director's Office	$3.9	$3.9	$3.9	$3.9	$3.9	$3.9
80001 – Information Technology	9.9	10.0	10.0	10.0	10.0	10.0
90001-11 – Management Support	6.8	6.9	6.9	6.9	6.9	6.9
60005/08 – Houston Water – Planning	0.3	0.3	0.3	0.3	0.3	0.3
50002/05/06/30 – Fin Mgmt Svcs Support	24.1	24.4	24.5	24.5	24.5	24.5
100007-15, 100025 – CAS Cust Acct Svcs	24.8	25.1	25.1	25.1	25.1	25.1
Deductions	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)
Total Other O&M	**$65.4**	**$66.3**	**$66.3**	**$66.3**	**$66.4**	**$66.4**
TOTAL O&M EXPENSES	**$291.3**	**$294.7**	**$297.8**	**$304.0**	**$308.2**	**$322.2**

Note:
(1) Values are in million dollars and are rounded.

1.2.1.2 Capital Expenses

Capital expenses include debt service payments, bad debt expense, and cash-funded CIP (PAYGO).

Annual Debt Service. Debt service during the study period consists of annual payments on outstanding and proposed debt obligations and represents about 44 percent of total revenue requirements in FYE 2022, increasing to 53 percent by FYE 2026. Table 1.2 summarizes the existing and future annual debt service payments by type for FYE 2021 through FYE 2026.

Table 1.2 Water Annual Debt Service ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Existing Debt Service:						
Junior Lien	$9.9	$6.8	$7.7	$8.4	$8.0	$8.0
First Lien	217.8	230.0	229.5	228.8	229.2	226.8
Subordinate Lien	28.9	30.9	31.6	32.3	33.3	34.4
Commercial Paper	5.7	6.6	7.7	6.7	7.7	7.2
Existing Debt Service	**$262.4**	**$274.3**	**$276.5**	**$276.2**	**$278.1**	**$276.4**
Future Debt Service:						
First Lien – NEWPP	$0.0	$0.0	$13.3	$22.8	$22.8	$22.8
First Lien – Other	13.2	46.4	82.7	110.7	143.5	183.7
Future Debt Service	**$13.2**	**$46.4**	**$96.0**	**$133.6**	**$166.4**	**$206.6**
DEBT SERVICE (2)	**$275.6**	**$320.7**	**$372.5**	**$409.7**	**$444.4**	**$483.0**

Notes:
(1) Values are in million dollars and are rounded.
(2) For the purposes of this table, debt service calculations do not include pension obligations, discretionary debt service, and other obligations.

From Section 1.1.2.1 Houston Water's target debt service coverage ratio is 1.35 times the annual debt service payment for junior and first liens. This means there must be $1.35 in net revenue (revenue less operating expenses) available for every $1.00 of junior and first lien debt service outstanding for the year in which coverage is being measured.

Capital Improvement Plan. Houston Water's CIP for the five-year period FYE 2022 through FYE 2026 totals $3.3 billion for the water system. Of this, $1.4 billion (44 percent) is planned for annual infrastructure investment from the 2020 Needs Assessment, $438 million (13 percent) is planned for the Northeast WPP Expansion, and the remaining is allocated to various other water capital improvements. Table 1.3 summarizes Houston Water's CIP for the water system for the period FYE 2021 through FYE 2026.

Table 1.3 Water Capital Improvement Plan Summary ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Active CIP – NEWPP	$2.6	$81.4	$0.0	$0.0	$0.0	$0.0
Active CIP – Other [2]	154.6	165.6	126.9	89.9	61.4	27.1
Incremental CIP – NEWPP	0.0	0.0	0.0	79.7	159.4	117.2
Incremental CIP – Drinking Water	37.1	134.7	123.0	65.0	260.1	327.8
Incremental CIP – Customer Account Svcs	4.9	3.1	3.1	3.1	3.1	3.2
Annual Infrastructure Investment Needs	284.3	288.5	288.5	288.5	288.5	288.5
Total Water CIP	**$483.4**	**$673.3**	**$541.6**	**$526.2**	**$772.6**	**$763.8**

Notes:
(1) Values are in million dollars and are rounded.
(2) Active CIP projects that were included as recommendations from the 2020 Needs Assessment have been removed and included with Annual Infrastructure Investment Needs.

The CIP funding plan is outlined in Table 1.4. Houston Water uses a mix of financing to pay for capital projects, including commercial paper, revenue bonds, and cash. The annual debt service payments and PAYGO are funded from rate revenue, impact fee revenue, and unrestricted cash. Houston Water has historically set PAYGO at $70 million per year, or approximately 20 percent of the annual CIP, for the combined water and wastewater utility. For this study, PAYGO is assumed to be 20 percent of the CIP up to $200 million per year. Carollo recommends this cap based on discussions with Houston Water staff and analysis of PAYGO amounts to minimize the required revenue increases.

Table 1.4 Water Capital Improvement Plan Funding ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Construction Fund	$50.2	$50.2	$0.0	$0.0	$0.0	$0.0
PAYGO (Cash)	0.0	106.0	89.2	91.6	106.3	94.8
Debt – Commercial Paper	198.5	198.7	167.2	171.8	199.3	177.7
Debt – First Lien [2]	234.7	318.4	678.9	183.1	307.6	374.2
Total Water CIP	**$483.4**	**$673.3**	**$935.3**	**$446.5**	**$613.2**	**$646.7**

Notes:
(1) Values are in million dollars and are rounded.
(2) NEWPP construction cost will be financed entirely with FYE 2023 debt, including $37.5 million in FYE 2027.

The FYE 2021 budgeted expenses and projected expenses for the water system for FYE 2022 through FYE 2026 are included in Appendix A.

1.2.2 Revenues

Operating revenues for Houston Water's water system are primarily derived from rates and charges for treated and untreated water service, which are the focus of this report. Other operating revenues include penalties and fees for miscellaneous services, which were updated as part of this study in a separate report.

Non-operating revenues include impact fees, sales of assets, facility rental fees, and permitting fees. Impact fee revenue is estimated based on the proposed impact fee implementation schedule, shown in Table 1.5 Interest income on investments is based on projected 1.0 percent interest earned on the cash balance.

Table 1.5 Proposed Water Impact Fees

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Percent of Calculated Impact Fee (1)	12.2%	25.0%	25.6%	31.5%	32.3%	38.6%
Water Impact Fee	$790.55	$1,618.11	$1,658.56	$2,040.03	$2,091.03	$2,500.52

Note:
(1) FYE 2021 impact fee is based on 2010 calculated impact fee of $3,835.44. FYE 2022 through FYE 2026 impact fees are based on 2021 calculated impact fee of $6,472.42.

Table 1.6 summarizes projected annual water revenue for the study period before proposed revenue increases (rate adjustments).

Table 1.6 Projected Annual Water Revenue Before Revenue Increases ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Revenue:						
Water Sales (2)	$601.0	$607.7	$607.7	$607.7	$607.7	$607.7
Water Service Penalties	5.5	5.6	5.6	5.6	5.6	5.6
Other Non-rate Operating Revenue	1.3	1.4	1.4	1.4	1.4	1.4
Total Operating Revenue	**$607.9**	**$614.6**	**$614.6**	**$614.6**	**$614.6**	**$614.6**
Non-operating Revenue:						
Impact Fee Revenue (3)	$9.9	$20.6	$21.4	$26.7	$27.7	$33.6
Non-rate Non-operating Revenue	8.3	8.4	8.4	8.4	8.4	8.4
Interest	5.7	5.2	3.9	2.3	0.2	0.0
Total Non-operating Revenue	**$23.9**	**$34.2**	**$33.8**	**$37.4**	**$36.4**	**$42.0**
TOTAL REVENUE	**$631.8**	**$648.9**	**$648.4**	**$652.0**	**$651.0**	**$656.7**

Notes:
(1) Values are in million dollars and are rounded.
(2) Water sales revenue shown is projected using existing rates effective April 1, 2021.
(3) Impact fee revenue shown is projected using recommended impact fee implementation schedule from Table 1.5.

The FYE 2021 budgeted revenues and projected revenues for the water system for FYE 2022 through FYE 2026 are included in Appendix A.

1.2.3 Cash Balance

The cash balance represents the funds available for daily operations of the Combined Utility System. Houston Water targets a cash balance of 300 days of O&M expenses or approximately $265 million for the water system by FYE 2026. Total cash available, including cash reserve requirements, at the beginning of FYE 2021 totals an estimated $1.0 billion, with 50 percent allocated to the water system for the purpose of this analysis. Table 1.7 shows projected total cash without proposed revenue increases for the water system for the period FYE 2021 through FYE 2026.

Table 1.7 Projected Water Cash Balance Before Revenue Increases ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Beginning Cash Balance (July 1)	**$505.4**	**$517.9**	**$392.9**	**$229.3**	**$23.4**	**($237.0)**
Additions:						
Total Revenues	631.8	648.9	648.4	652.0	651.0	656.7
Deductions:						
Operations and Maintenance	291.3	294.7	297.8	304.0	308.2	322.2
Stormwater Fund O&M	21.3	21.3	21.3	21.5	21.3	21.1
Stormwater Fund Debt Service	8.1	8.1	8.1	7.9	8.1	8.3
TRA/Lake Livingston Dam Debt	1.8	1.8	1.8	1.8	1.8	1.8
Luce Bayou Debt	4.3	4.8	5.5	6.3	7.3	8.4
NEWPP Debt	0.0	0.0	13.3	22.8	22.8	22.8
Debt Service	263.8	307.4	344.1	372.2	404.8	442.7
Commercial Paper	5.7	6.6	7.7	6.7	7.7	7.2
Bad Debt	12.0	12.2	12.2	12.2	12.2	12.2
Capital Rollovers	11.0	11.0	11.0	11.0	11.0	11.0
PAYGO	0.0	106.0	89.2	91.6	106.3	94.8
Ending Cash Balance (June 30)	**$517.9**	**$392.9**	**$229.3**	**$23.4**	**($237.0)**	**($532.9)**

Note:
(1) Values are in million dollars and are rounded.

1.2.4 Revenue Requirement Tests before Revenue Increases

1.2.4.1 Debt Service Coverage Test

Without revenue increases, the water system is not projected to meet its target debt service coverage ratios in any year of the study period FYE 2022 through FYE 2026. The debt service coverage test requires that Houston Water revenues exceed operating expenses, junior and first lien debt service, and an additional 35 percent of annual debt service for junior and first liens. Revenues must also exceed operating expenses, total debt service, and an additional 20 percent of total annual debt service. This analysis focused on coverage for junior and first liens because it was determined that the target coverage for total debt is met if the coverage for junior and first liens is at least 1.35x. The results of the debt service coverage test are summarized in Table 1.8.

Table 1.8 Water Debt Service Coverage Test Before Revenue Increases ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues (2) *(a)*	$619.8	$636.7	$636.2	$639.9	$638.9	$644.5
Adjustments (3) *(b)*	24.9	23.9	23.8	22.6	22.6	20.1
Operating Expenses *(c)*	291.3	294.7	297.8	304.0	308.2	322.2
Debt Service (4) *(d)*	240.9	283.2	333.2	370.8	403.5	441.4
Debt Service Coverage (5) *(e)*	84.3	99.1	116.6	129.8	141.2	154.5
Total Coverage Expenses *(f = c + d + e)*	616.5	677.0	747.6	804.6	852.8	918.1
Bond Coverage Surplus / (Deficit) *(a + b – f)*	**$28.2**	**($16.4)**	**($87.5)**	**($142.1)**	**($191.3)**	**($253.5)**

Notes:
(1) Values are in million dollars and are rounded.
(2) Allowable revenues include operating and non-operating revenues, including impact fee revenue, less bad debt.
(3) Adjustments add total capital equipment (8305), total service (8305), PIB debt service, Wallisville and Allen's Creek debt service, pension debt service, and CWA debt service, less a deduction of allocated recovery.
(4) Debt service payment includes junior and first liens.
(5) Debt service coverage is calculated as 0.35 times debt service, which is what is needed to achieve 1.35x DSCR.

1.2.4.2 Cash Balance Test

The cash balance test also shows that revenue increases are needed. Beginning in FYE 2023, the ending cash balance for the water system drops below the target of 300 days of O&M expenses. The results of the cash balance test are summarized in Table 1.9.

Table 1.9 Water Cash Balance Test Before Revenue Increases ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) (2) *(a)*	$517.9	$392.9	$229.3	$23.4	($237.0)	($532.9)
Annual O&M Expense (3) *(b)*	291.3	294.7	297.8	304.0	308.2	322.2
Target Cash Balance (4) *(c = b * 300 / 365)*	239.4	242.2	244.8	249.8	253.3	264.9
Above / (Below) Target *(a – c)*	**$278.5**	**$150.7**	**($15.5)**	**($226.4)**	**($490.3)**	**($797.8)**
Minimum Cash Balance (5) *(d = b * 60 / 365)*	47.9	48.4	49.0	50.0	50.7	53.0
Above / (Below) Minimum *(a – d)*	**$470.0**	**$344.5**	**$180.3**	**($26.5)**	**($287.7)**	**($585.9)**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.7.
(3) From Table 1.1.
(4) Calculated as 300 days of annual O&M expense.
(5) Calculated as 60 days of annual O&M expense.

1.2.5 Recommended Revenue Increases

The debt service coverage test and cash balance test both show that revenue increases are necessary to meet the minimum coverage and minimum cash balance for the study period while respecting the target coverage and target cash balance to ensure adherence to sound business principles. As a result, Carollo recommends Houston Water increase water rate revenue according to the following schedule:

September 1, 2021	9.0 percent	April 1, 2024	7.0 percent
April 1, 2022	7.5 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	6.5 percent

Table 1.10 provides the projected water revenue requirements, which will be allocated to the customer types in Chapter 2 and used to design rates in Chapter 3. The water revenue requirements are presented in detail in Appendix C.

Table 1.10 Projected Water Revenue Requirements ($ millions) [1]

Description	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Costs [2]	$294.7	$297.8	$304.0	$308.2	$322.2
Capital Costs [3]	438.8	475.9	516.5	566.9	594.9
Total Revenue Requirement	**$733.5**	**$773.7**	**$820.4**	**$875.0**	**$917.1**
Revenue Requirement Adjustments:					
Water Service Penalties [4]	(5.6)	(6.5)	(6.9)	(7.4)	(7.9)
Other Water Operating Revenue (Non-rate) [4]	(1.4)	(1.4)	(1.4)	(1.4)	(1.4)
Impact Fee Revenue [4]	(20.6)	(21.4)	(26.7)	(27.7)	(33.6)
Non-operating Water Revenue (Non-rate) [4]	(8.4)	(8.4)	(8.4)	(8.4)	(8.4)
Interest	(5.2)	(4.5)	(4.0)	(3.6)	(3.1)
Additions / (Subtractions) from Cash Balance	19.8	23.4	34.6	29.5	49.0
Rate Revenue Requirement	**$712.1**	**$754.8**	**$807.6**	**$856.1**	**$911.7**
Pre-Increase Rate Revenues	$607.7	$712.1	$754.8	$807.6	$856.1
September 1 Revenue Adjustment (full year)	$54.7	$0.0	$0.0	$0.0	$0.0
SEPTEMBER 1 REVENUE ADJUSTMENT	**9.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
April 1 Revenue Adjustment (full year)	$49.7	$42.7	$52.8	$48.5	$55.6
APRIL 1 REVENUE ADJUSTMENT	**7.5%**	**6.0%**	**7.0%**	**6.0%**	**6.5%**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.1.
(3) Includes debt service from Table 1.2, bad debt from Table 1.7, and PAYGO from Table 1.4.
(4) From Table 1.6.

1.3 Wastewater System

1.3.1 Expenses

Houston Water's total revenue requirements are comprised of operating expenses and capital expenses. For FYE 2022, total revenue requirements are 39 percent operating and 61 percent capital. By FYE 2026, that split has shifted to 31 percent operating and 69 percent capital.

1.3.1.1 Operating Expenses

Houston Water's FYE 2021 O&M budget for the wastewater system is organized into cost centers under three categories – (1) Wastewater Operations, (2) Operation Services (G&A), and (3) Other O&M. Wastewater Operations is approximately 70 percent of the total O&M budget, while Operation Services and Other O&M make up 7 percent and 23 percent, respectively. Carollo projected O&M expenses for the five-year study period using the FYE 2021 budget. Table 1.11 summarizes the O&M budget projections by cost center.

Table 1.11 Wastewater O&M Budget Projections ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Wastewater Operations:						
40001 – WWO Executive Support G&A	$6.3	$6.3	$6.4	$6.4	$6.4	$6.4
40002 – WWO Coll System Analysis	4.3	4.4	4.4	4.4	4.4	4.4
40003 – WWO Collection System Repairs	14.2	14.5	14.5	14.5	14.5	14.5
40004 – WWO Regulatory / Compliance	10.0	10.2	10.2	10.2	10.2	10.2
40005 – WWO Technical Services G&A	17.1	17.3	17.3	17.3	17.3	17.3
40006 – WWO Plant Operations	53.7	54.5	54.5	54.5	54.5	54.5
40007 – WWO Electrical & Automation	9.9	10.0	10.0	10.0	10.0	10.0
40008 – WWO Construction Mgmt	5.2	5.3	5.3	5.3	5.3	5.3
40009 – WWO Contract Management	26.0	26.4	26.4	26.4	26.4	26.4
40010 – WWO Mechanical Management	21.0	21.4	21.4	21.4	21.4	21.4
40022 – WWO Maint Operation Svcs	0.0	0.0	0.0	0.0	0.0	0.0
40031 – WWO EPA Compliance	34.0	34.5	34.5	34.5	34.5	34.5
Total Wastewater Operations	**$201.7**	**$204.7**	**$204.7**	**$204.7**	**$204.7**	**$204.7**
Operation Services (G&A):						
40021 – OPS Fin / Support Op Svcs G&A	$2.8	$2.9	$2.9	$2.9	$2.9	$2.9
40022 – Houston Water Planning	1.6	1.6	1.6	1.6	1.6	1.6
40023 – OPS Maint Op Svcs – Restoration	5.9	6.0	6.0	6.0	6.0	6.0
40024 – OPS Maint Op Svcs-COS/DIS	1.4	1.4	1.4	1.4	1.4	1.4
40025 – HW GIS Services	1.7	1.7	1.7	1.7	1.7	1.7
40026 – OPS Executive Support	1.3	1.3	1.3	1.3	1.3	1.3
40027 – OPS Support Services	1.1	1.1	1.1	1.1	1.1	1.1
40028 – HW Infrastructure Planning	1.1	1.1	1.1	1.1	1.1	1.1
40029 – HW Utility Analysis	2.9	3.0	3.0	3.0	3.0	3.0
Total Operation Services (G&A)	**$19.8**	**$20.1**	**$20.1**	**$20.1**	**$20.1**	**$20.1**
Other O&M:						
30001-30009 – Director's Office	$3.9	$3.9	$3.9	$3.9	$3.9	$3.9
80001 – Information Technology	9.8	9.9	9.9	9.9	9.9	9.9
90001-11 – Management Support	6.7	6.8	6.8	6.8	6.8	6.8
60005/08 – Houston Water – Planning	0.3	0.3	0.3	0.3	0.3	0.3
50002/05/06/30 – Fin Mgmt Svcs Support	23.9	24.3	24.3	24.3	24.3	24.3
100007-15, 100025 – CAS Cust Acct Svcs	24.6	25.0	25.0	25.0	25.0	25.0
Deductions	(4.2)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)
Total Other O&M	**$64.9**	**$65.8**	**$65.8**	**$65.8**	**$65.9**	**$65.9**
TOTAL O&M EXPENSES	**$286.3**	**$290.6**	**$290.6**	**$290.6**	**$290.7**	**$290.7**

Note:
(1) Values are in million dollars and are rounded.

1.3.1.2 Capital Expenses

Capital expenses include debt service payments, bad debt expense, and cash-funded CIP (PAYGO).

Annual Debt Service. Debt service during the study period consists of annual payments on outstanding and proposed debt obligations and represents about 47 percent of total revenue requirements in FYE 2022, increasing to 56 percent by FYE 2026. Table 1.12 summarizes the existing and future annual debt service payments by type for FYE 2021 through FYE 2026.

Table 1.12 Wastewater Annual Debt Service ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Existing Debt Service:						
Junior Lien	$12.5	$8.6	$9.7	$10.6	$10.0	$10.1
First Lien	277.3	292.6	292.1	291.2	291.6	288.6
Commercial Paper	5.3	6.0	5.8	8.6	8.5	8.9
Existing Debt Service	**$295.1**	**$307.3**	**$307.6**	**$310.3**	**$310.1**	**$307.6**
Future Debt Service:						
First Lien – Other	$11.4	$40.5	$78.3	$116.7	$170.0	$225.2
Future Debt Service	**$11.4**	**$40.5**	**$78.3**	**$116.7**	**$170.0**	**$225.2**
DEBT SERVICE (2)	**$306.5**	**$347.8**	**$385.9**	**$427.0**	**$480.1**	**$532.8**

Notes:
(1) Values are in million dollars and are rounded.
(2) For the purposes of this table, debt service calculations do not include pension obligations, discretionary debt service, and other obligations.

From Section 1.1.2.1 Houston Water's target debt service coverage ratio is 1.35 times the annual debt service payment for junior and first liens. This means there must be $1.35 in net revenue (revenue less operating expenses) available for every $1.00 of junior and first lien debt service outstanding for the year in which coverage is being measured.

Capital Improvement Plan. Houston Water's CIP for the five-year period FYE 2022 through FYE 2026 totals $3.4 billion for the wastewater system. Of this, $2.0 billion (59 percent) is planned for annual infrastructure investment from the 2020 Needs Assessment, $674 million (20 percent) is planned for consolidation projects, and the remaining is allocated to various other wastewater capital improvements. The Needs Assessment includes capital projects required for Houston Water to comply with the Environmental Protection Agency (EPA) Consent Decree. The Court signed an Order on March 31, 2021, approving the Consent Decree as lodged on August 27, 2019.

Table 1.13 summarizes Houston Water's CIP for the wastewater system for the period FYE 2021 through FYE 2026.

Table 1.13 Wastewater Capital Improvement Plan Summary ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Active CIP(2)	$23.3	$44.1	$57.5	$97.4	$94.4	$53.5
Consolidation CIP	0.0	54.7	105.6	30.3	112.8	370.9
Incremental CIP	8.5	94.5	106.0	91.0	70.0	20.0
Annual Infrastructure Investment Needs	397.9	403.9	403.9	403.9	403.9	403.9
Total Wastewater CIP	**$429.7**	**$597.1**	**$673.0**	**$622.6**	**$681.0**	**$848.3**

Notes:
(1) Values are in million dollars and are rounded.
(2) Active CIP projects that were included as recommendations from the 2020 Needs Assessment have been removed and included with Annual Infrastructure Investment Needs.

The CIP funding plan is outlined in Table 1.14. Houston Water uses a mix of financing to pay for capital projects, including commercial paper, revenue bonds, and cash. The annual debt service payments and PAYGO are funded from rate revenue, impact fee revenue, and cash. Houston Water has historically set PAYGO at $70 million per year for the combined water and wastewater utility. For this study, PAYGO is increased to 20 percent of the CIP up to $200 million per year. Carollo recommends this cap based on discussions with Houston Water staff and analysis of PAYGO amounts to minimize the required revenue increases.

Table 1.14 Wastewater Capital Improvement Plan Funding ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Construction Fund	$49.8	$49.8	$0.0	$0.0	$0.0	$0.0
PAYGO (Cash)	0.0	94.0	110.8	108.4	93.7	105.2
Debt – Commercial Paper	176.5	176.3	207.8	203.2	0.0	0.0
Debt – First Lien	203.4	277.1	354.4	311.0	587.3	743.1
Total Wastewater CIP	**$429.7**	**$597.1**	**$673.0**	**$622.6**	**$681.0**	**$848.3**

Note:
(1) Values are in million dollars and are rounded.

The FYE 2021 budgeted expenses and projected expenses for the wastewater system for FYE 2022 through FYE 2026 are included in Appendix B.

1.3.2 Revenues

Operating revenues for Houston Water's wastewater system are primarily derived from rates and charges for wastewater service, which are the focus of this report. Other operating revenues include penalties and fees for miscellaneous services, which were updated as part of this study in a separate report.

Non-operating revenues include impact fees, sales of assets, facility rental fees, and permitting fees. Impact fee revenue is estimated based on the proposed impact fee implementation schedule, shown in Table 1.15. Interest income on investments is based on projected 1.0 percent interest earned on the cash balance.

Table 1.15 Proposed Wastewater Impact Fees ($ millions)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Percent of Calculated Impact Fee (1)	25.9%	35.0%	35.9%	36.8%	37.7%	38.6%
Wastewater Impact Fee	$1,199.11	$1,621.63	$1,662.17	$1,703.73	$1,746.32	$1,789.98

Note:
(1) FYE 2021 impact fee is based on 2010 calculated impact fee of $3,427.07. FYE 2022 through FYE 2026 impact fees are based on 2021 calculated impact fee of $4,633.24.

Table 1.16 summarizes projected annual wastewater revenue for the study period before proposed revenue increases (rate adjustments).

Table 1.16 Projected Annual Wastewater Revenue Before Revenue Increases ($ millions) (1)

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Revenue:						
Wastewater User Charges (2)	$517.7	$523.4	$523.4	$523.4	$523.4	$523.4
Sewer Service Penalties	5.5	5.6	5.6	5.6	5.6	5.6
Other Non-rate Operating Revenue	1.5	1.5	1.5	1.5	1.5	1.5
Total Operating Revenue	**$524.6**	**$530.5**	**$530.5**	**$530.5**	**$530.5**	**$530.5**
Non-operating Revenue:						
Impact Fee Revenue (3)	$15.1	$20.6	$21.2	$22.0	$22.7	$23.5
Non-rate Non-operating Revenue	6.5	6.6	6.6	6.6	6.6	6.6
Interest	5.6	4.1	1.9	0.0	0.0	0.0
Total Non-operating Revenue	**$27.2**	**$31.3**	**$29.7**	**$28.5**	**$29.3**	**$30.1**
TOTAL REVENUE	**$551.8**	**$561.7**	**$560.2**	**$559.0**	**$559.8**	**$560.5**

Notes:
(1) Values are in million dollars and are rounded.
(2) Wastewater user charge revenue shown is projected using existing rates effective April 1, 2021.
(3) Impact fee revenue shown is projected using recommended impact fee implementation schedule from Table 1.15.

The FYE 2021 budgeted revenues and projected revenues for the wastewater system for FYE 2022 through FYE 2026 are included in Appendix B.

1.3.3 Cash Balance

The cash balance represents the funds available for daily operations of the Combined Utility System. Houston Water targets a cash balance of 300 days of O&M expenses or approximately $239 million for the wastewater system by FYE 2026. Total cash available at the beginning of FYE 2021 totals an estimated $1.0 billion, with 50 percent allocated to the wastewater system for the purpose of this analysis. Table 1.17 shows the projection of cash balances for the wastewater system for the period FYE 2021 through FYE 2026.

Table 1.17 Projected Wastewater Cash Balance Before Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Beginning Cash Balance (July 1)	**$505.4**	**$413.6**	**$192.1**	**($85.9)**	**($403.8)**	**($759.4)**
Additions:						
Total Revenues	551.8	561.7	560.2	559.0	559.8	560.5
Deductions:						
Operations and Maintenance	286.3	290.6	290.6	290.6	290.7	290.7
Stormwater Fund O&M	21.3	21.3	21.3	21.5	21.3	21.1
Stormwater Fund Debt Service	8.1	8.1	8.1	7.9	8.1	8.3
Debt Service	301.3	341.8	380.1	418.5	471.6	523.9
Commercial Paper	5.3	6.0	5.8	8.6	8.5	8.9
Bad Debt	10.3	10.5	10.5	10.5	10.5	10.5
Capital Rollovers	11.0	11.0	11.0	11.0	11.0	11.0
PAYGO	0.0	94.0	110.8	108.4	93.7	105.2
Ending Cash Balance (June 30)	**$413.6**	**$192.1**	**($85.9)**	**($403.8)**	**($759.4)**	**($1,178.5)**

Note:
(1) Values are in million dollars and are rounded.

1.3.4 Revenue Requirement Tests before Revenue Increases

1.3.4.1 Debt Service Coverage Test

Without revenue increases, the wastewater system is not projected to meet its target debt service coverage ratios in any year of the study period FYE 2022 through FYE 2026. The debt service coverage test requires that Houston Water revenues exceed operating expenses, junior and first lien debt service, and an additional 35 percent of annual debt service for junior and first liens. Revenues must also exceed operating expenses, total debt service, and an additional 20 percent of total annual debt service. This analysis focused on coverage for junior and first liens because it was determined that the target coverage for total debt is met if the coverage for junior and first liens is at least 1.35x. The results of the debt service coverage test are summarized in Table 1.18.

Table 1.18 Wastewater Debt Service Coverage Test Before Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues [2] *(a)*	$541.5	$551.3	$549.8	$548.6	$549.3	$550.1
Adjustments [3] *(b)*	45.5	46.1	46.1	46.2	46.2	46.2
Operating Expenses *(c)*	286.3	290.6	290.6	290.6	290.7	290.7
Debt Service [4] *(d)*	301.3	341.8	380.1	418.5	471.6	523.9
Debt Service Coverage [5] *(e)*	105.4	119.6	133.0	146.5	165.1	183.4
Total Coverage Expenses *(f = c + d + e)*	693.0	752.0	803.7	855.6	927.3	998.0
Bond Coverage Surplus / (Deficit) *(a + b – f)*	**($106.1)**	**($154.6)**	**($207.8)**	**($260.8)**	**($331.8)**	**($401.7)**

Notes:
(1) Values are in million dollars and are rounded.
(2) Allowable revenues include operating and non-operating revenues, including impact fee revenue, less bad debt.
(3) Adjustments add total capital equipment (8305), total service (8305), pension debt service, and EPA consent decree expenses reimbursed by Fund 8305, less a deduction of allocated recovery.
(4) Debt service payment includes junior and first liens.
(5) Debt service coverage is calculated as 0.35 times debt service, which is what is needed to achieve 1.35x DSCR.

1.3.4.2 Cash Balance Test

The cash balance test also shows that revenue increases are needed. In all years of the five-year study period, the ending cash balance for the wastewater system drops below the target of 300 days of O&M expenses. The results of the cash balance test are summarized in Table 1.19.

Table 1.19 Wastewater Cash Balance Test Before Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) [2] *(a)*	$413.6	$192.1	($85.9)	($403.8)	($759.4)	($1,178.5)
Annual O&M Expense [3] *(b)*	286.3	290.6	290.6	290.6	290.7	290.7
Target Cash Balance [4] *(c = b * 300 / 365)*	235.3	238.8	238.9	238.9	238.9	238.9
Above / (Below) Target *(a – c)*	**$178.3**	**($46.7)**	**($324.8)**	**($642.7)**	**($998.3)**	**($1,417.4)**
Minimum Cash Balance [5] *(d = b * 60 / 365)*	47.1	47.8	47.8	47.8	47.8	47.8
Above / (Below) Minimum *(a – d)*	**$366.6**	**$144.4**	**($133.7)**	**($451.6)**	**($807.1)**	**($1,226.2)**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.17.
(3) From Table 1.11.
(4) Calculated as 300 days of annual O&M expense.
(5) Calculated as 60 days of annual O&M expense.

1.3.5 Recommended Revenue Increases

The debt service coverage test and cash balance test both show that revenue increases are necessary to meet the minimum coverage and minimum cash balance for the study period while respecting the target coverage and target cash balance to ensure adherence to sound business principles. As a result, Carollo recommends Houston Water increase wastewater rate revenue according to the following schedule:

September 1, 2021	20.0 percent	April 1, 2024	11.0 percent
April 1, 2022	11.0 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	6.5 percent

Table 1.20 provides the projected wastewater revenue requirements, which will be allocated to the customer types in Chapter 2 and used to design rates in Chapter 3. The wastewater revenue requirements are presented in detail in Appendix D.

Table 1.20 Projected Wastewater Revenue Requirements ($ millions) (1)

Description	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Costs (2)	$290.6	$290.6	$290.6	$290.7	$290.7
Capital Costs (3)	452.3	510.7	550.2	590.2	655.5
Total Revenue Requirement	**$742.9**	**$801.3**	**$840.8**	**$880.8**	**$946.1**
Revenue Requirement Adjustments:					
Sewer Service Penalties (4)	(5.6)	(7.4)	(7.9)	(8.7)	(9.3)
Other Wastewater Op Revenue (Non-rate) (4)	(1.5)	(1.5)	(1.5)	(1.5)	(1.5)
Impact Fee Revenue (4)	(20.6)	(21.2)	(22.0)	(22.7)	(23.5)
Non-op Wastewater Revenue (Non-rate) (4)	(6.6)	(6.6)	(6.6)	(6.6)	(6.6)
Interest	(4.1)	(3.0)	(2.0)	(1.2)	(0.7)
Additions / (Subtractions) from Cash Balance	(7.3)	(22.6)	19.4	29.4	21.5
Rate Revenue Requirement	**$697.2**	**$739.0**	**$820.3**	**$869.5**	**$926.0**
Pre-Increase Rate Revenues	$523.4	$697.2	$739.0	$820.3	$869.5
September 1 Revenue Adjustment (full year)	$104.7	$0.0	$0.0	$0.0	$0.0
SEPT 1 REVENUE ADJUSTMENT	**20.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
April 1 Revenue Adjustment (full year)	$69.1	$41.8	$81.3	$49.2	$56.5
APRIL 1 REVENUE ADJUSTMENT	**11.0%**	**6.0%**	**11.0%**	**6.0%**	**6.5%**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.11.
(3) Includes debt service from Table 1.12, bad debt from Table 1.17, and PAYGO from Table 1.14.
(4) From Table 1.16.

1.4 Combined Utility System

Although the study analyzed the water and wastewater systems separately, Houston Water's financial performance is measured as a combined utility. The two primary indicators of the utility's financial health are the DSCR and the number of days of O&M expenses that can be supported by the cash balance. The revenue requirements for the combined utility system are presented in detail in Appendix E.

1.4.1 Revenue Requirement Tests before Revenue Increases

1.4.1.1 Debt Service Coverage Test

As with the separate water and wastewater utilities, the combined utility system is not projected to meet the target debt service coverage ratios in any year of the study period FYE 2022 through FYE 2026 without revenue increases. The results of the debt service coverage test for the combined utility are summarized in Table 1.21.

Table 1.21 Combined Utility System Debt Service Coverage Test Before Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues [2] *(a)*	$1,161.3	$1,188.0	$1,186.0	$1,188.4	$1,188.2	$1,194.6
Adjustments [3] *(b)*	70.3	70.0	70.0	68.8	68.8	66.3
Operating Expenses *(c)*	577.6	585.2	588.4	594.6	598.8	612.9
Debt Service [4] *(d)*	542.2	625.0	713.3	789.3	875.0	965.3
Debt Service Coverage [5] *(e)*	189.8	218.7	249.6	276.2	306.3	337.8
Total Coverage Expenses *(f = c + d + e)*	1,309.5	1,428.9	1,551.3	1,660.1	1,780.1	1,916.1
Bond Coverage Surplus / (Deficit) *(a + b – f)*	**($77.9)**	**($171.0)**	**($295.3)**	**($402.9)**	**($523.1)**	**($655.1)**
Debt Service Coverage Ratio [(a + b – c) / d]	**1.21 x**	**1.08 x**	**0.94 x**	**0.84 x**	**0.75 x**	**0.67 x**

Notes:
(1) Values are in million dollars and are rounded.
(2) Allowable revenues include operating and non-operating revenues, including impact fee revenue, less bad debt.
(3) Adjustments add total capital equipment (8305), total service (8305), PIB debt service, Wallisville and Allen's Creek debt service, pension debt service, CWA debt service, and EPA consent decree expenses reimbursed by Fund 8305, less a deduction of allocated recovery.
(4) Debt service payment includes junior and first liens.
(5) Debt service coverage is calculated as 0.35 times debt service, which is what is needed to achieve 1.35x DSCR.

1.4.1.2 Cash Balance Test

The cash balance test also shows that revenue increases are needed. In FYE 2023, the ending cash balance for the combined utility system drops below the target of 300 days of O&M expenses, and beginning in FYE 2024, the projected ending cash balance is negative. The results of the cash balance test are summarized in Table 1.22.

Table 1.22 Combined Utility System Cash Balance Test Before Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) [2] *(a)*	$931.6	$585.0	$143.4	($380.4)	($996.4)	($1,711.4)
Annual O&M Expense [3] *(b)*	577.6	585.2	588.4	594.6	598.8	612.9
Target Cash Balance [4] *(c = b * 300 / 365)*	474.7	481.0	483.6	488.7	492.2	503.8
Above / (Below) Target *(a – c)*	**$456.8**	**$104.0**	**($340.2)**	**($869.1)**	**($1,488.5)**	**($2,215.1)**
Minimum Cash Balance [5] *(d = b * 60 / 365)*	94.9	96.2	96.7	97.7	98.4	100.8
Above / (Below) Minimum *(a – d)*	**$836.6**	**$488.8**	**$46.7**	**($478.1)**	**($1,094.8)**	**($1,812.1)**
Ending Days of O&M (a * 365 / b)	**589**	**365**	**89**	**(233)**	**(607)**	**(1,019)**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.7 and Table 1.17.
(3) From Table 1.21.
(4) Calculated as 300 days of annual O&M expense.
(5) Calculated as 60 days of annual O&M expense.

1.4.2 Revenue Requirement Tests with Revenue Increases

1.4.2.1 Debt Service Coverage Test

With the revenue increases recommended in Section 1.2.5 and Section 1.3.5 the Combined Utility System exceeds the minimum DSCR and achieves the target DSCR in all years. The results of the debt service coverage test with revenues adjusted to include the recommended revenue increases are shown in Table 1.23.

Table 1.23 Combined Utility System Debt Service Coverage Test with Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues [2] *(a)*	$1,161.3	$1,349.4	$1,484.8	$1,585.8	$1,709.7	$1,815.9
Adjustments [3] *(b)*	70.3	70.0	70.0	68.8	68.8	66.3
Operating Expenses *(c)*	577.6	585.2	588.4	594.6	598.8	612.9
Debt Service [4] *(d)*	542.2	625.0	713.3	789.3	875.0	965.3
Debt Service Coverage [5] *(e)*	189.8	218.7	249.6	276.2	306.3	337.8
Total Coverage Expenses *(f = c + d + e)*	1,309.5	1,428.9	1,551.3	1,660.1	1,780.1	1,916.1
Bond Coverage Surplus / (Deficit) (a + b – f)	**($77.9)**	**($9.5)**	**$3.4**	**($5.5)**	**($1.6)**	**($33.9)**
Debt Service Coverage Ratio [(a + b – c) / d]	**1.21 x**	**1.33 x**	**1.35 x**	**1.34 x**	**1.35 x**	**1.31 x**

Notes:
(1) Values are in million dollars and are rounded.
(2) Allowable revenues include operating and non-operating revenues, including impact fee revenue, less bad debt.
(3) Adjustments add total capital equipment (8305), total service (8305), PIB debt service, Wallisville and Allen's Creek debt service, pension debt service, CWA debt service, and EPA consent decree expenses reimbursed by Fund 8305, less a deduction of allocated recovery.
(4) Debt service payment includes junior and first liens.
(5) Debt service coverage is calculated as 0.35 times debt service, which is what is needed to achieve 1.35x DSCR.

Figure 1.1 shows the DSCR from FYE 2019. DSCRs for FYE 2022 through FYE 2026 are projected with and without the recommended revenue increases, as shown in Table 1.21 and Table 1.23. These projections do not include inflationary cost increases or revenue associated with the annual automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

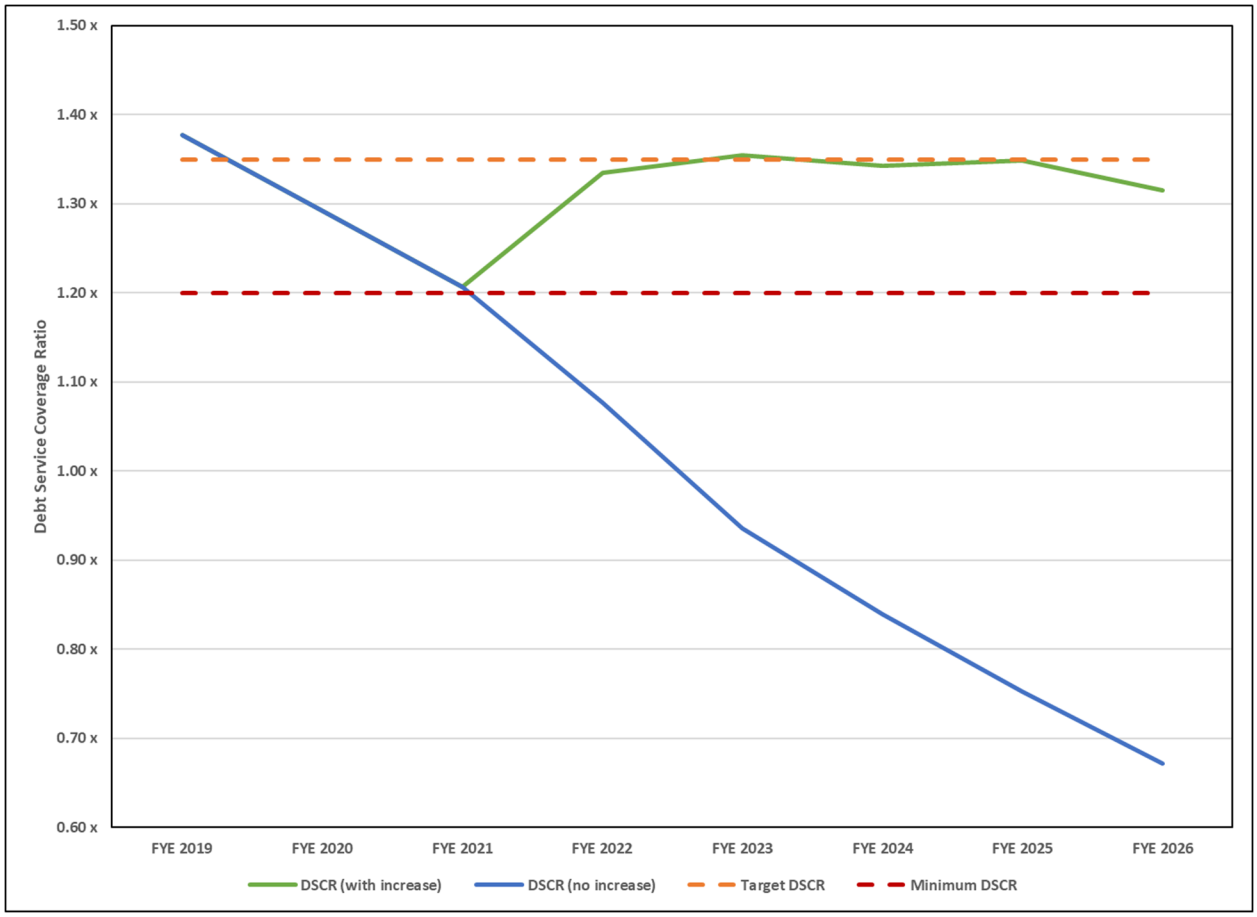


Figure 1.1 Projected Debt Service Coverage Ratio

1.4.2.2 Cash Balance Test

With the revenue increases recommended in Section 1.2.5 and Section 1.3.5 the Combined Utility System meets or exceeds the target cash balance in all five years. The results of the cash balance test with revenues adjusted to include the recommended revenue increases are shown in Table 1.24.

Table 1.24 Combined Utility System Cash Balance Test with Revenue Increases ($ millions) [1]

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) *(a)*	$931.6	$746.5	$603.6	$477.2	$382.8	$289.1
Annual O&M Expense [2] *(b)*	577.6	585.2	588.4	594.6	598.8	612.9
Target Cash Balance [3] *(c = b * 300 / 365)*	474.7	481.0	483.6	488.7	492.2	503.8
Above / (Below) Target *(a – c)*	**$456.8**	**$265.5**	**$120.0**	**($11.5)**	**($109.4)**	**($214.7)**
Minimum Cash Balance [4] *(d = b * 60 / 365)*	94.9	96.2	96.7	97.7	98.4	100.8
Above / (Below) Minimum *(a – d)*	**$836.6**	**$650.3**	**$506.9**	**$379.5**	**$284.3**	**$188.3**
Ending Days of O&M (a * 365 / b)	**589**	**466**	**374**	**293**	**233**	**172**

Notes:
(1) Values are in million dollars and are rounded.
(2) From Table 1.21.
(3) Calculated as 300 days of annual O&M expense.
(4) Calculated as 60 days of annual O&M expense.

Figure 1.2 shows the year-end cash balance from FYE 2019. Year-end balances for FYE 2022 through FYE 2026 are projected with and without the recommended revenue increases, as shown in Table 1.22 and Table 1.24. These projections do not include inflationary cost increases or revenue associated with the annual automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.



Figure 1.2 Projected Cash Balance (Days of O&M)

Chapter 2

COST OF SERVICE ANALYSIS

2.1 Cost of Service Approach

The cost-of-service analysis employs a tailored allocation of costs with a three-step approach, shown in Figure 2.1. Based on the revenue requirement analysis outlined in Chapter 1, the functional allocation designates each budget item to a set of functional categories specific to Houston Water, which are then translated into the appropriate cost components based on the operation and/or design of each function. The functional categories and their associated costs are allocated to the customer types based on each customer type's unique account, meter, and water demand or wastewater discharge characteristics. A customer type consists of users that commonly create or share responsibility for certain costs incurred by the utility, which is determined by customer data to combine similar groups of customers.

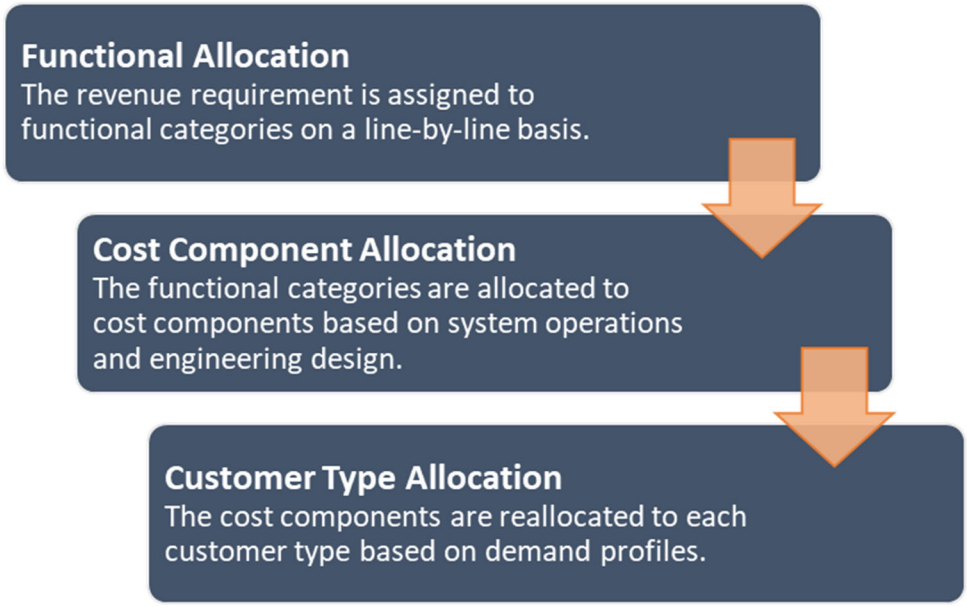


Figure 2.1 Three-step Cost Allocation Approach

The study evaluated the existing customer types for Houston Water and determined them to be appropriate based upon customer demand and discharge characteristics. Details of the customer account and demand analysis are provided in Appendix F. The rate design process establishes a rate structure that proportionately recovers costs from customer types and customers within each customer type. The final rate structure and rate recommendations are designed to (1) fund the utility's projected costs of providing service, (2) consider affordability of customers' bills, and (3) provide a reasonable balance of revenue stability while encouraging conservation. The rate design will be further detailed in the next chapter of this report.

2.2 Water System

The water system cost-of-service analysis is consistent with the AWWA *M1 Manual Principles of Water Rates, Fees and Charges, Seventh Edition*, standard methods to allocate the revenue requirements among the various customer types based on their usage characteristics.

The M1 Manual outlines the most widely used method for allocation of functionalized costs to cost components, the Base-Extra Capacity Method. The Base-Extra Capacity Method allocates costs among: (1) a base category to provide baseline water service or average day demand; (2) an extra capacity category to provide peak demand service, often split into maximum day and maximum hour components; (3) a customer category to provide services that do not vary with water usage, such as customer service and billing; and (4) direct fire protection.

The Base-Extra Capacity Method recognizes that cost-of-service "depends not only on the total volume of water used, but also on the rate of use, or peak demand requirements." Costs incurred by Houston Water are not incurred uniformly, or simply based on the total volume of water used. The cost-of-service changes based on when water is used. This methodology accounts for this by including an extra capacity category to recover costs associated with capacity that is not used consistently and that impacts operating costs and capital asset related costs to accommodate peak flows.

The following sections discuss how costs are allocated to the system's functions, cost components, and customer types using the Base-Extra Capacity Method.

2.2.1 Functional Cost Allocation

2.2.1.1 Functional Cost Categories

The functional cost allocation assigns the revenue requirement for the test year by major function. The study developed a list of functions specific to the water system. Each functional component is allocated to specific cost components, which can easily be assigned to rates. The water functional components used for Houston Water are:

Supply – Untreated: Costs associated with raw and/or recycled water to be used for non-potable purposes.

Supply – Treated: Costs associated with raw water to be treated and sold as potable drinking water.

Pumping: Costs associated with pumping treated water.

Transmission: Costs associated with conveyance of treated water through large-diameter transmission mains.

Production – EWPP: Costs associated with production of treated water at the East WPP.

Production – NEWPP: Costs associated with production of treated water at the Northeast WPP.

Production – NEWPP Expansion: Costs associated with production of treated water at the Northeast WPP Expansion.

Production – SEWPP: Costs associated with production of treated water at the Southeast WPP.

Production – Other: Costs associated with production of treated water from groundwater wells.

Storage: Costs associated with storage of treated water to provide adequate system pressure and meet maximum hour demands.

Distribution System: Costs associated with delivering treated water to customers through small-diameter distribution lines.

Meters: Costs associated with water meters, including meter reading, routine maintenance, and regular replacement.

Fire Protection: Infrastructure and costs associated with providing fire protection services throughout the system.

Customer Billing: Costs associated with calculating, preparing, and sending a customer's bill, as well as costs associated with customer service.

Administration: Costs associated with management and administration of the utility.

Water Authority Overhead – EWPP: Overhead costs related to providing service to the water authorities receiving treated water from the East WPP.

Water Authority Overhead – NEWPP: Overhead costs related to providing service to the water authorities receiving treated water from the Northeast WPP.

Co-participant Overhead – SEWPP: Overhead costs related to providing service to the Southeast WPP co-participants.

TCEQ Fees: Annual fees charged to Houston Water by the Texas Commission on Environmental Quality (TCEQ) based on the number of water system connections.

General: Costs associated with other treatment and administrative services that do not fit any of the other categories. Examples include GIS services, IT, finance, electrical and mechanical equipment, lands not associated with a specific asset, etc.

Houston Water's budget was analyzed line by line. Details of how the O&M, debt service, and other expenses were distributed among functional categories are shown in the following sections.

2.2.1.2 Cost Components

Houston Water's cost components are used to allocate costs between the monthly meter charges and the volumetric rates. The volumetric components include raw water, base, and extra capacity (maximum day and maximum hour). The customer-related cost components (meter charges, fire protection, billing and collecting, and TCEQ fees) are the basis of the monthly meter charges and monthly TCEQ fees. Finally, there are cost components to allocate costs directly to the East WPP water authorities, the Northeast WPP water authorities, and the Southeast WPP co-participants through their volumetric O&M rates and overhead rates.

The following describes each of the water cost components for Houston Water:

Raw Water: Operating costs associated with delivering raw or recycled water to Contract – Untreated customers.

Base: Operating and capital costs incurred by the water system to provide a basic level of service to each customer. These costs include treatment, distribution, pumping, and storage, up to a level that meets the water system's baseline (average day) demands throughout the year.

Extra Capacity: Costs incurred to meet maximum day and maximum hour demands for water in excess of base demand. This cost includes capital costs related to oversizing the system to meet excess demand.

System peaking factors are used to determine the appropriate allocations to the Extra Capacity cost components. For this study, the maximum day peaking factor is 1.36, and the maximum hour peaking factor is 2.04. This means that the maximum day demand is assumed to be 1.36 times the average day demand, and the maximum hour demand is assumed to be 2.04 times the average day demand (or 1.50 times the maximum day demand).

Meter Charges: Costs associated with customer meters and the associated capacity that is required to meet the demand put on the system by each meter. These costs are included in the monthly meter charge based on the meter's hydraulic capacity.

Billing and Collecting: Costs related to operational support activities including accounting, billing, and customer service. These costs are common to all customers and are reasonably uniform across the different customer types.

Fire Protection: Costs associated with providing direct fire protection services. A portion of the distribution system costs are included as the system must have sufficient hydraulic capacity to support the pressures and flow demands for fire protection service.

TCEQ Fees: Annual fees charged to Houston Water by the Texas Commission on Environmental Quality (TCEQ) based on the number of water system connections.

EWPP Water Authorities: Costs directly attributable to the water authorities receiving treated water from the East WPP.

NEWPP Water Authorities: Costs directly attributable to the water authorities receiving treated water from the Northeast WPP.

SEWPP Co-participants: Costs directly attributable to the SEWPP co-participants.

Carollo reviewed the existing fixed assets for the water system and allocated each to the appropriate functional category based on direction from Houston Water staff. In addition, each of the individual operating budget line items was reviewed and its corresponding costs allocated based on the service provided. The functionalized assets and O&M are then allocated to the appropriate cost components according to the Base-Extra Capacity methodology. This functional allocation process provides a reasonable, appropriate basis for proportionately distributing costs to customer types based on their usage patterns and is grounded in cost-of-service principles and standards.

Fixed Asset Allocation. Carollo reviewed the fixed asset registry provided by Houston Water staff, which allocated each asset to a specific functional category. The study then allocated the functionalized assets to cost components. The overall results of this allocation are used as a proxy to allocate capital-related costs. This minimizes large shifts in the allocation of capital costs, which can vary significantly from year to year.

Table 2.1 summarizes the allocation of the functionalized assets to the cost components to determine the allocation factors applied to the capital related costs.

Table 2.1 Allocation of Water System Assets to Cost Components ($ millions) [1]

Description	Value [1]	Percent Allocation (%)								
		Retail and Contract – No Capital			Retail Only					
		Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire	Meter	General
Plants & Structures	$454.7									100.0
Electrical, Mechanical, Controls	$380.7									100.0
Source of Supply – Wells	$139.2	100.0								
Pump Stations [2]	$216.8	49.2	17.5	33.3						
Distribution Mains [3]	$1,786.8				46.7	16.6	31.7	5.0		
Transmission Mains [4]	$1,417.1	73.8	26.3							
Land & Site	$35.0									100.0
Meters & Services	$74.1								100.0	
SCADA System [4]	$29.3	73.8	26.3							
Pumps [2]	$3.0	49.2	17.5	33.3						
Fuel Tanks	$1.1									100.0
Chemical Tanks [4]	$15.1	73.8	26.3							
Ground Storage Tanks [2]	$166.4	49.2	17.5	33.3						
Elevated Storage Tank [2]	$35.7	49.2	17.5	33.3						
Subtotal Allocation ($)	**$4,755.1**	**$1,424.5**	**$457.4**	**$140.6**	**$834.6**	**$297.0**	**$565.8**	**$89.3**	**$74.1**	**$871.6**
Subtotal Allocation (%)		30.0%	9.6%	3.0%	17.6%	6.2%	11.9%	1.9%	1.6%	18.3%
Reallocation of General		$319.7	$102.7	$31.6	$187.3	$66.7	$127.0	$20.0	$16.6	($871.6)
Total Allocated Assets ($)	**$4,755.1**	**$1,744.2**	**$560.1**	**$172.2**	**$1,021.9**	**$363.7**	**$692.8**	**$109.4**	**$90.8**	
Total Allocated Assets (%)		**36.7%**	**11.8%**	**3.6%**	**21.5%**	**7.6%**	**14.6%**	**2.3%**	**1.9%**	

Notes:
(1) Values are in million dollars and are rounded.
(2) Assets associated with pumping and storage are allocated among Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity based on the system maximum day and maximum hour peaking factors.
(3) Assets associated with the distribution system are partially allocated to Fire Protection (5% based on discussions with Houston Water staff). The remaining 95% is allocated among Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity based on the system maximum day and maximum hour peaking factors.
(4) Assets associated with the transmission mains, SCADA system, and chemical tanks are allocated between Base and Maximum Day Extra Capacity based on the system maximum day peaking factor.

O&M Allocation. Similar to the fixed assets, the study allocated the water system operating expenses to functional categories and then to cost components. The allocation percentages used to functionalize the operating budget are estimates based on discussions with Houston Water staff. To avoid large shifts in allocations during the five-year rate-setting period, the projected budgets for FYE 2022 through FYE 2026 were averaged, and this average budget was allocated to develop the revenue requirement allocation. Then the revenue requirement allocation was applied to each of the five test years to develop rates.

Table 2.2 provides the allocation of the five-year average O&M budget to functional categories.

Table 2.3 summarizes the allocation of the functionalized average O&M expenses to the cost components.

Offsetting Revenue. Water service penalties, impact fee revenue, interest and other non-rate revenue are used to offset the revenue requirements and reduce the required increase in rate revenue. These offsetting revenues are allocated to the general category and reallocated to the cost components based on the direct allocation of the total revenue requirements. The exception to this is a partial allocation of other operating revenue to Meter Charges and Billing and Collecting to directly allocate revenue from miscellaneous customer fees to these categories where the related costs are allocated.

2.2.1.3 Revenue Requirements Allocation

To obtain an overall percentage allocation, operating expenses, capital expenses, and offsetting revenues are weighted based on their projected expenditures for the five-year average, as shown in Table 2.4. Once the overall percentage allocation to each functional category has been defined, those percentages are applied to the test year revenue requirement in order to determine the total revenue requirement for each cost component, as shown in Table 2.5.

Table 2.2 Functional Allocation of Water O&M Budget ($ millions) [1]

Description	5-yr Avg [1]	Percent Allocation (%)																			
		Supply – Untreated	Supply – Treated	Pumping	Transmission	Production – EWPP	Production – NEWPP	Production – NEWPP Expansion	Production – SEWPP	Production – Other	Storage	Distribution	Meters	Fire Protection	Customer Billing	Administration	WA OH – EWPP	WA OH – NEWPP	Co-part OH SEWPP	TCEQ Fees	General
Drinking Water Operations:																					
40011 – DWO Executive Support G&A	$5.6															91.6	2.0	3.1	3.3		
DWO Water Maintenance	$11.1			6.4		52.0	10.0		22.0	6.4	3.2										
40012 – DWO Regulatory and Compliance	$5.6															81.1	4.6	7.4	6.9		
TCEQ Fee	$2.6																			100.0	
40013 – DWO Ground Water Operations	$24.0			40.0						40.0	20.0										
40014 – DWO East WPP	$29.1					100.0															
40015 – DWO Technical Services G&A	$5.8	4.0	6.0		35.0					5.0		50.0									
Cust. Complaints / Water System Maint.	$2.1	3.6	5.4		31.5					4.5		45.0					3.3	2.3	4.3		
Source Water Protection	$2.1	3.6	5.4		31.5					4.5		45.0					3.3	2.3	4.3		
40016 – DWO Water Maintenance	$13.8							100.0													
PIB DS	$2.5																				100.0
40017 – DWO Southeast WPP	$12.1								100.0												
40018 – DWO Northeast WPP	$15.9						100.0														
40019 – DWO System Maint. – North	$19.0											95.0		5.0							
40020 – DWO System Maint. – South	$18.9											95.0		5.0							
River Authority Contributed Debt Service	$15.4	40.0	60.0																		
CWA O&M (CWA Trinity River and TRA)	$26.8	34.6				46.7			18.7												
CWA Debt Svc (1993A-H & 2004 Ref)	$2.5	34.6				46.7			18.7												
CWA Debt Service (96" line)	$4.0	18.5							81.5												
Operation Services (G&A):																					
40021 – OPS Fin & Supp Op Svcs G&A	$2.9															100.0					
40022 (HWP) – HW Planning	$1.6	2.0	3.0	5.0	15.0					5.0	5.0	15.0				50.0					
40023 – OPS Maint Op Svcs – Restoration	$6.1											100.0									
40024 – OPS Maint Op Svcs – COS/DIS	$1.4				10.0							90.0									
40025 – HW GIS Services	$1.7				15.0							45.0	10.0	25.0		2.0					3.0
40026 – OPS Executive Support	$1.3															91.6	2.0	3.1	3.3		
40027 – OPS Support Services	$1.1															100.0					
40028 – HW Infrastructure Planning	$1.1			10.0	30.0						10.0	30.0				20.0					
40029 – HW Utility Analysis	$3.0	2.0	3.0	5.0	15.0					5.0	5.0	15.0				50.0					

Description	5-yr Avg [1]	Percent Allocation (%)																		
		Supply – Untreated	Supply – Treated	Pumping	Transmission	Production – EWPP	Production – NEWPP	Production – NEWPP Expansion	Production – SEWPP	Production – Other	Storage	Distribution	Meters	Fire Protection	Customer Billing	Administration	WA OH – EWPP	WA OH – NEWPP	Co-part OH SEWPP	TCEQ Fees	General
Other O&M:																				
30001-30009 – Director's Office	$3.9															2.0	3.1	3.3		91.6
80001 – Information Technology	$10.0															2.0	3.1	3.3		91.6
90001-90011 – Management Support	$6.9															2.0	3.1	3.3		91.6
60005 & 60008 – Houston Water – Planning	$0.3	2.0	3.0	5.0	15.0					5.0	5.0	15.0				50.0				
50002,05,06,30 – Fin Mgmt Svcs Support	$18.8															0.1	0.1	0.3		99.5
Property and Terrorism Insurance	$3.8					17.0	4.7		8.2											70.1
Security	$1.9					23.9	23.9		23.9											28.3
100007-15, 25 – CAS Cust Acct Services	$25.1												49.5		50.0		0.1	0.1	0.3		
Deductions	($4.3)																				100.0
Subtotal Allocation ($)	**$305.4**	**$17.5**	**$10.0**	**$10.7**	**$4.8**	**$49.6**	**$17.6**	**$13.8**	**$24.0**	**$11.0**	**$5.5**	**$50.0**	**$12.6**	**$2.3**	**$12.6**	**$17.6**	**$1.0**	**$1.4**	**$1.6**	**$2.6**	**$39.2**
Subtotal Allocation (%)		5.7%	3.3%	3.5%	1.6%	16.2%	5.8%	4.5%	7.9%	3.6%	1.8%	16.4%	4.1%	0.8%	4.1%	5.8%	0.3%	0.5%	0.5%	0.8%	12.8%
Reallocation of General [2]		$4.4	$2.5	$2.7	$1.2					$2.8	$1.4	$12.7	$3.2	$0.6	$3.2	$4.5					($39.2)
Total Allocated Assets ($)	**$305.4**	**$21.9**	**$12.5**	**$13.4**	**$6.0**	**$49.6**	**$17.6**	**$13.8**	**$24.0**	**$13.8**	**$6.9**	**$62.6**	**$15.8**	**$2.9**	**$15.8**	**$22.0**	**$1.0**	**$1.4**	**$1.6**	**$2.6**	
Total Allocated Assets (%)		**7.2%**	**4.1%**	**4.4%**	**2.0%**	**16.2%**	**5.8%**	**4.5%**	**7.9%**	**4.5%**	**2.3%**	**20.5%**	**5.2%**	**1.0%**	**5.2%**	**7.2%**	**0.3%**	**0.5%**	**0.5%**	**0.8%**	

Notes:
(1) Allocations are developed using an average of O&M costs for the 5-year period FYE 2022 through FYE 2026. Costs are in millions of dollars and are rounded.
(2) General category is reallocated to other functional categories based on direct allocation of O&M budget. General is not reallocated to WPP-specific categories to avoid double allocation to water authorities and co-participants. General is also not reallocated to TCEQ fees because that category only includes the fees charged by TCEQ to the City.

Table 2.3 Allocation of Water O&M Budget to Cost Components ($ millions) [1]

Description	5-yr Avg [1]	Percent Allocation (%)														
		Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees	General
			Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire							
Source of Supply – Untreated	$21.9	100.0														
Source of Supply – Treated	$12.5		100.0													
Pumping [2]	$13.4		49.2	17.5	33.3											
Transmission [3]	$6.0		73.8	26.2												
Production – EWPP [4]	$49.6		61.2	21.8								17.0				
Production – NEWPP [4]	$17.6		33.6	12.0									54.4			
Production – NEWPP Expansion [4]	$13.8		10.3	3.7									86.0			
Production – SEWPP [4]	$24.0		32.1	11.4										56.5		
Production – Other [3]	$13.8		73.8	26.2												
Storage [2]	$6.9		49.2	17.5	33.3											
Distribution [5]	$62.6					46.7	16.6	31.7	5.0							
Meters	$15.8									100.0						
Fire Protection	$2.9								100.0							
Customer Billing	$15.8										100.0					
Admin	$22.0															100.0
WA OH – EWPP	$1.0											100.0				
WA OH – NEWPP	$1.4												100.0			
Co-part OH – SEWPP	$1.6													100.0		
TCEQ Fees	$2.6														100.0	
Total Allocation ($)	**$305.4**	**$21.9**	**$82.5**	**$24.9**	**$6.8**	**$29.3**	**$10.4**	**$19.8**	**$6.0**	**$15.8**	**$15.8**	**$9.4**	**$22.8**	**$15.2**	**$2.6**	**$22.0**
Total Allocation (%)		**7.2%**	**27.0%**	**8.2%**	**2.2%**	**9.6%**	**3.4%**	**6.5%**	**2.0%**	**5.2%**	**5.2%**	**3.1%**	**7.5%**	**5.0%**	**0.8%**	**7.2%**

Notes:
(1) Allocations are developed using an average of O&M costs for the 5-year period FYE 2022 through FYE 2026. Costs are in millions of dollars and are rounded.
(2) Costs associated with pumping and storage are allocated among Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity based on the system maximum day and maximum hour peaking factors.
(3) Costs associated with the transmission mains and production (other) are allocated between Base and Maximum Day Extra Capacity based on the system maximum day peaking factor.
(4) Costs associated with the production at the WPPs are allocated directly to the water authorities or co-participants based on their sales as a percentage of production. The remainder is allocated between Base and Maximum Day Extra Capacity based on the system maximum day peaking factor.
(5) Costs associated with the distribution system are partially allocated to Fire Protection (5% based on discussions with Houston Water staff). The remaining 95% is allocated among Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity based on the system maximum day and maximum hour peaking factors.

Table 2.4 Allocation of Water Revenue Requirements to Cost Components ($ millions) (1)

Description	5-yr Avg (2)	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees	General
			Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire							
Operating Costs (3)	$305.4	$21.9	$82.5	$24.9	$6.8	$29.3	$10.4	$19.8	$6.0	$15.8	$15.8	$9.4	$22.8	$15.2	$2.6	$22.0
Capital Costs:																
Debt Service (4)	404.2	0.0	148.3	47.6	14.6	86.9	30.9	58.9	9.3	7.7	0.0	0.0	0.0	0.0	0.0	0.0
TRA/Lake Livingston Debt (5)	1.8	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0
Bad Debt (6)	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0
Rate-funded Capital (PAYGO) (4)	97.6	0.0	35.8	11.5	3.5	21.0	7.5	14.2	2.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Water Service Penalties (6)	(6.9)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.9)
Other Water Operating Revenue (Non-rate) (7)	(1.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.2)	(0.1)	0.0	0.0	0.0	0.0	(1.0)
Impact Fee Revenue (6)	(26.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(26.0)
Non-operating Water Revenue (Non-rate) (6)	(8.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(8.4)
Interest (6)	(4.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.1)
Additions / (Subtractions) from Cash Balance (6)	31.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3
Subtotal Allocation ($)	**$808.5**	**$22.6**	**$267.2**	**$84.3**	**$24.9**	**$137.1**	**$48.8**	**$92.9**	**$17.6**	**$25.2**	**$15.6**	**$9.6**	**$22.8**	**$15.4**	**$2.6**	**$21.9**
Subtotal Allocation (%)	100.0%	2.8%	33.1%	10.4%	3.1%	17.0%	6.0%	11.5%	2.2%	3.1%	1.9%	1.2%	2.8%	1.9%	0.3%	2.7%
Reallocation of "General" (8)		$0.7	$7.9	$2.5	$0.7	$4.1	$1.4	$2.8	$0.5	$0.7	$0.5					($21.9)
Total Allocated Revenue Requirement ($)	**$808.5**	**$23.2**	**$275.2**	**$86.8**	**$25.7**	**$141.2**	**$50.2**	**$95.7**	**$18.1**	**$25.9**	**$16.1**	**$9.6**	**$22.8**	**$15.4**	**$2.6**	**$0.0**
Total Allocated Revenue Requirement (%)		**2.9%**	**34.0%**	**10.7%**	**3.2%**	**17.5%**	**6.2%**	**11.8%**	**2.2%**	**3.2%**	**2.0%**	**1.2%**	**2.8%**	**1.9%**	**0.3%**	**0.0%**

Notes:
(1) Values are in millions of dollars and are rounded.
(2) Allocations are developed using an average of revenue requirements for the 5-year period FYE 2022 through FYE 2026.
(3) From Table 2.2.
(4) Allocated using asset allocation percentages developed in Table 2.1.
(5) Allocated based on functional allocation of CWA O&M.
(6) Allocated to General category to be reallocated based on direct allocations.
(7) Partially allocated to Meter Charges (15%) and Billing & Collecting (10%) to align revenue from fees related to these categories. Remainder is allocated to General category to be reallocated based on direct allocations.
(8) General category is reallocated to other cost components based on direct allocation of revenue requirements. General is not reallocated to water authorities and co-participants to avoid double allocation to these customer types. General is also not reallocated to TCEQ fees because that category only includes the fees charged by TCEQ to the City.

Table 2.5 Allocation of FYE 2022 Water Revenue Requirements to Cost Components ($ millions) [1]

Description	FYE 2022 [2]	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees
			Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire						
Operating Costs	$294.7	$23.0	$90.4	$27.3	$7.6	$33.8	$12.0	$22.9	$6.7	$16.8	$16.5	$9.5	$12.6	$15.3	$2.6
Capital Costs:															
Debt Service	318.8	0.0	117.0	37.6	11.5	68.5	24.4	46.5	7.3	6.1	0.0	0.0	0.0	0.0	0.0
TRA/Lake Livingston Debt	1.8	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0
Bad Debt	12.2	0.4	4.4	1.4	0.4	2.3	0.8	1.5	0.3	0.4	0.3	0.0	0.0	0.0	0.0
Rate-funded Capital (PAYGO)	106.0	0.0	38.9	12.5	3.8	22.8	8.1	15.4	2.4	2.0	0.0	0.0	0.0	0.0	0.0
Water Service Penalties	(5.6)	(0.2)	(2.0)	(0.6)	(0.2)	(1.0)	(0.4)	(0.7)	(0.1)	(0.2)	(0.1)	0.0	0.0	0.0	0.0
Other Water Operating Revenue (Non-rate)	(1.4)	(0.0)	(0.4)	(0.1)	(0.0)	(0.2)	(0.1)	(0.1)	(0.0)	(0.2)	(0.2)	0.0	0.0	0.0	0.0
Impact Fee Revenue	(20.6)	(0.6)	(7.5)	(2.4)	(0.7)	(3.8)	(1.4)	(2.6)	(0.5)	(0.7)	(0.4)	0.0	0.0	0.0	0.0
Non-operating Water Revenue (Non-rate)	(8.4)	(0.3)	(3.1)	(1.0)	(0.3)	(1.6)	(0.6)	(1.1)	(0.2)	(0.3)	(0.2)	0.0	0.0	0.0	0.0
Interest	(5.2)	(0.2)	(1.9)	(0.6)	(0.2)	(1.0)	(0.3)	(0.7)	(0.1)	(0.2)	(0.1)	0.0	0.0	0.0	0.0
Additions / (Subtractions) from Cash Balance [3]	(35.2)	(1.1)	(12.8)	(4.0)	(1.2)	(6.6)	(2.3)	(4.4)	(0.8)	(1.2)	(0.7)	0.0	0.0	0.0	0.0
Total Allocated Revenue Requirement ($)	**$657.1**	**$21.7**	**$223.6**	**$70.3**	**$20.8**	**$113.3**	**$40.3**	**$76.8**	**$14.9**	**$22.6**	**$15.0**	**$9.6**	**$12.6**	**$15.5**	**$2.6**
Total Allocated Revenue Requirement (%)	**100.0%**	**3.3%**	**34.0%**	**10.7%**	**3.2%**	**17.2%**	**6.1%**	**11.7%**	**2.3%**	**3.4%**	**2.3%**	**1.5%**	**1.9%**	**2.4%**	**0.4%**

Notes:
(1) Values are in millions of dollars and are rounded.
(2) Test year revenue requirements from Table 1.10 (FYE 2022 shown in this table) are allocated based on allocation of 5-year average revenue requirements from Table 2.4.
(3) Additions/(subtractions) shown in this table is based on revenue requirements for September 1, 2021, revenue increase and does not match what is shown in Table 1.10, which includes the April 1, 2022, revenue increase.

2.2.2 Allocation to Customer Types

2.2.2.1 Unit Costs

The unit costs of service are developed by dividing the total annual costs allocated to each of the cost components by the total annual service units of the respective component. The total annual costs allocated to each cost component are determined by applying the allocations from Table 2.4, as shown in Table 2.5.

Units of Service. Based on functional category, the units of service are water consumed, incremental demand (max day and max hour extra capacity), meter equivalents, annual bills, and connections.

The following describes the quantifiable analysis of the units of service:

Raw Water: Allocated by total annual sales of untreated water in 1,000 gallons.

Base Costs: Allocated by total annual treated water sales volume or annual water consumption in 1,000 gallons.

Extra Capacity Costs: Allocated based on each customer type's extra capacity demand developed from the incremental amounts between max day demand and average day demand and between max hour demand and max day demand. Extra capacity units are based on the incremental capacity, in 1,000 gallons per day, needed to serve demands in excess of the baseline or average day demand.

Meter Equivalents: The meter equivalents are derived based on the meter's hydraulic capacity. Larger meters are assigned more meter equivalents than smaller meters.

Billing and Collecting: For the fixed charge, the billing and collecting component unit cost is based on the number of bills.

TCEQ Fees: TCEQ fees are charged to the City based on the number of connections to the water system. As such, these costs are allocated directly to the customers based on the number of connections, which may or may not be equal to the number of meters.

For the meter charges and fire protection cost components, equivalent meters are used, as opposed to accounts or bills, to recognize the fact that larger meters have a higher water flow potential and utilize greater system capacity. The meter charges portion of the monthly meter charge also accounts for meter size, as it is more expensive to install, maintain, and replace larger meters. Meter equivalents are derived based on the hydraulic capacity (gallons per minute) respective to the size of the meter. Meter equivalents are set relative to the hydraulic flow of a 5/8-inch meter.

Unit Cost Development. In order to allocate the cost-of-service to various customer types, unit costs of service are developed for each cost component. As shown in Table 2.5, the total rate revenue requirements are allocated to each cost component for the test year. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the water system. The units of service for each customer type are shown in Table 2.6.

Table 2.7 shows the calculation of the unit costs for each cost component, which are then applied to the units of service for each customer type from Table 2.6 to derive customer type allocations for each test year of the five year rate period. Projections are based on FYE 2019 customer usage characteristics and account growth assumptions. As such, costs are allocated to each customer type based on their respective base usage and peaking factors to reflect their proportionate use of the overall system.

Table 2.6 Water Units of Service by Customer Type (FYE 2022)

Customer Type	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees
		Base	Max Day [2]	Max Hr [3]	Base	Max Day [2]	Max Hr [3]	Fire						
Units	*kgal*	*kgal*	*kgal/day*	*kgal/day*	*kgal*	*kgal/day*	*kgal/day*	*MEU*	*MEU*	*Bills*	*kgal*	*kgal*	*kgal*	*conn*
Retail:														
Single Family Residential		23,340,203	30,899	47,423	23,340,203	30,899	47,423	503,912	503,912	4,947,559				410,045
Multifamily Residential		25,815,307	25,140	47,934	25,815,307	25,140	47,934	43,417	43,417	161,408				573,968
Commercial / Industrial [1]		26,090,759	49,629	60,555	26,090,759	49,629	60,555	100,366	100,366	424,443				47,945
Irrigation		2,409,002	6,733	6,667	2,409,002	6,733	6,667	13,680	13,680	70,384				469
Transient		384,573	2,953	2,003	384,573	2,953	2,003	2,867	2,867	7,708				643
Resale		8,798	29	26	8,798	29	26	17	17	12				2
Emergency Backup		11,907	643	338	11,907	643	338	694	694	165				17
Metered Fire		12,976	462	249	12,976	462	249	11,947	11,947	3,368				32
Unmetered Fire								216,735	216,735	63,161				
Wholesale:														
Contract Treated w/Airgap		10,470,163	13,973						120	435				92
Contract Treated w/o Airgap		1,351,009	1,669	2,685					50	181				38
GRP Participants		2,520,523	14,713	18,782					0	1,171				224
Contract Untreated	78,971,731								432	1,569				5
Contract Treated – SEWPP Co-participants													19,538,357	74
Contract Treated – EWPP Water Authorities											12,996,195			12
Contract Treated – NEWPP Water Authorities												9,365,481		8
Total	**78,971,731**	**92,415,220**	**146,843**	**186,661**	**78,073,526**	**116,489**	**165,194**	**893,636**	**894,236**	**5,681,563**	**12,996,195**	**9,365,481**	**19,538,357**	**1,033,575**

Notes:
(1) Commercial/industrial customer type includes extra container and government customers.
(2) Maximum day extra capacity is calculated for each customer type. It is the difference between the maximum day demand and the average day demand.
(3) Maximum hour extra capacity is calculated for each customer type. It is the difference between the maximum hour demand and the maximum day demand.

Table 2.7 Development of Water Unit Costs (FYE 2022) ($ millions) [1]

Description	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees
		Base	Max Day [2]	Max Hr [3]	Base	Max Day [2]	Max Hr [3]	Fire						
Allocated Revenue Requirements [1]	$21.7	$223.6	$70.3	$20.8	$113.3	$40.3	$76.8	$14.9	$22.6	$15.0	$9.6	$12.6	$15.5	$2.6
Total Units [2]	78,971,731	92,415,220	146,843	186,661	78,073,526	116,489	165,194	893,636	894,236	5,681,563	12,996,195	9,365,481	19,538,357	1,033,575
Unit Cost	**$0.27**	**$2.42**	**$478.48**	**$111.68**	**$1.45**	**$345.98**	**$464.78**	**$16.69**	**$25.23**	**$2.64**	**$0.74**	**$1.35**	**$0.79**	**$2.49**
Units	*kgal*	*kgal*	*kgal/day*	*kgal/day*	*kgal*	*kgal/day*	*kgal/day*	*MEU*	*MEU*	*Bills*	*kgal*	*kgal*	*kgal*	*conn*

Notes:
(1) From Table 2.5. Values are in millions of dollars and are rounded.
(2) From Table 2.6.

Customer Allocation. Carollo analyzed customer billing data to determine the number of bills by meter size and customer type, as well as the usage characteristics of each customer type. The details of this analysis are provided in Appendix F. Table 2.8 details the results of the cost allocation by customer type based on FYE 2019 consumption data.

Based on these unit allocations, Table 2.9 details the FYE 2022 cost-of-service for each customer type and cost component, which are then summed to determine the total revenue requirement by customer type. Detailed water cost-of-service allocations by customer type are provided for FYE 2023 through FYE 2026 in Appendix F.

The rate design analysis determines how the costs are recovered from each customer type through specified water rates. The focus of this process is to achieve cost recovery and substantiate that customers are paying their fair and proportionate share of system costs. Houston Water's existing rate structure consists of two components: a volumetric rate (variable) and a monthly meter charge (fixed). The volumetric component is assessed based on metered water usage per 1,000 gallons and, by design, is intended to recover the cost incurred for delivering each unit of water. The monthly meter charge is intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption. These two rate components serve as a basis for the following rate design chapter.

Table 2.8 Water FYE 2019 Revenue Requirement Allocation by Customer Type (%)

Customer Type	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees
		Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire						
Retail:														
Single Family Residential	0.0%	25.3%	21.0%	25.4%	29.9%	26.5%	28.7%	56.4%	56.4%	87.1%	0.0%	0.0%	0.0%	39.7%
Multifamily Residential	0.0%	27.9%	17.1%	25.7%	33.1%	21.6%	29.0%	4.9%	4.9%	2.8%	0.0%	0.0%	0.0%	55.5%
Commercial / Industrial [(1)]	0.0%	28.2%	33.8%	32.4%	33.4%	42.6%	36.7%	11.2%	11.2%	7.5%	0.0%	0.0%	0.0%	4.6%
Irrigation	0.0%	2.6%	4.6%	3.6%	3.1%	5.8%	4.0%	1.5%	1.5%	1.2%	0.0%	0.0%	0.0%	0.0%
Transient	0.0%	0.4%	2.0%	1.1%	0.5%	2.5%	1.2%	0.3%	0.3%	0.1%	0.0%	0.0%	0.0%	0.1%
Resale	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Emergency Backup	0.0%	0.0%	0.4%	0.2%	0.0%	0.6%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Metered Fire	0.0%	0.0%	0.3%	0.1%	0.0%	0.4%	0.2%	1.3%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%
Unmetered Fire	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.3%	24.2%	1.1%	0.0%	0.0%	0.0%	0.0%
Wholesale:														
Contract Treated w/Airgap	0.0%	11.3%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Contract Treated w/o Airgap	0.0%	1.5%	1.1%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GRP Participants	0.0%	2.7%	10.0%	10.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Contract Untreated	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Contract Treated – SEWPP Co-participants	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Contract Treated – EWPP Water Authorities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Contract Treated – NEWPP Water Authorities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:
(1) Commercial/industrial customer type includes extra container and government customers.

Table 2.9 Water FYE 2022 Revenue Requirement Allocation by Customer Type ($ millions) (1)

Customer Type	FYE 2022	Raw Water	Retail and Contract – No Capital			Retail Only				Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEQ Fees
			Base	Max Day	Max Hr	Base	Max Day	Max Hr	Fire						
Retail:															
Single Family Residential	$178.4	$0.0	$56.5	$14.8	$5.3	$33.9	$10.7	$22.0	$8.4	$12.7	$13.1	$0.0	$0.0	$0.0	$1.0
Multifamily Residential	152.0	0.0	62.5	12.0	5.4	37.4	8.7	22.3	0.7	1.1	0.4	0.0	0.0	0.0	1.4
Commercial / Industrial (2)	182.3	0.0	63.1	23.7	6.8	37.8	17.2	28.1	1.7	2.5	1.1	0.0	0.0	0.0	0.1
Irrigation	19.5	0.0	5.8	3.2	0.7	3.5	2.3	3.1	0.2	0.3	0.2	0.0	0.0	0.0	0.0
Transient	5.2	0.0	0.9	1.4	0.2	0.6	1.0	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Resale	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Emergency Backup	0.8	0.0	0.0	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Metered Fire	1.1	0.0	0.0	0.2	0.0	0.0	0.2	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0
Unmetered Fire	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	5.5	0.2	0.0	0.0	0.0	0.0
Wholesale:															
Contract Treated w/Airgap	32.0	0.0	25.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contract Treated w/o Airgap	4.4	0.0	3.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRP Participants	15.2	0.0	6.1	7.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contract Untreated	21.7	21.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contract Treated – SEWPP Co-participants	15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	0.0
Contract Treated – EWPP Water Authorities	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0
Contract Treated – NEWPP Water Authorities	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.0	0.0
Total	**$659.6**	**$21.7**	**$223.6**	**$70.3**	**$20.8**	**$113.3**	**$40.3**	**$76.8**	**$14.9**	**$22.6**	**$15.0**	**$9.6**	**$12.6**	**$15.5**	**$2.6**

Notes:
(1) Values are in millions of dollars and are rounded.
(2) Commercial/industrial customer type includes extra container and government customers.

2.3 Wastewater System

The wastewater system cost-of-service analysis is consistent with the Water Environment Federation (WEF) *Manual of Practice (MOP) 27: Financing and Charges for Wastewater Systems, Fourth Edition*, standard methods to allocate the revenue requirements among the various customer types based on their discharge characteristics. The following sections discuss how costs are allocated to the system's functions, cost components, and customer types using the methodology outlined in MOP 27.

2.3.1 Functional Cost Allocation

2.3.1.1 Functional Cost Categories

The functional cost allocation assigns the revenue requirement for the test year by major function. The study developed a list of functions specific to the wastewater system. Each functional component is allocated to specific cost components, which can easily be assigned to rates. The wastewater functional components used for Houston Water are:

Influent Pumping/Headworks: Costs associated with pumps used to move the wastewater from an influent wet well to the headworks facility.

Aeration: Costs associated with adding air to the wastewater to remove contaminants.

Clarifiers: Costs associated with the tanks used to remove suspended solids from the wastewater.

Chlorination/Dechlorination: Costs associated with the introduction of chlorine as a disinfectant and its subsequent removal.

Solids Thickening/Digestion: Costs associated with increasing the solids concentration and producing energy from methane gas.

Biosolids Handling: Costs associated with separating, treating, and disposing of biosolids.

Effluent Discharge: Costs associated with managing and controlling treated wastewater outflow.

Industrial Wastewater Program: Costs associated with managing the program that issues and oversees wastewater permits for industrial customers.

Pump/Lift Stations: Costs associated with pumping wastewater within the system.

Collection System: Costs associated with collection system infrastructure that carries all wastewater generated by customers to the treatment plant.

Customer Billing: All costs associated with producing customer bills, including billing system software, postage, credit card processing fees, etc.

Administration: Costs associated with management and administration of the utility.

General: Costs associated with other treatment and administrative services that do not fit any of the other categories. Examples include GIS services, IT, finance, electrical and mechanical equipment, lands not associated with a specific asset, etc.

Houston Water's budget was analyzed line by line. Details of how the O&M, debt service, and other expenses were distributed among functional categories are shown in the following sections.

2.3.1.2 Cost Components

Houston Water's cost components are used to allocate costs between the monthly meter charges and the volumetric rates. The volumetric components include flow and strength – biochemical oxygen demand (BOD), total suspended solids (TSS), and ammonia. The capacity and customer cost components are the basis of the monthly meter charges. Finally, the industrial wastewater program cost component allocates the costs of the program directly to the industrial customers who participate in the program and pay surcharges.

The following describes each of the wastewater cost components for Houston Water:

Flow: Operating and capital costs incurred by the wastewater system to handle the quantity of flows discharged to or collected by the system.

Capacity: Capital costs associated with hydraulic capacity within the wastewater treatment plants.

Biochemical Oxygen Demand (BOD): During treatment, microbial organisms consume dissolved oxygen while oxidizing the organic matter present in wastewater. BOD measures the quantity of oxygen required for that process. Expenses include costs incurred to remove and dispose of organic compounds.

Total Suspended Solids (TSS): TSS measures the quantity of suspended solids or non-filterable residue in the wastewater. Costs include those associated with removing and disposing of small particles in the wastewater.

Ammonia: Cost for removing and disposing of ammonia from the wastewater.

Industrial Wastewater Program: Costs associated with managing the program that issues and oversees wastewater permits for industrial customers.

Customer: Costs that relate to operational support activities including accounting, billing, customer service, administrative, and technical support. These are common to all customers.

Carollo reviewed the existing fixed assets for the wastewater system and allocated each to the appropriate functional category based on direction from Houston Water staff. In addition, each of the individual operating budget line items was reviewed and its corresponding costs allocated based on the service provided. The functionalized assets and O&M are then allocated to the appropriate cost components according to the MOP 27 methodology. This functional allocation process provides a reasonable, appropriate basis for proportionately distributing costs to customer types based on their usage patterns and is grounded in cost-of-service principles and standards.

Fixed Asset Allocation. Carollo reviewed the fixed asset registry provided by Houston Water staff, which allocated each asset to a specific functional category. The study then allocated the functionalized assets to cost components. The overall results of this allocation are used as a proxy to allocate capital-related costs. This minimizes large shifts in the allocation of capital costs, which can vary significantly from year to year.

Table 2.10 summarizes the allocation of the functionalized assets to the cost components to determine the allocation factors applied to the capital related costs.

Table 2.10 Allocation of Wastewater System Assets to Cost Components ($ millions) (1)

Description	Value (1)	Percent Allocation (%)						
		Flow – Retail	Flow – Retai + Cat Y Wholesale	Capacity	BOD	TSS	Ammonia	General
Plants & Structures	$1,113.6			40.0	30.0	30.0		
Elec, Mech, Controls	$810.8							100.0
Supply – Wells	$3.5							100.0
Lift and Pump Stations	$220.8		100.0					
Interceptors	$1,654.9		100.0					
Local Collector Mains	$2,120.3	100.0						
Land & Site	$34.2							100.0
SCADA System	$25.5							100.0
Fuel Tanks	$1.1							100.0
Chemical Tanks	$15.0							100.0
Subtotal Allocation ($)	**$5,999.7**	**$2,120.3**	**$1,875.7**	**$445.5**	**$334.1**	**$334.1**	**$0.0**	**$890.0**
Subtotal Allocation (%)		35.3%	31.3%	7.4%	5.6%	5.6%	0.0%	14.8%
Reallocation of General		$369.3	$326.7	$77.6	$58.2	$58.2	$0.0	($890.0)
Total Allocation ($)	**$5,999.7**	**$2,489.6**	**$2,202.4**	**$523.0**	**$392.3**	**$392.3**	**$0.0**	
Total Allocation (%)		**41.5%**	**36.7%**	**8.7%**	**6.5%**	**6.5%**	**0.0%**	

Note:
(1) Values are in million dollars and are rounded.

O&M Allocation. Similar to the fixed assets, the study allocated the wastewater system operating expenses to functional categories and then to cost components. The allocation percentages used to functionalize the operating budget are estimates based on discussions with Houston Water staff. To avoid large shifts in allocations during the five-year rate-setting period, the projected budgets for FYE 2022 through FYE 2026 were averaged, and this average budget was allocated to develop the revenue requirement allocation. Then the revenue requirement allocation was applied to each of the five test years to develop rates.

Table 2.11, on the following page, provides the allocation of the five-year average O&M budget to functional categories.

Table 2.12 summarizes the allocation of the functionalized average O&M expenses to the cost components

Table 2.11 Functional Allocation of Wastewater O&M Budget ($ millions) [1]

Description	5-yr Avg [1]	Percent Allocation (%)													
		Influent Pumping & Headworks	Aeration	Clarifiers	Chlor / Dechlor	Solids Thickening / Digestion	Biosolids Handling	Effluent Discharge	Industrial WW Program	Lift Stations	Collection System	Customer Billing	Admini-stration	Treatment Collection General	General
Wastewater Operations:															
40001 – WWO Executive Support G&A	$6.4												100.0		
40002 – WWO Collection System Analysis	$4.4										100.0				
40003 – WWO Collection System Repairs	$14.5										100.0				
40004 – WWO Regulatory and Compliance	$10.2							70.0	30.0						
40005 – WWO Technical Services G&A	$17.3													100.0	
40006 – WWO Plant Operations	$54.5	14.3	14.3	14.3	14.3	14.3	14.3	14.3							
40007 – WWO Electrical & Automation	$10.0	5.0	2.5	2.5	20.0			5.0		60.0	5.0				
40008 – WWO Construction Management	$5.3	1.0	1.0	1.0						2.0	95.0				
40009 – WWO Contract Management	$26.4	20.0	10.0	20.0						40.0	10.0				
40010 – WWO Mechanical Management	$21.4	10.0	10.0	10.0		10.0	10.0			50.0					
40022 – WWO Maint Operation Services	$0.0							5.0			45.0		50.0		
40031 – WWO EPA Compliance	$34.5										100.0				
Operation Services (G&A):															
40021 – OPS Fin & Supp Op Svcs G&A	$2.9												100.0		
40022 (HWP) – HW Planning	$1.6							5.0			45.0		50.0		
40023 – OPS Maint Op Svcs – Restoration	$6.0										100.0				
40024 – OPS Maint Op Svcs – COS/DIS	$1.4										100.0				
40025 – HW GIS Services	$1.7							10.0	3.0	20.0	60.0		2.0		5.0
40026 – OPS Executive Support	$1.3												100.0		
40027 – OPS Support Services	$1.1												100.0		
40028 – HW Infrastructure Planning	$1.1							5.0			45.0		50.0		
40029 – HW Utility Analysis	$3.0							5.0			45.0		50.0		
Other O&M:															
30001-30009 – Director's Office	$3.9														100.0
80001 – Information Technology	$9.9														100.0
90001-90011 – Management Support	$6.8														100.0
60005 & 60008 – Houston Water – Planning	$0.3														100.0
50002,05,06,30 – Fin Mgmt Svcs Support	$24.3														100.0
100007-15, 25 – CAS Cust Acct Services	$25.0											100.0			
Deductions	($4.3)														100.0
Subtotal Allocation ($)	**$290.6**	**$15.8**	**$12.9**	**$15.5**	**$9.8**	**$9.9**	**$9.9**	**$15.8**	**$3.1**	**$27.7**	**$72.5**	**$25.0**	**$14.6**	**$17.3**	**$41.0**
Subtotal Allocation (%)		5.4%	4.4%	5.3%	3.4%	3.4%	3.4%	5.5%	1.1%	9.5%	24.9%	8.6%	5.0%	6.0%	14.1%
Reallocation of General [2]		$2.6	$2.1	$2.5	$1.6	$1.6	$1.6	$2.6	$0.5	$4.5	$11.9	$4.1	$2.4	$2.8	($41.0)
Total Allocated Assets ($)	**$290.6**	**$18.3**	**$15.0**	**$18.0**	**$11.4**	**$11.5**	**$11.5**	**$18.4**	**$3.6**	**$32.2**	**$84.3**	**$29.1**	**$17.0**	**$20.1**	
Total Allocated Assets (%)		**6.3%**	**5.2%**	**6.2%**	**3.9%**	**4.0%**	**4.0%**	**6.3%**	**1.2%**	**11.1%**	**29.0%**	**10.0%**	**5.8%**	**6.9%**	

Notes:
(1) Allocations are developed using an average of O&M costs for the 5-year period FYE 2022 through FYE 2026. Costs are in millions of dollars and are rounded.
(2) General category is reallocated to other functional categories based on direct allocation of O&M budget.

Table 2.12 Allocation of Wastewater O&M Budget to Cost Components ($ millions) (1)

Description	5-yr Avg (1)	Percent Allocation (%)								
		Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	BOD	TSS	Ammonia	Industrial WW Program.	Customer	General
Influent Pumping & Headworks	$18.3			100.0						
Aeration	$15.0				50.0		50.0			
Clarifiers	$18.0					100.0				
Chlorination / Dechlorination	$11.4			100.0						
Solids Thickening / Digestion	$11.5				5.0	95.0				
Biosolids Handling	$11.5					100.0				
Effluent Discharge	$18.4			100.0						
Industrial WW Program	$3.6							100.0		
Lift Stations	$32.2		100.0							
Collection System (2)	$84.3	50.5	39.5						10.0	
Customer Billing	$29.1								100.0	
Administration	$17.0									100.0
Treatment + Collection General	$20.1									100.0
Total Allocation ($)	**$290.6**	**$42.6**	**$65.5**	**$48.2**	**$8.1**	**$40.6**	**$7.5**	**$3.6**	**$37.5**	**$37.1**
Total Allocation (%)		**14.7%**	**22.5%**	**16.6%**	**2.8%**	**14.0%**	**2.6%**	**1.2%**	**12.9%**	**12.8%**

Notes:
(1) Allocations are developed using an average of O&M costs for the 5-year period FYE 2022 through FYE 2026. Costs are in millions of dollars and are rounded.
(2) Costs associated with the Collection System are allocated 10% to Customer to be recovered in the monthly meter charge. The remaining 90% is allocated between Flow – Retail and Flow – Retail + Category Y Wholesale based on inch-feet of local collectors and interceptors, respectively.

Offsetting Revenue. Wastewater service penalties, impact fee revenue, interest and other non-rate revenue are used to offset the revenue requirements and reduce the required increase in rate revenue. These offsetting revenues are allocated to the general category and reallocated to the cost components based on the direct allocation of the total revenue requirements. The exception to this is a partial allocation of other operating revenue to Customer to directly allocate revenue from miscellaneous customer fees to the Customer cost component where the related costs are allocated.

2.3.1.3 Revenue Requirements Allocation

To obtain an overall percentage allocation, operating expenses, capital expenses, and offsetting revenues are weighted based on their projected expenditures for the five-year average, as shown in Table 2.13. Once the overall percentage allocation to each functional category has been defined, those percentages are applied to the test year revenue requirement in order to determine the total revenue requirement for each cost component, as shown in Table 2.14.

Table 2.13 Allocation of Wastewater Revenue Requirements to Cost Components ($ millions) (1)

Description	5-yr Avg (2)	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer	General
Operating Costs (3)	$290.6	$42.6	$65.5	$48.2	$0.0	$8.1	$0.0	$40.6	$0.0	$7.5	$0.0	$3.6	$37.5	$37.1
Capital Costs:														
Debt Service (4)	434.7	180.4	159.6	0.0	37.9	0.0	28.4	0.0	28.4	0.0	0.0	0.0	0.0	0.0
Bad Debt (5)	14.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6
Rate-funded Capital (PAYGO) (4)	102.4	42.5	37.6	0.0	8.9	0.0	6.7	0.0	6.7	0.0	0.0	0.0	0.0	0.0
Water Service Penalties (5)	(7.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(7.8)
Other Water Operating Revenue (Non-rate) (6)	(1.5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.7)	(0.7)
Impact Fee Revenue (5)	(22.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(22.0)
Non-operating Water Revenue (Non-rate) (5)	(6.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.6)
Interest (5)	(2.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(2.2)
Additions / (Subtractions) from Cash Balance (5)	(5.7)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(5.7)
Subtotal Allocation ($)	**$796.6**	**$265.5**	**$262.7**	**$48.2**	**$46.8**	**$8.1**	**$35.1**	**$40.6**	**$35.1**	**$7.5**	**$0.0**	**$3.6**	**$36.7**	**$6.7**
Subtotal Allocation (%)	100.0%	33.3%	33.0%	6.0%	5.9%	1.0%	4.4%	5.1%	4.4%	0.9%	0.0%	0.5%	4.6%	0.8%
Reallocation of "General" (7)		$2.2	$2.2	$0.4	$0.4	$0.1	$0.3	$0.3	$0.3	$0.1	$0.0	$0.0	$0.3	($6.7)
Total Allocated Revenue Requirement ($)	**$796.6**	**$267.8**	**$264.9**	**$48.6**	**$47.2**	**$8.1**	**$35.4**	**$40.9**	**$35.4**	**$7.5**	**$0.0**	**$3.6**	**$37.1**	**$0.0**
Total Allocated Revenue Requirement (%)		**33.6%**	**33.3%**	**6.1%**	**5.9%**	**1.0%**	**4.4%**	**5.1%**	**4.4%**	**0.9%**	**0.0%**	**0.5%**	**4.7%**	**0.0%**

Notes:
(1) Values are in millions of dollars and are rounded.
(2) Allocations are developed using an average of revenue requirements for the 5-year period FYE 2022 through FYE 2026.
(3) From Table 2.11.
(4) Allocated using asset allocation percentages developed in Table 2.10.
(5) Allocated to General category to be reallocated based on direct allocations.
(6) Partially allocated to Customer (50%) to align revenue from customer-related fees. Remainder is allocated to General category to be reallocated based on direct allocations.
(7) General category is reallocated to other cost components based on direct allocation of revenue requirements.

Table 2.14 Allocation of FYE 2022 Wastewater Revenue Requirements to Cost Components ($ millions) [1]

Description	FYE 2022 [2]	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer
Operating Costs	$290.6	$55.4	$78.4	$51.0	$2.1	$8.5	$1.6	$43.0	$1.6	$7.9	$0.0	$3.8	$39.7
Capital Costs:													
Debt Service	347.8	144.3	127.7	0.0	30.3	0.0	22.7	0.0	22.7	0.0	0.0	0.0	0.0
Bad Debt	10.5	3.5	3.5	0.6	0.6	0.1	0.5	0.5	0.5	0.1	0.0	0.0	0.5
Rate-funded Capital (PAYGO)	94.0	39.0	34.5	0.0	8.2	0.0	6.1	0.0	6.1	0.0	0.0	0.0	0.0
Water Service Penalties	(5.6)	(1.9)	(1.9)	(0.3)	(0.3)	(0.1)	(0.2)	(0.3)	(0.2)	(0.1)	0.0	(0.0)	(0.3)
Other Water Operating Revenue (Non-rate)	(1.5)	(0.3)	(0.2)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.8)
Impact Fee Revenue	(20.6)	(6.9)	(6.8)	(1.3)	(1.2)	(0.2)	(0.9)	(1.1)	(0.9)	(0.2)	0.0	(0.1)	(1.0)
Non-operating Water Revenue (Non-rate)	(6.6)	(2.2)	(2.2)	(0.4)	(0.4)	(0.1)	(0.3)	(0.3)	(0.3)	(0.1)	0.0	(0.0)	(0.3)
Interest	(4.1)	(1.4)	(1.4)	(0.3)	(0.2)	(0.0)	(0.2)	(0.2)	(0.2)	(0.0)	0.0	(0.0)	(0.2)
Additions / (Subtractions) from Cash Balance [3]	(70.1)	(23.6)	(23.3)	(4.3)	(4.2)	(0.7)	(3.1)	(3.6)	(3.1)	(0.7)	0.0	(0.3)	(3.3)
Total Allocated Revenue Requirement ($)	**$634.5**	**$206.0**	**$208.3**	**$45.1**	**$34.9**	**$7.6**	**$26.2**	**$38.0**	**$26.2**	**$7.0**	**$0.0**	**$3.4**	**$34.4**
Total Allocated Revenue Requirement (%)	**100.0%**	**32.5%**	**32.8%**	**7.1%**	**5.5%**	**1.2%**	**4.1%**	**6.0%**	**4.1%**	**1.1%**	**0.0%**	**0.5%**	**5.4%**

Notes:
(1) Values are in millions of dollars and are rounded.
(2) Test year revenue requirements from Table 1.20 (FYE 2022 shown in this table) are allocated based on allocation of 5-year average revenue requirements from Table 2.13.
(3) Additions/(subtractions) shown in this table is based on revenue requirements for Sept 1, 2021, revenue increase and does not match what is shown in Table 1.20, which includes the April 1, 2022, revenue increase.

2.3.2 Allocation to Customer Types

2.3.2.1 Unit Costs

The unit costs of service are developed by dividing the total annual costs allocated to each of the cost components by the total annual service units of the respective component. The total annual costs allocated to each cost component are determined by applying the allocations from Table 2.13, as shown in Table 2.14.

Units of Service. Based on functional category, the units of service are wastewater discharged, loadings (BOD, TSS, and ammonia), and annual bills.

The following describes the quantifiable analysis of the units of service:

Flow: Allocated based on the water usage for each customer in 1,000 gallons.

Capacity: Allocated based on average daily flow.

BOD: Allocated based on pounds of BOD returned to the system.

TSS: Allocated based on pounds of TSS returned to the system.

Ammonia: Allocated based on pounds of ammonia returned to the system.

Customer: Allocated based on the number of bills.

Industrial Wastewater Program: Allocated to industrial wastewater customers based on the number of bills.

Unit Cost Development. In order to allocate the cost-of-service to various customer types, unit costs of service are developed for each cost component. As shown in Table 2.14, the total rate revenue requirements are allocated to each cost component for the test year. The total cost for each functional category is then divided by the total number of associated units of service to determine appropriate unit costs for the wastewater system. The units of service for each customer type are shown in Table 2.15.

Table 2.16 shows the calculation of the unit costs for each cost component, which are then applied to the units of service for each customer type from Table 2.15 to derive customer type allocations for each test year of the five-year rate period. Projections are based on FYE 2019 customer usage characteristics and account growth assumptions. As such, costs are allocated to each customer type based on their respective base usage and peaking factors to reflect their proportionate use of the overall system.

Table 2.15 Wastewater Units of Service by Customer Type (FYE 2022)

Customer Type	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer
Units	*kgal*	*kgal*	*kgal*	*kgal/day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*ind. bills*	*bills*
Retail:												
Single Family Residential	22,344,168	22,344,168	22,344,168	61,217	18,222,940	18,222,940	55,316,332	55,316,332	3,175,970	3,175,970		4,603,570
Multifamily Residential	25,155,956	25,155,956	25,155,956	68,920	22,654,672	22,654,672	68,769,001	68,769,001	3,948,351	3,948,351		159,481
Commercial / Industrial (1)	20,573,586	20,573,586	20,573,586	56,366	16,242,722	16,242,722	49,305,316	49,305,316	2,830,850	2,830,850		426,605
Industrial with Surcharges	2,135,783	2,135,783	2,135,783	5,851	16,864,851	16,864,851	7,494,091	7,494,091	541,942	541,942	3,229	3,229
Sewer Only (Unmetered)	47,581	47,581	47,581	130	44,298	44,298	134,469	134,469	7,721	7,721		10,491
Wholesale:												
Capital w/o Collection System			2,922,313		2,720,695		8,258,758		474,174			169
No Capital w/Collection System		324,234	324,234	888	301,864	301,864	916,318	916,318	52,610	52,610		133
Connection-based		55,616	55,616	152	51,779	51,779	157,176	157,176	9,024	9,024		24
Total	**70,257,074**	**70,636,923**	**73,559,236**	**193,526**	**77,103,821**	**74,383,126**	**190,351,460**	**182,092,703**	**11,040,642**	**10,566,468**	**3,229**	**5,203,703**

Note:
(1) Commercial/industrial customer type includes industrial customers who do not pay industrial surcharges.

Table 2.16 Development of Wastewater Unit Costs (FYE 2022) ($ millions) (1)

Description	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer
Allocated Revenue Requirements (1)	$206.0	$208.3	$45.1	$34.9	$7.6	$26.2	$38.0	$26.2	$7.0	$0.0	$3.4	$34.4
Total Units (2)	70,257,074	70,636,923	73,559,236	193,526	77,103,821	74,383,126	190,351,460	182,092,703	11,040,642	10,566,468	3,229	5,203,703
Unit Cost	**$2.93**	**$2.95**	**$0.61**	**$180.31**	**$0.10**	**$0.35**	**$0.20**	**$0.14**	**$0.63**	**$0.00**	**$1,045.35**	**$6.61**
Units	*kgal*	*kgal*	*kgal*	*kgal/day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*ind. bills*	*bills*

Notes:
(1) From Table 2.14. Values are in millions of dollars and are rounded.
(2) From Table 2.15.

Customer Allocation. Carollo analyzed customer billing data to determine the number of bills by meter size and customer type, as well as the discharge characteristics of each customer type. Table 2.17 details the results of the cost allocation by customer type based on FYE 2019 customer data.

Based on these unit allocations, Table 2.18 details the FYE 2022 cost-of-service for each customer type and cost component, which are then summed to determine the total revenue requirement by customer type. Detailed water cost-of-service allocations by customer type are provided for FYE 2023 through FYE 2026 in Appendix G.

The rate design analysis determines how the costs are recovered from each customer type through specified wastewater rates. The focus of this process is to achieve cost recovery and substantiate that customers are paying their fair and proportionate share of system costs. Houston Water's existing rate structure consists of two components: a volumetric rate (variable) and a monthly meter charge (fixed). The volumetric component is assessed based on metered water usage per 1,000 gallons and, by design, is intended to recover the cost incurred for collecting and treating each unit of wastewater. The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of wastewater service, which must be recovered independent of monthly wastewater flows and loadings. These two rate components serve as a basis for the following rate design chapter.

Table 2.17 Wastewater FYE 2019 Revenue Requirement Allocation by Customer Type (%)

Customer Type	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer
Retail:												
Single Family Residential	31.8%	31.6%	30.4%	31.6%	23.6%	24.5%	29.1%	30.4%	28.8%	30.1%	0.0%	88.5%
Multifamily Residential	35.8%	35.6%	34.2%	35.6%	29.4%	30.5%	36.1%	37.8%	35.8%	37.4%	0.0%	3.1%
Commercial / Industrial (1)	29.3%	29.1%	28.0%	29.1%	21.1%	21.8%	25.9%	27.1%	25.6%	26.8%	0.0%	8.2%
Industrial with Surcharges	3.0%	3.0%	2.9%	3.0%	21.9%	22.7%	3.9%	4.1%	4.9%	5.1%	100.0%	0.1%
Sewer Only (Unmetered)	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.2%
Wholesale:												
Capital w/o Collection System	0.0%	0.0%	4.0%	0.0%	3.5%	0.0%	4.3%	0.0%	4.3%	0.0%	0.0%	0.0%
No Capital w/Collection System	0.0%	0.5%	0.4%	0.5%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.0%	0.0%
Connection-based	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:
(1) Commercial/industrial customer type includes industrial customers who do not pay industrial surcharges.

Table 2.18 Wastewater FYE 2022 Revenue Requirement Allocation by Customer Type ($) ($ millions) (1)

Customer Type	FYE 2022	Flow – Retail	Flow – Retail + Cat. Y Whsl	Flow – All	Capacity	BOD – O&M	BOD – Capital	TSS – O&M	TSS – Capital	Ammonia – O&M	Ammonia – Capital	Industrial WW Pgm.	Customer
Retail:													
Single Family Residential	$215.8	$65.5	$65.9	$13.7	$11.0	$1.8	$6.4	$11.0	$8.0	$2.0	$0.0	$0.0	$30.4
Multifamily Residential	213.2	73.8	74.2	15.4	12.4	2.2	8.0	13.7	9.9	2.5	0.0	0.0	1.1
Commercial / Industrial (2)	172.6	60.3	60.7	12.6	10.2	1.6	5.7	9.8	7.1	1.8	0.0	0.0	2.8
Industrial with Surcharges	28.8	6.3	6.3	1.3	1.1	1.7	5.9	1.5	1.1	0.3	0.0	3.4	0.0
Sewer Only (Unmetered)	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Wholesale:													
Capital w/o Collection System	4.0	0.0	0.0	1.8	0.0	0.3	0.0	1.6	0.0	0.3	0.0	0.0	0.0
No Capital w/Collection System	1.8	0.0	1.0	0.2	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0
Connection-based	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**$637.0**	**$206.0**	**$208.3**	**$45.1**	**$34.9**	**$7.6**	**$26.2**	**$38.0**	**$26.2**	**$7.0**	**$0.0**	**$3.4**	**$34.4**

Notes:
(1) All values are in millions of dollars and are rounded.
(2) Commercial/industrial customer type includes industrial customers who do not pay industrial surcharges.

Chapter 3

RATE DESIGN

3.1 Introduction

Revenue requirements and cost-of-service allocations provide the basis for designing water and wastewater rates. Revenue requirements show the level of revenue to be recovered from rates to fund planned utility operations and maintenance and capital projects and provide adequate resources to meet target cash levels. Cost-of-service allocations provide the unit costs and ultimately the cost-of-service for each customer type that can then be used in the design of user charges or rates for service.

In the development of schedules of rates for service, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. As this is challenging to do for each individual customer, rates are normally designed to meet average conditions for groups of customers having similar service requirements.

The cost-of-service studies are the result of cost and engineering estimates based to some extent upon judgment and experience, and detailed results should not be used as exact answers but as guides to the necessity for rate adjustments. Practical considerations may enter into the final choice of charges, recognizing such factors as previous rate levels, existing rate structures, the degree of adjustments indicated, and policies concerning the application of rates. Carollo worked with Houston Water staff to analyze various adjustments with the goals of simplifying the water and wastewater rate structures and improving equity and understanding among customers. The proposed rates are intended to transition each customer type toward its cost-of-service.

3.2 Water System

3.2.1 Existing User Charges

Houston Water's existing rate structure has been in effect since April 1, 2021, and includes monthly meter charges and volume rates. The existing water rate structure is complex and difficult for customers to understand, especially the single-family residential rate structure, which is not consistent with commonly used structures. Existing water user charges have the following:

- Monthly meter charge (a base charge or fixed amount per retail account) that varies by meter size and customer type.
- Volume rate ($ per 1,000 gallons) structure with seven tiers for single family residential, two tiers for irrigation, and uniform rates for all other retail customer types.
- Volume rate ($ per 1,000 gallons) structure with minimum and excess rates for contract – treated water and contract – untreated water customers and O&M and overhead rates for water authorities and Southeast WPP co-participants.

3.2.2 Proposed User Charges

Carollo recommends the following modifications to the existing water rate structure:

- Monthly meter charges are proposed to be the same for single family residential, multifamily residential, commercial / industrial, irrigation, and emergency backup customer types.
- A new fixed charge per connection is proposed to recover the annual fee paid to TCEQ by Houston Water. This charge would appear separately from the monthly meter charge on the customer bill.
- A four-tier inclining block rate structure is proposed for single family residential with a conservation credit available to customers who use 3,000 gallons or less in a month, which would reduce the volume rate per 1,000 gallons for all usage.
- A uniform volume rate structure is proposed for irrigation.

For each test year, Carollo calculated cost-of-service rates for each customer type. To avoid significant impacts on customer bills, the study used the cost-of-service rates as a target and developed rates and rate adjustments that transition toward cost-of-service over the five-year period. This section will present the development of FYE 2022 cost-of-service rates and the recommended five-year rate adjustment plan.

3.2.2.1 Monthly Meter Charge

Monthly meter charges are intended to recognize that the utility incurs fixed costs to provide the availability of water service, which must be recovered independent of monthly water demands and consumption. Proposed monthly meter charges are the same for most retail customer types but vary for transient, resale, metered fire, and unmetered fire customers. Wholesale customers do not pay monthly meter charges.

By design, the monthly meter charge includes a customer component, a capacity component based on meter size, and a fire protection component based on meter size. The customer component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The capacity component captures maintenance costs related to meters and services, as well as a portion of the water system capital costs. The fire protection component captures costs related to providing and maintaining fire protection infrastructure (e.g., fire hydrants), as well as providing additional capacity in the system for fire flow requirements. The capacity and fire protection components vary based on meter size to reflect the difference in potential demand that can be placed on the system by different sized meters. The capacity charge and fire protection charge are then added to the customer unit cost to calculate the total monthly meter charge.

Residential, Commercial, Industrial, Irrigation, and Emergency Backup Customers. Table 3.1 shows the development of the cost-of-service monthly meter charge by meter size for the September 1, 2021, increase using unit costs developed in Table 2.7. This applies to single family residential, multifamily residential, commercial/industrial, irrigation, and emergency backup customers.

Table 3.1 Development of Water Monthly Meter Charge (September 1, 2021, increase)

Meter Size	MEU Multiplier [1]	Customer (Billing & Collecting)	Capacity (Meter Charges) [3]	Fire Protection [3]	Cost-of-Service Monthly Meter Charge [4]
Unit Cost per MEU per bill [2]		*$2.633*	*$2.105*	*$1.397*	
5/8"	1.0	$2.633	$2.105	$1.397	$6.14
3/4"	1.0	2.633	2.105	1.397	6.14
1"	1.7	2.633	3.578	2.375	8.59
1½"	2.7	2.633	5.683	3.772	12.09
2"	3.3	2.633	6.946	4.610	14.19
3"	8.3	2.633	17.471	11.594	31.70
4"	16.7	2.633	35.152	23.328	61.12
6"	40.0	2.633	84.196	55.876	142.71
8"	50.0	2.633	105.245	69.845	177.73
10"	66.7	2.633	140.397	93.173	236.21
12"	93.3	2.633	196.387	130.330	329.35

Notes:
(1) MEU multipliers are based on the safe maximum operating capacity, in gallons per minute, from the AWWA M6 Manual.
(2) From Table 2.7.
(3) Unit cost per MEU from Table 2.7 is divided by 12 months to get unit cost per MEU per monthly bill.
(4) Values are rounded and may not sum.

Table 3.2 shows the existing and proposed water monthly meter charges by meter size for September 1, 2021, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305. The proposed September 1, 2021, meter charges differ slightly from those developed in Table 3.1 based on Houston Water pricing objectives intended to minimize the impact to customers and improve customer affordability. The proposed monthly meter charges and adjustments apply to all retail customer types except transient, resale, and metered and unmetered fire.

Table 3.2 Existing and Proposed Water Monthly Meter Charges and Future Adjustments [1]

Meter Size	Existing					Proposed				
	SFR [2]	MFR [3]	Com/Ind	Irrigation	EBS [4]	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
					Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges						*Future Adjustments*				
5/8"	$5.82	$6.05	$6.05	$30.10	$8.68	$6.25	+$0.32	+$0.19	+$0.17	+$0.14	+$0.03
3/4"	5.82	6.24	6.24	30.10	8.68	6.25	+0.32	+0.19	+0.17	+0.14	+0.03
1"	7.21	7.50	7.50	33.74	12.34	8.80	+0.40	+0.32	+0.28	+0.25	+0.05
1½"	10.92	11.35	11.35	89.57	18.20	12.43	+0.52	+0.50	+0.45	+0.42	+0.06
2"	12.86	13.36	13.36	138.44	24.22	14.61	+0.59	+0.60	+0.56	+0.52	+0.07
3"	12.86	35.35	35.35	300.56	50.73	32.76	+1.20	+1.49	+1.40	+1.34	+0.17
4"	---	48.19	48.19	508.83	80.53	63.27	+2.21	+2.99	+2.81	+2.72	+0.32
6"	---	82.59	82.59	1,047.84	155.57	147.88	+5.02	+7.14	+6.72	+6.56	+0.75
8"	---	215.64	215.64	1,515.30	230.44	184.20	+6.21	+8.93	+8.41	+8.19	+0.95
10"	---	215.64	215.64	1,515.30	238.54	244.84	+8.23	+11.90	+11.22	+10.94	+1.26
12"	---	215.64	215.64	1,515.30	238.54	341.44	+11.43	+16.64	+15.69	+15.31	+1.76

Notes:
(1) Monthly meter charges and adjustments shown are proposed for single family residential, multifamily residential, commercial/industrial, irrigation, and emergency backup customers.
(2) SFR is Single Family Residential.
(3) MFR is Multifamily Residential.
(4) EBS is Emergency Backup Service.

Transient, Resale, Metered Fire, and Unmetered Fire Customers. Houston Water has several other retail customer types receiving water service that are charged different monthly meter charges than those shown in Table 3.2.

Transient customers have portable water meters that are typically used for construction sites. These portable meters cost more than the permanent meters used by other customer types. These accounts also require quarterly audits performed by Houston Water staff. The proposed monthly meter charges for transient customers reflect these additional costs.

Resale customers use water inconsistently and/or infrequently, which requires Houston Water to maintain system capacity for them even when they are not using water. The proposed monthly meter charges for resale customer reflect the cost incurred by Houston Water to provide this type of "stand-by" service.

There are two types of fire customers – metered and unmetered. Approximately 95 percent of fire customers are unmetered, which makes it difficult to determine the true cost to provide service to these customers. Houston Water wants to encourage these customers to install meters to measure any usage through the fire line by charging a reduced monthly meter charge for metered fire customers. Unmetered fire customers will pay higher monthly meter charges because their usage is not measured so the full cost-of-service must be recovered from the monthly meter charges.

Table 3.3 shows existing and proposed September 1, 2021, monthly meter charges for transient, resale, and fire customers, as well as the recommended adjustments to be made each April 1, during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.3 Existing and Proposed Water Monthly Meter Charges and Future Adjustments – Transient, Resale, Metered Fire, and Unmetered Fire Customers

Meter Size	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges		*Future Adjustments*				
Transient:							
1-inch	$20.17	$95.00	+$11.96	+$7.75	+$12.88	+$7.71	+$12.84
2-inch	26.90	185.00	+20.00	+15.00	+25.00	+15.00	+25.00
3-inch	33.62	460.00	+51.36	+37.69	+62.86	+37.78	+62.99
Resale:							
5/8-inch and 3/4-inch	$22.83	$24.05	+$0.20	+$0.09	+$0.06	+$0.03	+$0.00
1-inch	26.47	39.00	+0.27	+0.12	+0.10	+0.07	+0.04
1½-inch	65.31	60.40	+0.31	+0.19	+0.16	+0.13	+0.11
2-inch	99.60	73.25	+0.33	+0.22	+0.20	+0.17	+0.15
3-inch	215.61	180.00	+0.83	+0.51	+0.50	+0.48	+0.46
4-inch	363.21	360.00	+1.00	+1.00	+1.00	+1.00	+1.00
6-inch	744.47	859.00	+1.76	+2.34	+2.40	+2.45	+2.49
8-inch	1,078.45	1,075.00	+0.25	+2.94	+2.97	+3.08	+3.13

Meter Size	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges		*Future Adjustments*				
Metered Fire							
5/8-inch	$6.05	$4.70	+$0.23	+$0.08	+$0.05	+$0.09	+$0.01
3/4-inch	6.24	4.70	+0.23	+0.08	+0.05	+0.09	+0.01
1-inch	7.50	6.15	+0.27	+0.11	+0.09	+0.18	+0.07
1 1/2-inch	11.35	8.20	+0.35	+0.16	+0.14	+0.31	+0.14
2-inch	13.36	9.45	+0.38	+0.19	+0.17	+0.38	+0.19
3-inch	35.35	20.00	+0.48	+0.44	+0.42	+1.01	+0.58
4-inch	48.19	37.00	+1.37	+0.85	+0.84	+2.07	+1.21
6-inch	82.59	85.00	+3.00	+2.00	+2.00	+5.00	+3.00
8-inch	215.64	105.00	+4.30	+2.49	+2.50	+6.26	+3.77
10-inch	215.64	140.00	+4.87	+3.32	+3.33	+8.36	+5.05
Unmetered Fire [(1)]:							
5/8- and 3/4-inch	$15.83	$6.70	+$0.21	+$0.05	+$0.05	+$0.04	+$0.00
1-inch	15.83	9.55	+0.23	+0.07	+0.09	+0.09	+0.02
1 1/2-inch	63.05	13.60	+0.29	+0.09	+0.14	+0.17	+0.07
2-inch	93.00	16.05	+0.30	+0.11	+0.17	+0.22	+0.10
3-inch	93.00	36.00	+0.87	+0.23	+0.42	+0.59	+0.37
4-inch	93.00	70.00	+1.35	+0.44	+0.84	+1.24	+0.79
6-inch	103.59	165.00	+2.00	+1.00	+2.00	+3.00	+2.00
8-inch	176.82	205.00	+3.05	+1.24	+2.50	+3.76	+2.52
10-inch	238.53	275.00	+1.60	+1.65	+3.33	+5.03	+3.38
12-inch	238.53	380.00	+5.79	+2.30	+4.66	+7.05	+4.75

Note:
(1) Monthly meter charges and adjustments for unmetered fire customers are based on the size of the service line.

3.2.2.2 TCEQ Fee

The study proposes a new monthly fee to collect money from each connection to pay the annual TCEQ fee charged to Houston Water. This will be a separate line item on the bill and will be a uniform charge per connection. Every connection will pay the same each month, regardless of customer type or meter size. However, it should be noted that this fee is assessed per connection, not per meter or per account. While most accounts have one connection and one meter, there are some accounts with multiple connections and some meters that serve multiple connections.

The FYE 2022 monthly TCEQ fee per connection is calculated by dividing the unit cost from Table 2.7 by 12 months. The monthly TCEQ fee for September 1, 2021, is shown in Table 3.4, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.4 Proposed Monthly TCEQ Fee per Connection and Future Adjustments

Description	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Fee	*Future Adjustments*				
Monthly TCEQ Fee	$0.21	+$0.00	+$0.00	+$0.00	+$0.00	+$0.00

3.2.2.3 Volume Rates

Variable volume rates include a base component, which represents the cost to meet the average day demand; a maximum day component, which represents the incremental cost to meet the maximum day demand; and a maximum hour component, which represents the incremental cost to meet the maximum hour demand. These costs are allocated to the different customer types based on the demands they place on the water system. The three allocated components are then summed and divided by the projected usage to calculate the average rate per 1,000 gallons for each customer type.

Single Family Residential Customers. Table 3.5 shows the calculation of the cost-of-service uniform volume rate that will recover the FYE 2022 single family residential revenue requirement less the projected monthly meter charge revenue from the proposed charges shown in Table 3.2 and the projected revenue from the TCEQ fee shown in Table 3.4. This represents the rate that would be charged for every unit of water sold to single family residential customers to recover the full cost to provide service to these customers.

Table 3.5 FYE 2022 Single Family Residential Water Cost-of-Service Volume Rate Calculation

Description	FYE 2022
Month of Adjustment	*September 2021*
Single Family Residential Revenue Requirement *(a)*	$179,782,653
Less Projected Monthly Meter Charge Revenue *(b)*	(36,739,148)
Less Projected TCEQ Fee Revenue *(c)*	(1,033,315)
Net Single Family Residential Revenue Requirement *(d = a – b – c)*	$142,010,190
Projected Single Family Residential Usage (kgal) *(e)*	23,340,203
Cost-of-Service Uniform Rate ($/kgal) *(d / e)*	**$6.09**

The uniform cost-of-service volume rate provides important information about the true cost to treat and deliver water to single family residential customers to meet their base and peak demands. However, single family residential customers are not charged a uniform rate per 1,000 gallons. Single family residential is charged for water service based on a tiered structure so the volume rate varies for each incremental unit of water. The existing structure is made up of rates that vary for each incremental 1,000 gallons for the first 6,000 gallons, increasing and decreasing as a customer uses more water. This results in large bill increases at specific usage intervals. Carollo proposes transitioning to a water conservation rate structure with rates for usage blocks that increase as a customer uses more water. This will simplify the rate structure and make it easier for customers to understand how their usage affects their bill.

The proposed single-family residential rate structure also includes a conservation credit or reduced volume rate for customers who use 3,000 gallons or less in a month. This credit is available to all single-family residential customers every month if their usage does not exceed 3,000 gallons. Table 3.6 shows the reduced volume rate for September 1, 2021, for customers with monthly usage up to 3,000 gallons after the conservation credit is applied. Customers who use more than 3,000 gallons in a month pay the full Tier 1 volume rate for the first 3,000 gallons, as shown in Table 3.6. Table 3.6 also shows the recommended

adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.6 Existing and Proposed Single Family Residential Water Volume Rates and Future Adjustments

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Rates		*Future Adjustments*				
Customers with usage up to 3,000 gallons per month:							
First 1 kgal	$0.16	$1.00	+$0.20	+$0.10	+$0.20	+$0.15	+$0.10
Next 1 kgal	7.65						
Next 1 kgal	0.45						
** Single family residential customers who use 3,000 gallons or less per month receive a conservation credit.*							
Customers with usage in excess of 3,000 gallons per month:							
First 1 kgal	$0.16	$5.50	+$0.60	+$0.40	+$0.50	+$0.50	+$0.50
Next 1 kgal	7.65						
Next 1 kgal	0.45						
Next 1 kgal	12.56						
Next 1 kgal	5.29						
Next 1 kgal	5.29						
Next 6 kgal	5.74	8.00	+0.65	+0.45	+0.65	+0.55	+0.70
Next 8 kgal	9.46	11.00	+0.65	+0.35	+0.80	+0.50	+0.70
Over 20 kgal	9.46	15.00	+0.65	+0.35	+0.65	+0.35	+0.50

To calculate the monthly water bill, customers add the appropriate monthly meter charge from Table 3.2 and add the volume rate for each incremental 1,000-gallon unit from Table 3.6. Table 3.7 shows existing and proposed September 1, 2021, monthly water bills for single family residential customers with usage up to 6,000 gallons in one month, as well as the incremental amount added to the bills each year as a result of the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.7 Existing and Proposed Single Family Residential Bills and Future Adjustments– Water Only

Billed Usage	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Bills		*Incremental Bill Amounts*				
Meter Charge + TCEQ Fee	$5.82	$6.46	+$0.32	+$0.19	+$0.17	+$0.14	+$0.03
1,000 gallons	5.98	7.46	+0.52	+0.29	+0.37	+0.29	+0.13
2,000 gallons	13.63	8.46	+0.72	+0.39	+0.57	+0.44	+0.23
3,000 gallons	14.08	9.46	+0.92	+0.49	+0.77	+0.59	+0.33
4,000 gallons	26.64	28.46	+2.72	+1.79	+2.17	+2.14	+2.03
5,000 gallons	31.93	33.96	+3.32	+2.19	+2.67	+2.64	+2.53
6,000 gallons	37.22	39.46	+3.92	+2.59	+3.17	+3.14	+3.03

Figure 3.1 illustrates the existing and proposed single family residential water rates and bills for the first 6,000 gallons in 1,000-gallon increments. The amounts shown in this figure do not include future automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

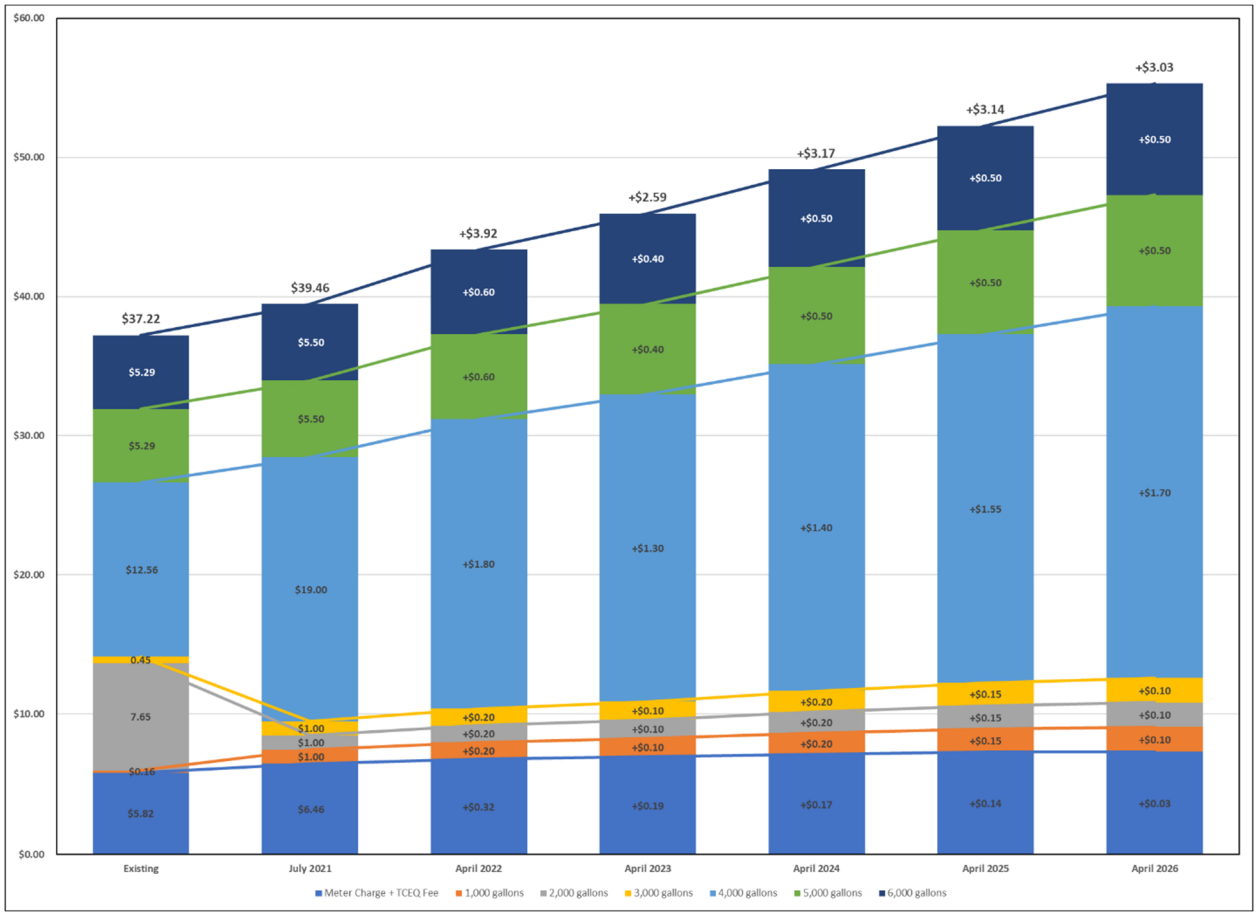


Figure 3.1 Existing and Proposed Single Family Residential Water Rates and Bills

Other Retail Customer Types. With the exception of irrigation customers, all other retail customer types pay a uniform rate per 1,000 gallons for all usage, which varies by customer type. Irrigation customers pay a reduced rate for a "defined quantity" of water that is set based on their meter size; all usage in excess of that amount is assessed a higher rate. Carollo recommends Houston Water continue to charge uniform rates for all retail customer types other than single family residential, including irrigation.

Table 3.8 shows the calculation of the cost-of-service uniform volume rate that will recover the FYE 2022 multifamily residential revenue requirement less the projected monthly meter charge revenue from the proposed charges shown in Table 3.2 and the projected revenue from the TCEQ fee shown in Table 3.4. This represents the rate that would be charged for every unit of water sold to multifamily residential customers to recover the full cost to provide service to these customers.

Table 3.8 FYE 2022 Multifamily Residential Water Cost-of-Service Volume Rate Calculation

Description	FYE 2022
Month of Adjustment	*September 2021*
Multifamily Residential Revenue Requirement *(a)*	$153,399,065
Less Projected Monthly Meter Charge Revenue *(b)*	(2,435,635)
Less Projected TCEQ Fee Revenue *(c)*	(1,446,400)
Net Multifamily Residential Revenue Requirement *(d = a – b – c)*	$149,517,030
Projected Multifamily Residential Usage (kgal) *(e)*	25,815,307
Cost-of-Service Uniform Rate ($/kgal) *(d / e)*	**$5.80**

Additional detail showing the calculations of the cost-of-service rate for each customer class for each year of the five-year rate-setting period are provided in Appendix I.

Table 3.9 shows existing and proposed September 1, 2021, volume rates for all retail customer types except single family residential, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.9 Existing and Proposed Retail Water Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Multifamily Residential	All Usage	$4.65	$5.45	+$0.49	+$0.36	+$0.45	+$0.47	+$0.42
Commercial/ Industrial	All Usage	4.77	5.55	+0.60	+0.40	+0.60	+0.57	+0.52
Irrigation (1)	Block 1	3.50	---	---	---	---	---	---
	Block 2	8.06	---	---	---	---	---	---
	All Usage	---	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Transient	All Usage	5.35	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Resale	All Usage	5.73	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Emergency Backup	All Usage	8.85	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Metered Fire	All Usage	4.77	10.00	+0.45	+0.27	+0.45	+0.44	+0.39

Note:
(1) Irrigation customers with meters larger than 1 inch receive a "defined quantity" of water at a reduced Block 1 rate. The defined quantity is based on the meter size. Irrigation customers with 1-inch or smaller meters do not receive any water at the reduced Block 1 rate.

The study recommends maintaining the existing wholesale and contract customers' rate structures. Contract Treated Water customers pay a uniform rate for all usage and an excess surcharge for all usage above their contract minimum volume. Groundwater Reduction Plan (GRP) customers' rate is based on the Contract Treated Water – Airgap rate although it is reduced based on the required groundwater reduction for each Area. Areas 1 and 2 pay 80 percent of the Contract Treated rate, and Area 3 currently pays 30 percent, but that increases to 60 percent in FYE 2023. These rates, as well as the Contract Untreated rate, are shown for September 1, 2021, in Table 3.10, as well as the recommended adjustments to be made each April 1 during

the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.10 Existing and Proposed Wholesale Water Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Contract w/Airgap	Minimum	$3.31	$3.35	+$0.35	+$0.02	+$0.11	+$0.17	+$0.10
	Excess	0.82	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
Contract w/o Airgap	Minimum	4.04	4.05	+0.15	+0.02	+0.03	+0.20	+0.15
	Excess	0.82	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
GRP Areas 1 & 2	All Usage	3.23	2.68	+0.28	+0.02	+0.08	+0.14	+0.08
GRP Area 3	All Usage	1.21	1.01	+0.11	+1.12	+0.07	+0.10	+0.06
Contract Untreated	All Usage	0.7573	0.8500	+0.0000	+0.0000	+0.0000	+0.0000	+0.0000

3.3 Wastewater System

3.3.1 Existing User Charges

Houston Water's existing wastewater user charges have been in effect since April 1, 2021, and include monthly meter charges and volume rates. The existing rate structure is complex and difficult for customers to understand, especially the single-family residential rate structure, which is inconsistent with commonly used structures. Existing wastewater user charges have the following:

- Monthly meter charge (a base charge or fixed amount per retail account) that varies by meter size and customer type.
- Volume rate ($ per 1,000 gallons) structure with six tiers for single family residential, two tiers for industrial customers who do not pay BOD and TSS surcharges, and uniform rates for all other retail customer types.
- Monthly service charge (fixed charge per bill) for sewer only customers who are not connected to the water system and therefore do not have metered water usage data for billing. These charges vary by customer type.
- Industrial wastewater surcharges ($ per pound of BOD and TSS) assessed to customers in the industrial wastewater program based on the strength of sampled wastewater.
- Volume rate ($ per 1,000 gallons) structure two types of contract wastewater customers – those who have contributed capital and discharge wastewater directly to the treatment plant and those who have not contributed capital and discharge wastewater into the collection system.
- Monthly service charge (fixed charge per connection) for contract wastewater customers that do not provide metered water usage data.

The monthly service charge is intended to recognize that the utility incurs fixed costs to provide the availability of wastewater service, which must be recovered independent of monthly wastewater flow.

3.3.2 Proposed User Charges

Carollo recommends the following modifications to the existing wastewater rate structure:

- Monthly meter charges are proposed to be the same for single family residential, multifamily residential, commercial, and industrial customer types.
- A new industrial program charge is proposed to recover costs associated with Houston Water's industrial wastewater program. This charge would appear separately from the monthly meter charge on the customer bill and will only be charged to industrial customers who are part of the program and pay surcharges.
- A two-tier inclining block rate structure is proposed for single family residential.
- A uniform volume rate structure is proposed for industrial customers who do not pay surcharges.
- A new volume rate is proposed for contract wastewater customers who contribute capital and discharge wastewater to the collection system.

For each test year, Carollo calculated cost-of-service rates for each customer type. To avoid significant impacts on customer bills, the study used the cost-of-service rates as a target and developed rates and rate adjustments that transition toward cost-of-service over the five-year period. This section will present the development of FYE 2022 cost-of-service rates and the recommended five-year rate adjustment plan.

3.3.2.1 Monthly Meter Charge

Monthly meter charges are intended to recognize that the utility incurs fixed costs to provide the availability of wastewater service, which must be recovered independent of monthly water usage and wastewater discharge. Proposed monthly meter charges are the same for all retail customer types except unmetered sewer only customers. Wholesale customers do not pay monthly meter charges.

By design, the monthly meter charge includes a customer component and a capacity component based on water meter size. The customer component recovers expenses associated with billing, collection, and customer service. This component is the same for all customers regardless of meter size. The capacity component captures a portion of the wastewater system capital costs. This component varies based on water meter size to reflect the difference in potential flow that can be discharged to the system by customers with different sized water meters. The capacity charge is then added to the customer unit cost to calculate the total monthly meter charge.

Residential, Commercial, and Industrial Customers. Table 3.11 shows the development of the cost-of-service monthly meter charge by meter size for the September 1, 2021, increase using unit costs developed in Table 2.7. This applies to single family residential, multifamily residential, commercial/industrial, irrigation, and emergency backup customers.

Table 3.11 Development of Wastewater Monthly Meter Charge (September 1, 2021, increase)

Meter Size	MEU Multiplier [1]	Customer	Capacity [3]	Cost-of-Service Monthly Meter Charge [4]
Unit Cost per MEU per bill [2]		*$6.466*	*$4.469*	
5/8"	1.0	$6.466	$4.469	$10.94
3/4"	1.0	6.466	4.469	10.94
1"	1.7	6.466	7.598	14.07
1½"	2.7	6.466	12.067	18.54
2"	3.3	6.466	14.749	21.22
3"	8.3	6.466	37.096	43.57
4"	16.7	6.466	74.639	81.11
6"	40.0	6.466	178.776	185.25
8"	50.0	6.466	223.469	229.94
10"	66.7	6.466	298.108	304.58
12"	93.3	6.466	416.994	423.47
16"	229.2	6.466	1,024.384	1,030.86

Notes:
(1) MEU multipliers are based on the safe maximum operating capacity, in gallons per minute, from the AWWA M6 Manual.
(2) From Table 2.16.
(3) Capacity revenue requirement from Table 2.16 is divided by projected 640,778 MEUs and by 12 months to get unit cost per MEU per monthly bill.
(4) Values are rounded and may not sum.

Table 3.12 shows the existing and proposed wastewater monthly meter charges by meter size for September 1, 2021, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305. The proposed September 1, 2021, meter charges differ from those developed in Table 3.11 based on Houston Water pricing objectives intended to minimize the impact to customers and improve customer affordability. The proposed monthly meter charges and adjustments apply to all retail customer types except unmetered sewer only customers.

Table 3.12 Existing and Proposed Wastewater Monthly Meter Charges and Future Adjustments

Meter Size	Existing				Proposed					
	SFR [1]	MFR [2]	Commercial	Industrial [3]	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
				Month of Adjustment	*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Charges					*Future Adjustments*				
5/8"	$12.37	$10.64	$10.64	$17.98	$10.00	+$1.50	+$1.00	+$1.10	+$0.60	+$0.60
3/4"	12.37	10.64	10.64	17.98	10.00	+1.50	+1.00	+1.10	+0.60	+0.60
1"	13.00	11.17	11.17	17.98	12.45	+1.79	+2.15	+1.61	+0.96	+1.08
1½"	15.06	12.96	12.96	17.98	15.93	+2.23	+3.78	+2.25	+1.57	+1.49
2"	15.69	13.49	13.49	17.98	18.03	+2.47	+4.76	+2.62	+1.96	+1.70
3"	28.11	24.17	24.17	23.95	35.46	+4.60	+12.60	+5.92	+4.63	+4.03
4"	---	27.37	27.37	27.37	64.76	+8.16	+25.37	+11.87	+9.09	+7.97
6"	---	39.12	39.12	39.12	146.02	+18.05	+60.80	+28.36	+21.47	+18.89
8"	---	95.00	95.00	95.00	180.90	+22.29	+76.01	+35.43	+26.79	+23.58
10"	---	115.47	115.47	115.47	239.14	+29.38	+101.40	+47.26	+35.66	+31.40
12"	---	115.47	115.47	115.47	331.92	+40.65	+141.85	+66.09	+49.79	+43.87
16"	---	115.47	115.47	115.47	805.89	+98.31	+348.49	+162.30	+122.00	+107.56

Notes:
(1) SFR is Single Family Residential.
(2) MFR is Multifamily Residential.
(3) Monthly meter charges and adjustments for industrial customers in this table are for all industrial customers, including those who pay surcharges.

Industrial Surcharge and Sewer Only (Unmetered) Customers. Houston Water manages an Industrial Wastewater Program for permitted industrial customers who discharge high-strength wastewater into the system. These customers are sampled regularly and pay surcharges based on the loadings concentrations of their sampled wastewater. As part of the cost-of-service rate study, Carollo worked with Houston Water staff to identify and isolate the cost of this program and allocate it to the industrial surcharge customers. Carollo recommends implementation of an Industrial Program Charge, which would be added to the industrial surcharge customers' bills, in addition to the monthly service charge, to pay for the cost of the program. The recommended September 1, 2021, industrial program charge and future adjustments in Table 3.13 phase in this charge over the 5-year study period. Table 3.13 also shows proposed September 1, 2021, monthly service charges, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, for sewer only customers, which are based on customer type.

Table 3.13 Existing and Proposed Wastewater Monthly Service Charges and Future Adjustments – Industrial Customers with Surcharges and Sewer Only Customers

Customer Type	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
Industrial with Surcharge:							
Industrial Program	---	$100.00	+$200.00	+$200.00	+$200.00	+$200.00	+$250.00
Sewer Only:							
Single Family Res.	$30.51	$36.00	+$5.00	+$4.00	+$5.00	+$5.00	+$5.00
Duplex	64.71	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Multifamily Res.	37.85	36.00	+5.00	+4.00	+5.00	+5.00	+5.00
Commercial	71.41	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Industrial	71.39	72.00	+10.00	+8.00	+10.00	+10.00	+10.00

Note:
(1) Charges and adjustments shown for sewer only customers are monthly, but sewer only customers are billed and will continue to be billed bimonthly. The existing multifamily charge is per unit for multifamily accounts with 3 or more units. The existing commercial and industrial charges are per unit as defined in §47-1002.

3.3.2.2 Volume Rates

Variable volume rates include a flow component, which represents the cost to collect and treat wastewater flow; a BOD component, which represents the cost to treat BOD; a TSS component, which represents the cost to treat TSS; and an ammonia component, which represents the cost to treat ammonia. These costs are allocated to the different customer types based on their contributed flows and assumed loadings (BOD, TSS, and ammonia). The allocated components are then summed and divided by the projected flow to calculate the average rate per 1,000 gallons for each customer type. The billable volume for each customer is equal to the metered water usage, except for unmetered sewer only customers and those customers with effluent meters.

Single Family Residential Customers. Table 3.14 shows the calculation of the cost-of-service uniform volume rate that will recover the FYE 2022 single family residential revenue requirement less the projected monthly meter charge revenue from the proposed charges shown in Table 3.12. This represents the rate that would be charged for every billable unit of single-family residential wastewater to recover the full cost to provide service to these customers.

Table 3.14 FYE 2022 Single Family Residential Wastewater Cost-of-Service Volume Rate Calculation

Description	FYE 2022
Month of Adjustment	*September 2021*
Single Family Residential Revenue Requirement *(a)*	$212,638,050
Less Projected Monthly Meter Charge Revenue *(b)*	(78,834,367)
Net Single Family Residential Revenue Requirement *(c = a – b)*	$133,803,683
Projected Single Family Residential Usage (kgal) *(d)*	22,344,168
Cost-of-Service Uniform Rate ($/kgal) *(c / d)*	**$5.99**

The uniform cost-of-service volume rate provides important information about the true cost to collect, treat, and discharge wastewater from single family residential customers. However, single family residential customers are not charged a uniform rate per 1,000 gallons. Similar to water, the single-family residential wastewater rate structure is made up of rates that vary for each incremental 1,000 gallons for the first 6,000 gallons, increasing and decreasing as a customer's billable volume goes up. This results in large bill increases at specific usage intervals. Carollo recommends simplifying this structure to two blocks with a reduced rate per 1,000 gallons for the first 3,000 gallons and a higher rate per 1,000 gallons for all usage in excess of 3,000 gallons per month.

Table 3.15 shows the existing and proposed September 1, 2021, single family residential wastewater volume rates for the study period, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.15 Existing and Proposed Single Family Residential Wastewater Volume Rates and Future Adjustments

Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Rates		*Future Adjustments*				
First 1 kgal	$0.20	$4.00	+$0.50	+$0.30	+$1.00	+$0.75	+$0.40
Next 1 kgal	0.41						
Next 1 kgal	0.33						
Next 1 kgal	17.20	10.50	+0.75	+0.25	+0.75	+0.30	+0.70
Next 1 kgal	6.22						
Over 5 kgal	9.05						

To calculate the monthly wastewater bill, customers add the appropriate monthly meter charge from Table 3.12 and add the volume rate for each incremental 1,000-gallon unit from Table 3.15. Table 3.16 shows existing and proposed September 1, 2021, monthly wastewater bills for single family residential customers with usage up to 6,000 gallons in one month, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.16 Existing and Proposed Single Family Residential Bills and Future Adjustments – Wastewater Only

Billable Volume	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
	Bills		*Incremental Bill Amounts*				
Meter Charge only	$12.37	$10.00	+$1.50	+$1.00	+$1.10	+$0.60	+$0.60
1,000 gallons	12.57	14.00	+2.00	+1.30	+2.10	+1.35	+1.00
2,000 gallons	12.98	18.00	+2.50	+1.60	+3.10	+2.10	+1.40
3,000 gallons	13.31	22.00	+3.00	+1.90	+4.10	+2.85	+1.80
4,000 gallons	30.51	32.50	+3.75	+2.15	+4.85	+3.15	+2.50
5,000 gallons	36.73	43.00	+4.50	+2.40	+5.60	+3.45	+3.20
6,000 gallons	45.78	53.50	+5.25	+2.65	+6.35	+3.75	+3.90

Figure 3.2 illustrates the existing and proposed single family residential wastewater rates and bills for the first 6,000 gallons in 1,000-gallon increments. The amounts shown in this figure do not include future automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

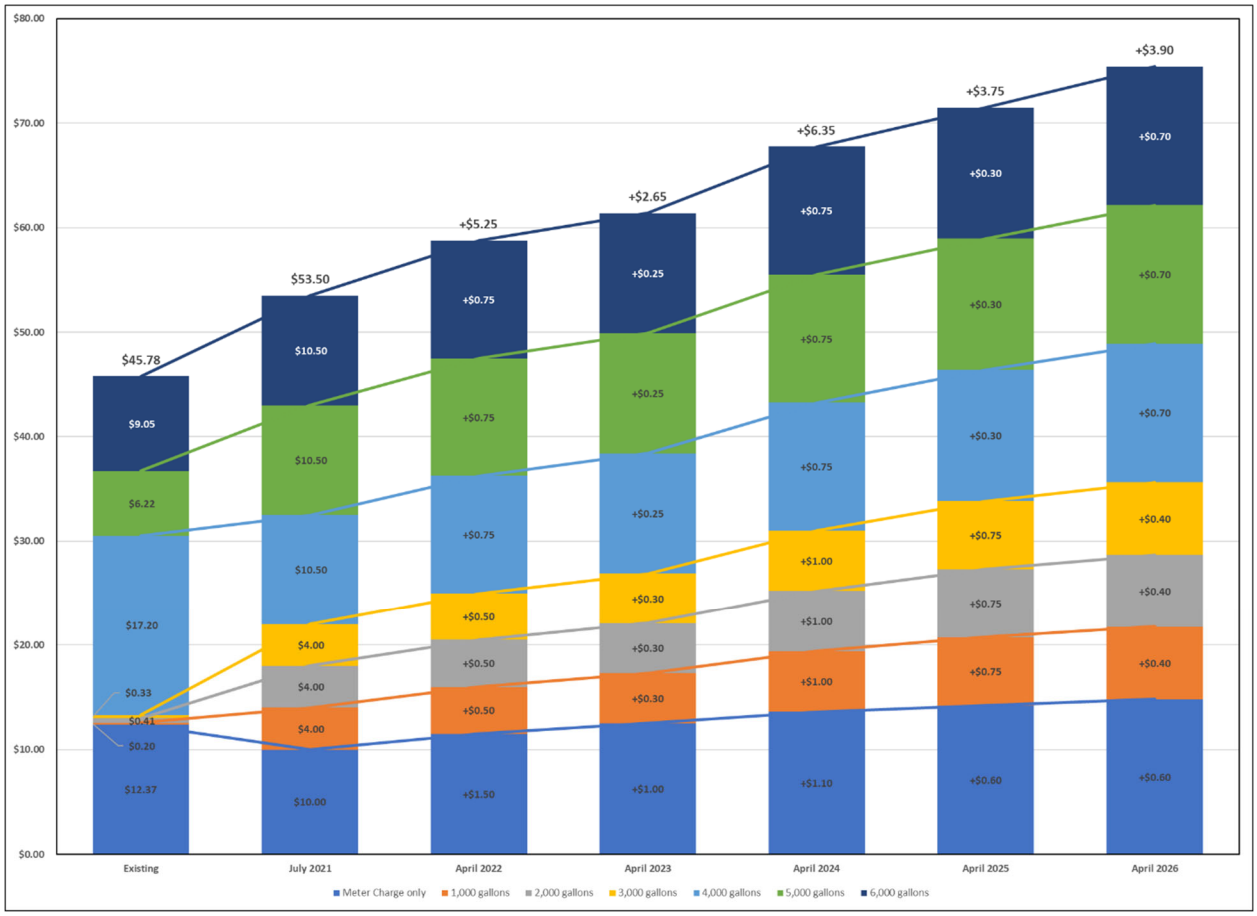


Figure 3.2 Existing and Proposed Single Family Residential Wastewater Rates and Bills

Other Retail Customer Types. With the exception of industrial customers who do not pay surcharges, all other retail customer types pay a uniform rate per 1,000 gallons for all billable volume, which varies by customer type. Non-surcharge industrial customers pay a reduced rate for the first 2,000 gallons; all usage in excess of 2,000 gallons is assessed a higher rate. Carollo recommends Houston Water continue to charge uniform rates for all retail customer types other than single family residential, including all industrial customers.

Table 3.17 shows the calculation of the cost-of-service uniform volume rate that will recover the FYE 2022 multifamily residential revenue requirement less the projected monthly meter charge revenue from the proposed charges shown in Table 3.12. This represents the rate that would be charged for every unit of wastewater discharged from multifamily residential customers to recover the full cost to provide service to these customers.

Table 3.17 FYE 2022 Multifamily Residential Wastewater Cost-of-Service Volume Rate Calculation

Description	FYE 2022
Month of Adjustment	*September 2021*
Multifamily Residential Revenue Requirement *(a)*	$210,287,534
Less Projected Monthly Meter Charge Revenue *(b)*	(31,196,583)
Net Multifamily Residential Revenue Requirement *(d = a – b – c)*	$179,090,952
Projected Multifamily Residential Usage (kgal) *(e)*	25,155,956
Cost-of-Service Uniform Rate ($/kgal) *(d / e)*	**$7.12**

Additional detail showing the calculations of the cost-of-service rate for each customer class for each year of the five-year rate-setting period are provided in Appendix J.

Table 3.18 shows existing and proposed September 1, 2021, volume rates for all retail customer types except single family residential, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.18 Existing and Proposed Retail Wastewater Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment			*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Multifamily Residential	All Flow	$6.76	$7.40	+$0.66	+$0.29	+$0.90	+$0.53	+$0.60
Commercial	All Flow	6.76	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial (no surcharge)	First 2 kgal	4.16	---	---	---	---	---	---
	Over 2 kgal	7.40	---	---	---	---	---	---
	All Usage	---	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial with Surcharge	All Flow	4.90	8.00	+0.60	+0.10	+0.65	+0.25	+0.25
	BOD (1)	0.8440	0.4441	+0.0512	+0.0376	+0.0638	+0.0402	+0.0386
	TSS (1)	0.3331	0.3395	+0.0347	+0.0122	+0.0349	+0.0184	+0.0180
	Ammonia (1)	---	0.6290	+0.0549	-0.0126	+0.0351	+0.0079	-0.0080

Note:
(1) BOD, TSS, and ammonia surcharges are assessed per pound.

Carollo recommends maintaining the existing wholesale and contract customers' rate structures. There are currently three types of contract wastewater customers:

1. Customers who have contributed capital and discharge directly to the wastewater treatment plant (billed per 1,000 gallons). These customers pay a reduced rate that does not include capital costs or costs related to collecting wastewater and conveying it to the treatment plant.
2. Customers who have not contributed capital and discharge into the collection system. These customers pay the full cost of collecting and treating wastewater based on how they are billed:
    a. Billed per 1,000 gallons,
    b. Billed per connection.

In addition to these existing contract rates, Houston Water requested a fourth rate for contract customers who have contributed capital and discharge into the collection system. This rate does not include capital costs. Existing and proposed September 1, 2021, contract wastewater rates are shown in Table 3.19, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305.

Table 3.19 Existing and Proposed Wholesale Wastewater Volume Rates and Future Adjustments

Customer Type	Rate Block	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	Month of Adjustment		*Sept 2021*	*April 2022*	*April 2023*	*April 2024*	*April 2025*	*April 2026*
		Rates		*Future Adjustments*				
Capital w/o Collection System	All Flow	$1.64	$1.65	+$0.00	+$0.00	+$0.00	+$0.00	+$0.00
Capital with Collection System	All Flow	---	3.05	+0.12	+0.00	+0.05	+0.01	+0.00
No Capital w/Collection System	All Flow	6.25	6.25	+0.00	+0.15	+0.67	+0.40	+0.44
Connection-based	All Connections	8.86/ 24.71	25.00	+0.30	+1.42	+2.87	+1.71	+1.93

3.3.3 Customer Bill Impacts

Figure 3.3 illustrates the impact of the recommended September 1, 2021, rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for single family residential customers with a 5/8-inch meter across various usage levels. The incremental percentage of single-family residential bills is shown between usage levels. The estimated per capita usage at each level is shown at the far right of each line. This estimate assumes 2.6 people per account.

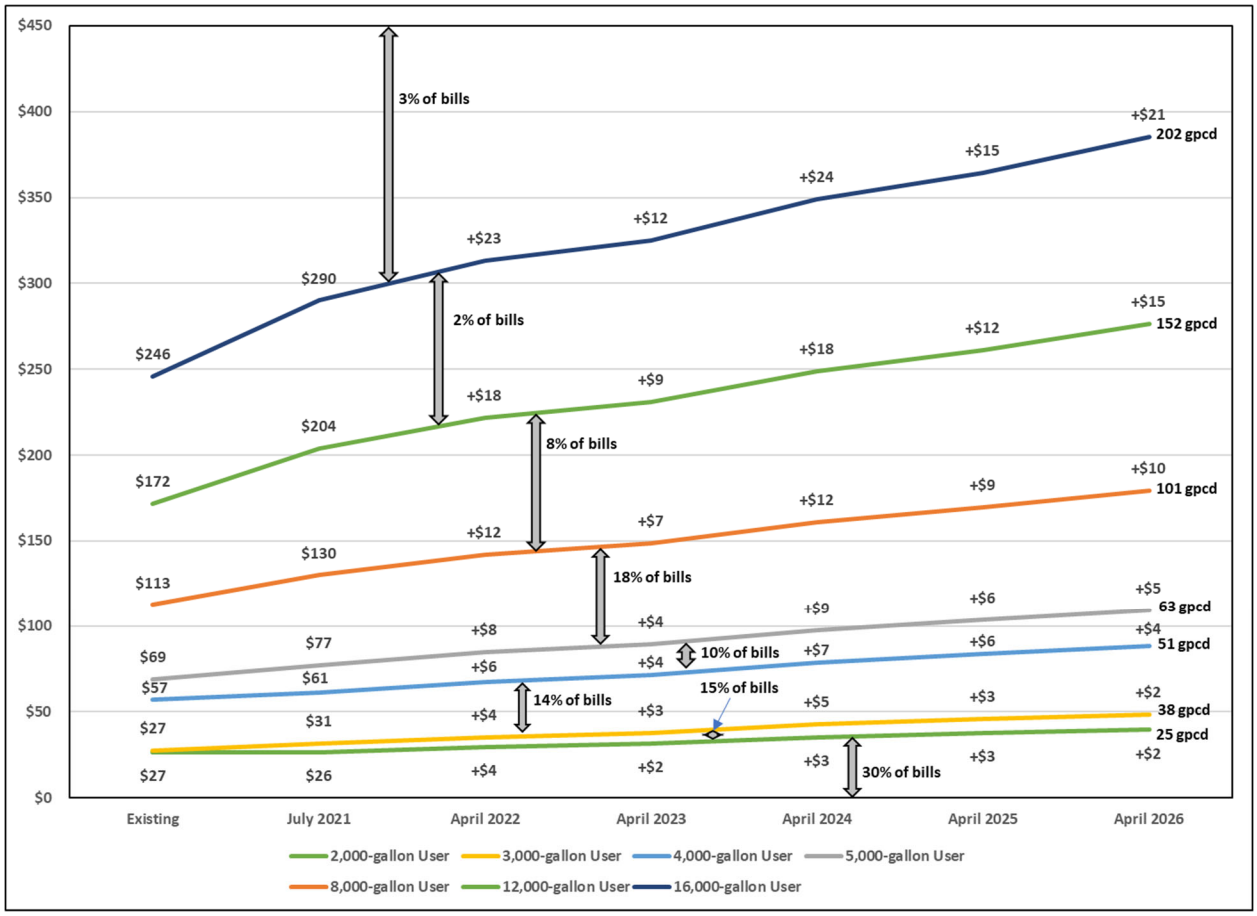


Figure 3.3 Single Family Residential Monthly Combined Bill Impact

Figure 3.4 illustrates the impact of the recommended rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for multifamily residential customers with varied meter sizes and usage levels. The incremental percentage of multifamily residential bills is shown between usage levels.

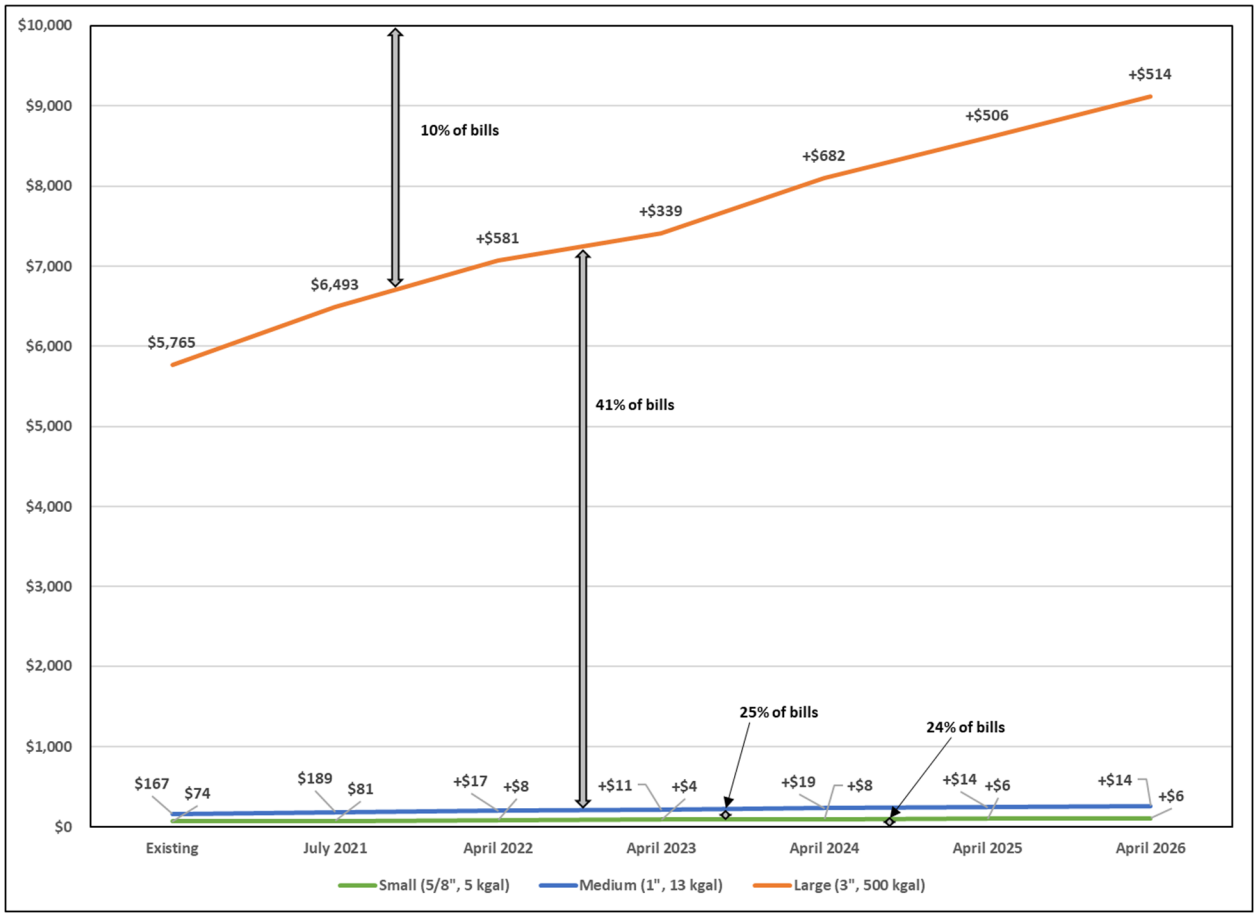


Figure 3.4 Multifamily Residential Monthly Combined Bill Impact

Figure 3.5 illustrates the impact of the recommended rates, as well as the recommended adjustments to be made each April 1 during the study period independent of the automatic adjustments governed by the Master Ordinance and Ordinance 2010-305, on the combined water and wastewater bill for commercial and industrial customers with varied meter sizes and usage levels. The incremental percentage of commercial and industrial bills is shown between usage levels.

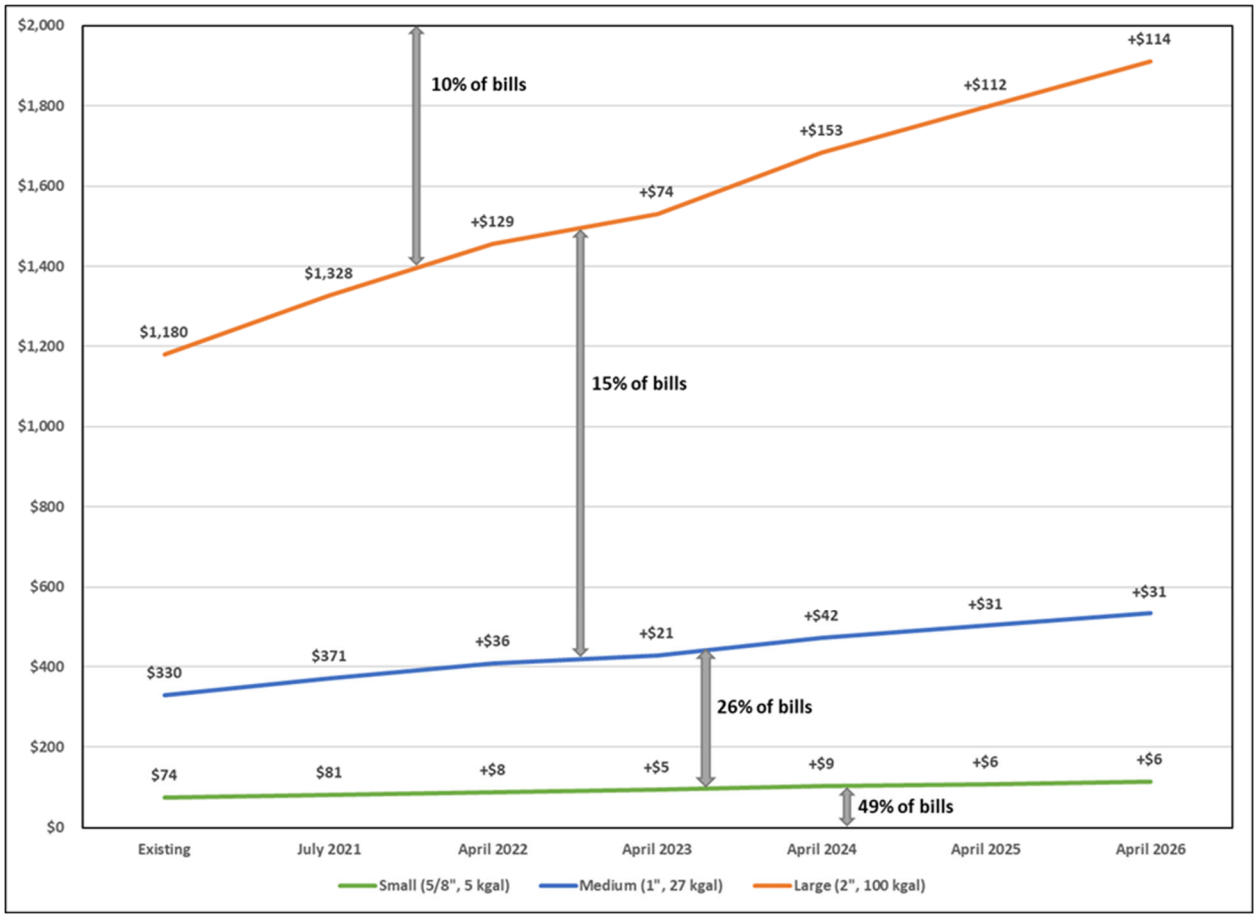


Figure 3.5 Commercial/Industrial Monthly Combined Bill Impact

Figure 3.6 illustrates the percentage of single-family residential customers with varying levels of monthly bill adjustments for the proposed rate schedule effective September 1, 2021.

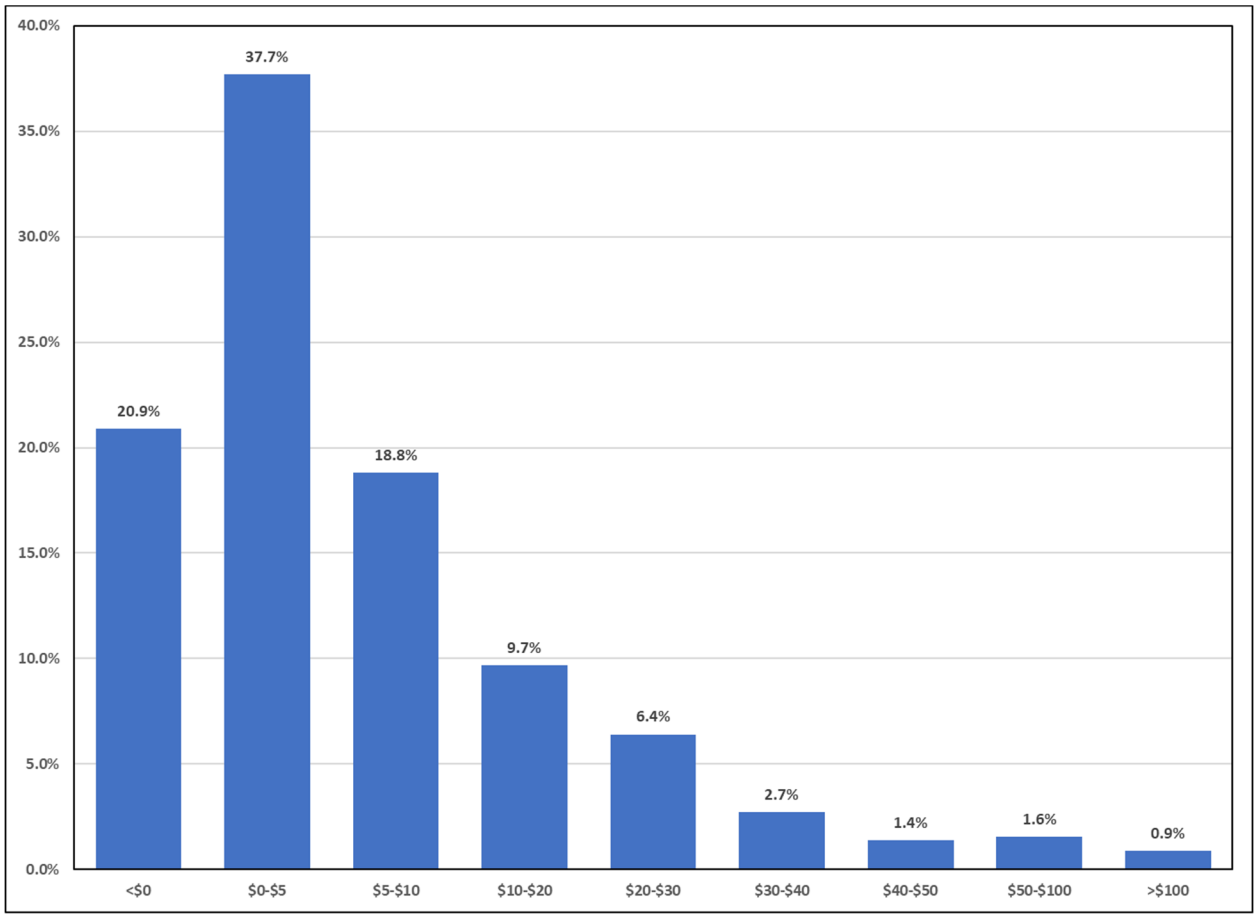


Figure 3.6 Distribution of September 2021 Monthly Combined Bill Impacts for Single Family Residential Customers

Chapter 4

RECOMMENDATIONS

Carollo recommends implementation of the water and wastewater rates as proposed in this rate study report and described below:

- Water sales revenue increases by 9.0 percent on September 1, 2021, by 7.5 percent on April 1, 2022, by 6.0 percent on April 1, 2023, by 7.0 percent on April 1, 2024, by 6.0 percent on April 1, 2025, and by 6.5 percent on April 1, 2026.
- Wastewater user charge revenue increases by 20.0 percent on September 1, 2021, by 11.0 percent on April 1, 2022, by 6.0 percent on April 1, 2023, by 11.0 percent on April 1, 2024, by 6.0 percent on April 1, 2025, and by 6.5 percent on April 1, 2026.

Water monthly service charge based on meter size and uniform for single family residential, multifamily residential, commercial/industrial, and irrigation customers. Other customer types pay monthly service charges based on meter size that differ based on the customer type and service provided.

For single family residential customers, Carollo recommends a four-tier inclining block water rate structure with a conservation credit for customers who use 3,000 gallons or less in a month:

- Block 1 – First 6,000 gallons;
- Block 2 – Next 6,000 gallons;
- Block 3 – Next 8,000 gallons; and
- Block 4 – Over 20,000 gallons.

Figure 4.1 compares the existing and proposed volume water rate structures for single family residential customers.

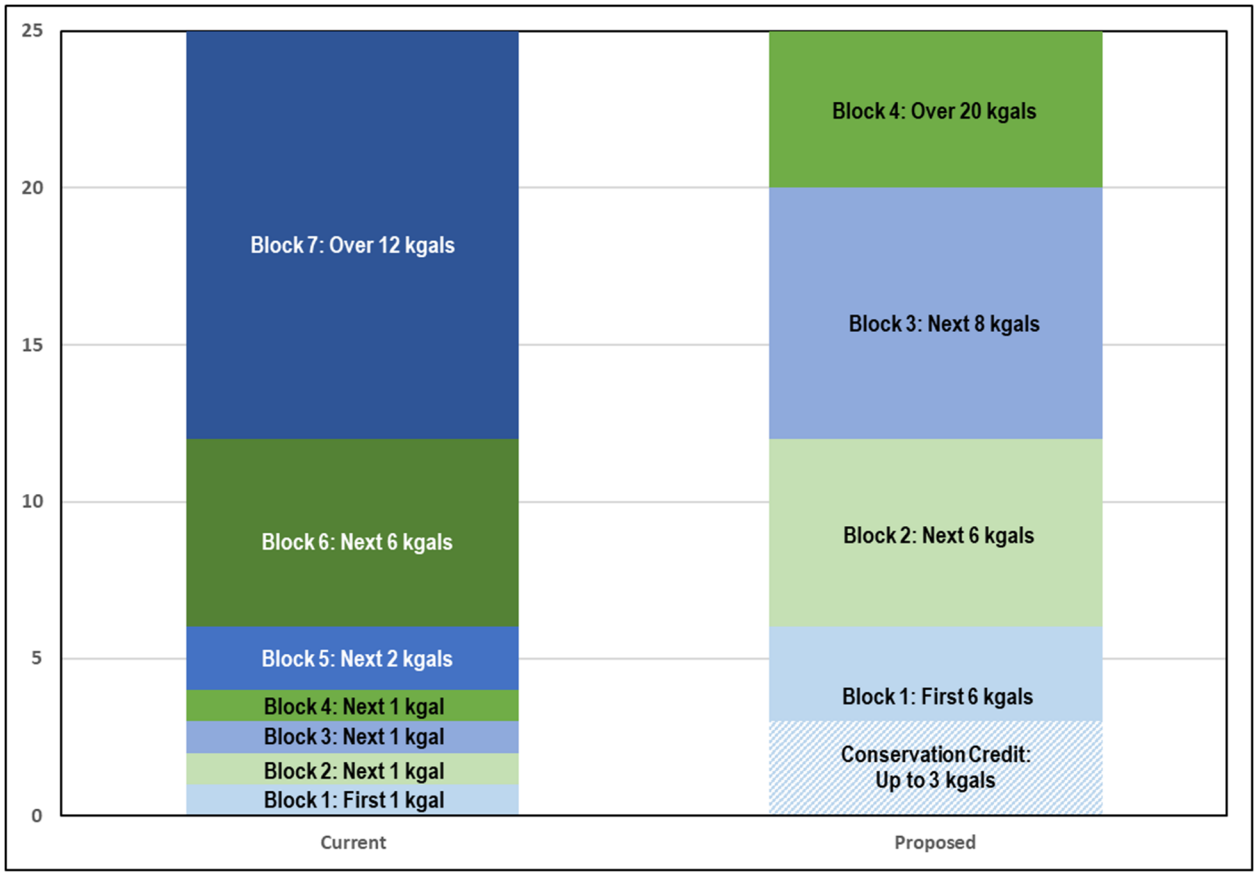


Figure 4.1 Existing and Proposed Single Family Residential Volume Water Rate Structures

For wastewater, Carollo recommends simplifying the single-family residential rate structure to two tiers:

- Block 1 – First 3,000 gallons; and
- Block 2 – Over 3,000 gallons.

Figure 4.2 compares the existing and proposed volume water rate structures for single family residential customers.

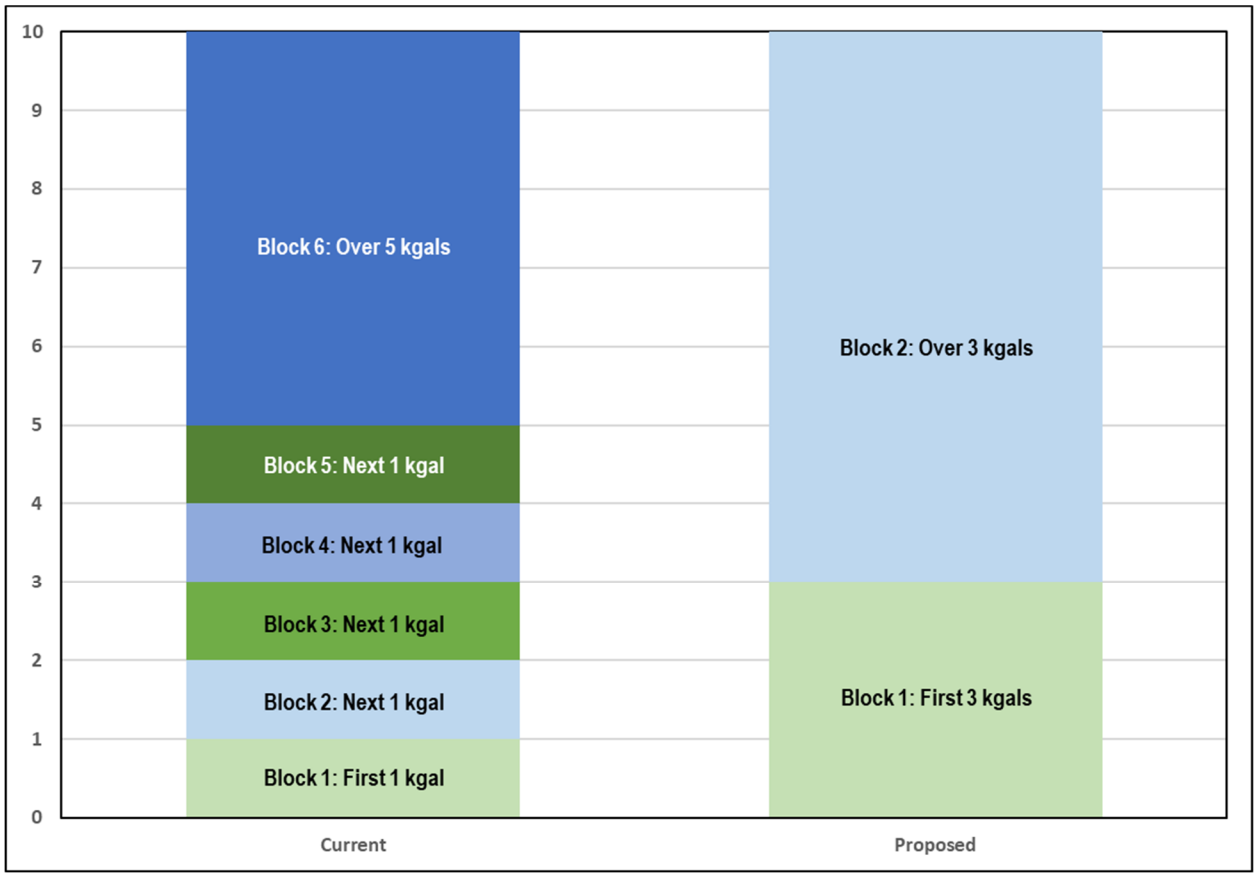


Figure 4.2 Existing and Proposed Single Family Residential Volume Wastewater Rate Structures

Carollo recommends a uniform rate per 1,000 gallons for both water and wastewater for multifamily residential and nonresidential customers.

Finally, Carollo recommends Houston Water update this cost-of-service rate study within five years to maintain revenue sufficiency and equity among customers.

Appendix A

WATER FYE 2021 BUDGET AND FYE 2022-2026 PROJECTIONS

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**REVENUES Water**									
2	**Operating**									
3	**Water Revenues**									
4		Metered Customers			$ 592,117,520					
5	456125	Fire Sprinkler Fees			$ 6,605,367					
6		Water Sales	No Inflation	$ 747,663,081	$ 598,722,887	$ 607,703,730	$ 712,076,846	$ 754,801,457	$ 807,637,559	$ 856,095,812
7	455020	Water Service Penalties	No Inflation	$ 6,868,197	$ 5,500,000	$ 5,582,500	$ 6,541,294	$ 6,933,772	$ 7,419,136	$ 7,864,284
8	455040	Utility Service Penalties	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9		**Water Revenues Subtotal**		**$ 754,531,278**	**$ 604,222,887**	**$ 613,286,230**	**$ 718,618,140**	**$ 761,735,229**	**$ 815,056,695**	**$ 863,960,096**
10	**Other Water Operating Revenue (Non rate)**									
11	431020	Contributions from Others	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	455010	Sewer Service Penalties	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	455040	Utility Service Penalties	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
14	425030	Indirect Cost Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	426270	Utility District Appl Review	No Inflation	$ 31,585	$ 31,119	$ 31,585	$ 31,585	$ 31,585	$ 31,585	$ 31,585
16	426330	Miscellaneous Copies Fees	No Inflation	$ 6,048	$ 5,959	$ 6,048	$ 6,048	$ 6,048	$ 6,048	$ 6,048
17	456110	Storm Water Quality Management Pe	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
18	456115	Industrial Waste Discharge Permits	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
19	456125	Fire Sprinkler Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	456130	Water Meter Rental Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	456135	Delinquent Reconnection Fees	No Inflation	$ 203,777	$ 200,765	$ 203,777	$ 203,777	$ 203,777	$ 203,777	$ 203,777
22	456140	Tap Installation Fees	No Inflation	$ 1,019	$ 1,004	$ 1,019	$ 1,019	$ 1,019	$ 1,019	$ 1,019
23	456145	Meter Installation Fees	No Inflation	$ 509,442	$ 501,913	$ 509,442	$ 509,442	$ 509,442	$ 509,442	$ 509,442
24	456150	Engineering Inspection Fees	No Inflation	$ 254,721	$ 250,957	$ 254,721	$ 254,721	$ 254,721	$ 254,721	$ 254,721
25	456155	Meter Testing Fees	No Inflation	$ 1,019	$ 1,004	$ 1,019	$ 1,019	$ 1,019	$ 1,019	$ 1,019
26	456160	Transient Meter Relocation Fee	No Inflation	$ 13,195	$ 13,000	$ 13,195	$ 13,195	$ 13,195	$ 13,195	$ 13,195
27	456165	New Customer Fees	No Inflation	$ 127,360	$ 125,478	$ 127,360	$ 127,360	$ 127,360	$ 127,360	$ 127,360
28	456170	Account Record Fees	No Inflation	$ 509	$ 502	$ 509	$ 509	$ 509	$ 509	$ 509
29	456175	Disposal Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
30	456180	Fertilizers Sales	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
31	456185	Contract Revenues: River Authorities	No Inflation	$ 2,030,000	$ 2,000,000	$ 2,030,000	$ 2,030,000	$ 2,030,000	$ 2,030,000	$ 2,030,000
32	456195	Water Connection Violation	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
33	456205	Failure to Connect Sewer	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
34	456210	Missed Appointment	No Inflation	$ 7,642	$ 7,529	$ 7,642	$ 7,642	$ 7,642	$ 7,642	$ 7,642
35	456220	Tenant Notice	No Inflation	$ 5,094	$ 5,019	$ 5,094	$ 5,094	$ 5,094	$ 5,094	$ 5,094
36	456225	Failure to Apply	No Inflation	$ 25,472	$ 25,096	$ 25,472	$ 25,472	$ 25,472	$ 25,472	$ 25,472

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
37	456230	Illegal Turn on Water	No Inflation	$ 509	$ 502	$ 509	$ 509	$ 509	$ 509	$ 509
38	456235	Lock Devise Damage	No Inflation	$ 51	$ 50	$ 51	$ 51	$ 51	$ 51	$ 51
39	456240	Submeter Application	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
40	456245	Evap Cr. Process Fee	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
41	456250	Sewage Disposal	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
42	456255	Misc Operating Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
43	456260	Oper Recov & Refunds	No Inflation	$ 2,547	$ 2,510	$ 2,547	$ 2,547	$ 2,547	$ 2,547	$ 2,547
44	456265	MSD Application Fee	No Inflation	$ 25,472	$ 25,096	$ 25,472	$ 25,472	$ 25,472	$ 25,472	$ 25,472
45		**Other Water Operating Revenue (Non rate) Subtotal**		**$ 3,245,463**	**$ 3,197,501**	**$ 3,245,463**	**$ 3,245,463**	**$ 3,245,463**	**$ 3,245,463**	**$ 3,245,463**
46	**Impact Fee Revenue**									
47		Water Allocation	Water IF	$ 26,000,495	$ 9,935,341	$ 20,608,310	$ 21,406,537	$ 26,682,879	$ 27,716,430	$ 33,588,319
48	**Other Non Operating Water Revenue (Non rate)**									
49	421280	Other Licenses & Permits	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
50	421630	Admin Fee-Lic/Prmts	No Inflation	$ 254,721	$ 250,957	$ 254,721	$ 254,721	$ 254,721	$ 254,721	$ 254,721
51	421530	Special Event Permits	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
52	434205	Sale Of Scrap Metal	No Inflation	$ 38,208	$ 37,643	$ 38,208	$ 38,208	$ 38,208	$ 38,208	$ 38,208
53	434225	Sale of Non-Capital Equipment and M	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
54	434235	Sale of Other Assets	No Inflation	$ 25,472	$ 25,096	$ 25,472	$ 25,472	$ 25,472	$ 25,472	$ 25,472
55	434240	Sale of Land/Street	No Inflation	$ 1,018,884	$ 1,003,826	$ 1,018,884	$ 1,018,884	$ 1,018,884	$ 1,018,884	$ 1,018,884
56	434245	Sale Cap-Vehicles	No Inflation	$ 101,888	$ 100,383	$ 101,888	$ 101,888	$ 101,888	$ 101,888	$ 101,888
57	424110	Other Interfund Services	No Inflation	$ 295,680	$ 291,310	$ 295,680	$ 295,680	$ 295,680	$ 295,680	$ 295,680
58	424120	Intfd Vehicle Fuel	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
59	424170	Intfd Vehicle Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
60	424510	Prior Yr Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
61	426090	Demolition Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
62	426320	City Map & Related Items	No Inflation	$ 51	$ 50	$ 51	$ 51	$ 51	$ 51	$ 51
63	426370	Training Services	No Inflation	$ 50,944	$ 50,191	$ 50,944	$ 50,944	$ 50,944	$ 50,944	$ 50,944
64	426420	Bldg Space Rental Fee	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
65	426430	Facility Rental Fees	No Inflation	$ 1,197,800	$ 1,180,098	$ 1,197,800	$ 1,197,800	$ 1,197,800	$ 1,197,800	$ 1,197,800
66	428030	Release Of Liens	No Inflation	$ 611	$ 602	$ 611	$ 611	$ 611	$ 611	$ 611
67	428060	Other Interest Income	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
68	428080	Returned Check Charges	No Inflation	$ 25,472	$ 25,096	$ 25,472	$ 25,472	$ 25,472	$ 25,472	$ 25,472
69	428090	Misc Fines & Forfeit	No Inflation	$ 509	$ 502	$ 509	$ 509	$ 509	$ 509	$ 509
70	429095	Medicare Part D Distribution	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
71	434305	Judgments & Claims	No Inflation	$ 509	$ 502	$ 509	$ 509	$ 509	$ 509	$ 509
72	434335	Recoveries Damage Infrastructure	No Inflation	$ 7,642	$ 7,529	$ 7,642	$ 7,642	$ 7,642	$ 7,642	$ 7,642
73	434340	Cashier Overage	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
74	434345	Adjustments to Allowances	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
75	434505	Prior Yr Exp Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
76	434510	Prior Year Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
77	445050	Cell Tower Revenue	No Inflation	$ 15,793	$ 15,559	$ 15,793	$ 15,793	$ 15,793	$ 15,793	$ 15,793
78	452020	Recoveries & Refunds	No Inflation	$ 101,888	$ 100,383	$ 101,888	$ 101,888	$ 101,888	$ 101,888	$ 101,888
79	452030	Miscellaneous Revenues	No Inflation	$ 61,133	$ 60,230	$ 61,133	$ 61,133	$ 61,133	$ 61,133	$ 61,133
80	456105	Oil and Gas Well Permits	No Inflation	$ 2,547	$ 2,510	$ 2,547	$ 2,547	$ 2,547	$ 2,547	$ 2,547
81	456120	Development Permits	No Inflation	$ 203,777	$ 200,765	$ 203,777	$ 203,777	$ 203,777	$ 203,777	$ 203,777
82	456185	Contract Revenues from Water Autho	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
83	456235	Lock Device Damage/Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
84	457020	Intfd Comm Equip Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
85	457040	Intfd Fleet Maintenance	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
86	457080	Intfd Employee Training Materials	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
87	490040	Transfer from Water and Sewer Fund	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
88	425120	PWE Allocated Cost Recovery	No Inflation	$ 3,127,820	$ 3,081,596	$ 3,127,820	$ 3,127,820	$ 3,127,820	$ 3,127,820	$ 3,127,820
89		**Other Non Operating Water Revenue (Non rate) Su**		**$ 6,531,350**	**$ 6,434,827**	**$ 6,531,350**	**$ 6,531,350**	**$ 6,531,350**	**$ 6,531,350**	**$ 6,531,350**
90		**Interest**								
91	432010	Interest on Investment		$ 4,074,007	$ 5,665,595	$ 5,179,208	$ 4,505,968	$ 4,018,059	$ 3,567,717	$ 3,099,084
92		**Interest Subtotal**		**$ 4,074,007**	**$ 5,665,595**	**$ 5,179,208**	**$ 4,505,968**	**$ 4,018,059**	**$ 3,567,717**	**$ 3,099,084**
93		**TOTAL WATER REVENUE**		**$ 794,382,593**	**$ 629,456,152**	**$ 648,850,561**	**$ 754,307,458**	**$ 802,212,980**	**$ 856,117,655**	**$ 910,424,313**

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center		5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**EXPENSES Drinking Water Operations**		**5-Year Average**	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**	**FYE 2025**	**FYE 2026**
2	**40011 DWO Executive Support G&A**								
3	40011 Personnel	No Inflation	$ 1,602,677	$ 1,578,992	$ 1,602,677	$ 1,602,677	$ 1,602,677	$ 1,602,677	$ 1,602,677
4	40011 Supplies	No Inflation	$ 23,244	$ 22,900	$ 23,244	$ 23,244	$ 23,244	$ 23,244	$ 23,244
5	40011 Other Services and Charges	No Inflation	$ 1,062,502	$ 1,046,800	$ 1,062,502	$ 1,062,502	$ 1,062,502	$ 1,062,502	$ 1,062,502
6	DWO Water Maintenance	No Inflation	$ 11,088,875	$ 10,925,000	$ 11,088,875	$ 11,088,875	$ 11,088,875	$ 11,088,875	$ 11,088,875
7	40011 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8	40011 Pension DS		$ 2,889,526	$ 2,829,817	$ 2,849,069	$ 2,868,126	$ 2,888,732	$ 2,910,436	$ 2,931,269
9	40011 Non-Capital Equipment	No Inflation	$ 1,523	$ 1,500	$ 1,523	$ 1,523	$ 1,523	$ 1,523	$ 1,523
10	40011 Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
11	40011 **Subtotal**		**$ 16,668,346**	**$ 16,405,009**	**$ 16,627,889**	**$ 16,646,946**	**$ 16,667,552**	**$ 16,689,256**	**$ 16,710,089**
12	**40012 DWO Regulatory and Compliance**								
13	40012 Personnel	No Inflation	$ 3,909,789	$ 3,852,009	$ 3,909,789	$ 3,909,789	$ 3,909,789	$ 3,909,789	$ 3,909,789
14	40012 Supplies	No Inflation	$ 324,496	$ 319,700	$ 324,496	$ 324,496	$ 324,496	$ 324,496	$ 324,496
15	40012 Other Services and Charges	No Inflation	$ 1,122,895	$ 1,106,300	$ 1,122,895	$ 1,122,895	$ 1,122,895	$ 1,122,895	$ 1,122,895
16	TCEQ Fee	No Inflation	$ 2,553,436	$ 2,515,700	$ 2,553,436	$ 2,553,436	$ 2,553,436	$ 2,553,436	$ 2,553,436
17	40012 Salary Recovery	No Inflation	$ 11,673	$ 11,500	$ 11,673	$ 11,673	$ 11,673	$ 11,673	$ 11,673
18	40012 Non-Capital Equipment	No Inflation	$ 191,835	$ 189,000	$ 191,835	$ 191,835	$ 191,835	$ 191,835	$ 191,835
19	40012 Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	40012 **Subtotal**		**$ 8,114,122**	**$ 7,994,209**	**$ 8,114,122**	**$ 8,114,122**	**$ 8,114,122**	**$ 8,114,122**	**$ 8,114,122**
21	**40013 DWO Ground Water Operations**								
22	40013 Personnel	No Inflation	$ 8,241,667	$ 8,119,869	$ 8,241,667	$ 8,241,667	$ 8,241,667	$ 8,241,667	$ 8,241,667
23	40013 Supplies	No Inflation	$ 1,772,393	$ 1,746,200	$ 1,772,393	$ 1,772,393	$ 1,772,393	$ 1,772,393	$ 1,772,393
24	40013 Other Services and Charges	No Inflation	$ 13,944,035	$ 13,737,966	$ 13,944,035	$ 13,944,035	$ 13,944,035	$ 13,944,035	$ 13,944,035
25	40013 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
26	40013 Non-Capital Equipment	No Inflation	$ 24,157	$ 23,800	$ 24,157	$ 24,157	$ 24,157	$ 24,157	$ 24,157
27	40013 Capital Equipment	No Inflation	$ 38,396	$ 37,828	$ 38,396	$ 38,396	$ 38,396	$ 38,396	$ 38,396
28	40013 **Subtotal**		**$ 24,020,648**	**$ 23,665,663**	**$ 24,020,648**	**$ 24,020,648**	**$ 24,020,648**	**$ 24,020,648**	**$ 24,020,648**
29	**40014 DWO East Water Purification Plant**								
30	40014 Personnel	No Inflation	$ 7,264,589	$ 7,157,231	$ 7,264,589	$ 7,264,589	$ 7,264,589	$ 7,264,589	$ 7,264,589
31	40014 Supplies	No Inflation	$ 12,178,072	$ 11,998,100	$ 12,178,072	$ 12,178,072	$ 12,178,072	$ 12,178,072	$ 12,178,072
32	40014 Other Services and Charges	No Inflation	$ 8,767,063	$ 8,637,500	$ 8,767,063	$ 8,767,063	$ 8,767,063	$ 8,767,063	$ 8,767,063
33	40014 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
34	40014 Non-Capital Equipment	No Inflation	$ 83,738	$ 82,500	$ 83,738	$ 83,738	$ 83,738	$ 83,738	$ 83,738
35	40014 Capital Equipment	No Inflation	$ 789,533	$ 777,865	$ 789,533	$ 789,533	$ 789,533	$ 789,533	$ 789,533

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Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
36	40014	**Subtotal**		**$ 29,082,994**	**$ 28,653,196**	**$ 29,082,994**	**$ 29,082,994**	**$ 29,082,994**	**$ 29,082,994**	**$ 29,082,994**
37		**40015 DWO Technical Services G&A**								
38	40015	Personnel	No Inflation	$ 2,704,566	$ 2,664,597	$ 2,704,566	$ 2,704,566	$ 2,704,566	$ 2,704,566	$ 2,704,566
39		Cust. Complaints and Water System	No Inflation	$ 1,755,703	$ 1,729,757	$ 1,755,703	$ 1,755,703	$ 1,755,703	$ 1,755,703	$ 1,755,703
40		Source Water Protection	No Inflation	$ 481,988	$ 474,865	$ 481,988	$ 481,988	$ 481,988	$ 481,988	$ 481,988
41	40015	Supplies	No Inflation	$ 61,052	$ 60,150	$ 61,052	$ 61,052	$ 61,052	$ 61,052	$ 61,052
42		Cust. Complaints and Water System	No Inflation	$ 135,858	$ 133,850	$ 135,858	$ 135,858	$ 135,858	$ 135,858	$ 135,858
43		Source Water Protection	No Inflation	$ 6,293	$ 6,200	$ 6,293	$ 6,293	$ 6,293	$ 6,293	$ 6,293
44	40015	Other Services and Charges	No Inflation	$ 2,857,200	$ 2,814,975	$ 2,857,200	$ 2,857,200	$ 2,857,200	$ 2,857,200	$ 2,857,200
45		Cust. Complaints and Water System	No Inflation	$ 65,482	$ 64,514	$ 65,482	$ 65,482	$ 65,482	$ 65,482	$ 65,482
46		Source Water Protection	No Inflation	$ 1,588,588	$ 1,565,111	$ 1,588,588	$ 1,588,588	$ 1,588,588	$ 1,588,588	$ 1,588,588
47	40015	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
48	40015	Non-Capital Equipment	No Inflation	$ 11,673	$ 11,500	$ 11,673	$ 11,673	$ 11,673	$ 11,673	$ 11,673
49		Cust. Complaints and Water System	No Inflation	$ 192,952	$ 190,100	$ 192,952	$ 192,952	$ 192,952	$ 192,952	$ 192,952
50		Source Water Protection	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
51	40015	Capital Equipment	No Inflation	$ 128,905	$ 127,000	$ 128,905	$ 128,905	$ 128,905	$ 128,905	$ 128,905
52	40015	**Subtotal**		**$ 9,990,258**	**$ 9,842,619**	**$ 9,990,258**	**$ 9,990,258**	**$ 9,990,258**	**$ 9,990,258**	**$ 9,990,258**
53		**40016 DWO NEWPP Expansion**								
54	40016	Personnel	No Inflation	$ 2,773,445	$ 1,260,600	$ 1,578,532	$ 1,578,532	$ 2,142,032	$ 2,856,043	$ 5,712,086
55	40016	Supplies	No Inflation	$ 6,179,382	$ -	$ 43,200	$ 1,928,357	$ 5,785,071	$ 7,713,428	$ 15,426,856
56	40016	Other Services and Charges	No Inflation	$ 4,342,984	$ 172,100	$ 190,900	$ 1,345,251	$ 4,035,754	$ 5,381,005	$ 10,762,010
57	40016	PIB DS		$ 2,541,291	$ 5,049,600	$ 3,805,697	$ 3,805,542	$ 2,548,047	$ 2,547,168	$ -
58	40016	Non-Capital Equipment	No Inflation	$ 86,146	$ -	$ 47,100	$ 47,100	$ 67,306	$ 89,741	$ 179,482
59	40016	Capital Equipment	No Inflation	$ 446,892	$ -	$ -	$ 139,654	$ 418,961	$ 558,615	$ 1,117,230
60	40016	**Subtotal**		**$ 16,370,140**	**$ 6,482,300**	**$ 5,665,429**	**$ 8,844,436**	**$ 14,997,171**	**$ 19,146,000**	**$ 33,197,664**
61		**40017 DWO Southeast Water Purification Plant**								
62	40017	Personnel	No Inflation	$ 3,408,120	$ 3,357,754	$ 3,408,120	$ 3,408,120	$ 3,408,120	$ 3,408,120	$ 3,408,120
63	40017	Supplies	No Inflation	$ 2,966,642	$ 2,922,800	$ 2,966,642	$ 2,966,642	$ 2,966,642	$ 2,966,642	$ 2,966,642
64	40017	Other Services and Charges	No Inflation	$ 5,419,765	$ 5,339,670	$ 5,419,765	$ 5,419,765	$ 5,419,765	$ 5,419,765	$ 5,419,765
65	40017	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
66	40017	Non-Capital Equipment	No Inflation	$ 104,444	$ 102,900	$ 104,444	$ 104,444	$ 104,444	$ 104,444	$ 104,444
67	40017	Capital Equipment	No Inflation	$ 184,171	$ 181,449	$ 184,171	$ 184,171	$ 184,171	$ 184,171	$ 184,171
68	40017	**Subtotal**		**$ 12,083,141**	**$ 11,904,573**	**$ 12,083,141**	**$ 12,083,141**	**$ 12,083,141**	**$ 12,083,141**	**$ 12,083,141**
69		**40018 DWO Northeast Water Purification Plant**								
70	40018	Personnel	No Inflation	$ 3,623,166	$ 3,569,622	$ 3,623,166	$ 3,623,166	$ 3,623,166	$ 3,623,166	$ 3,623,166
71	40018	Supplies	No Inflation	$ 4,917,066	$ 4,844,400	$ 4,917,066	$ 4,917,066	$ 4,917,066	$ 4,917,066	$ 4,917,066

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Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
72	40018	Other Services and Charges	No Inflation	$ 7,151,456	$ 7,045,770	$ 7,151,456	$ 7,151,456	$ 7,151,456	$ 7,151,456	$ 7,151,456
73	40018	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
74	40018	Non-Capital Equipment	No Inflation	$ 85,057	$ 83,800	$ 85,057	$ 85,057	$ 85,057	$ 85,057	$ 85,057
75	40018	Capital Equipment	No Inflation	$ 77,445	$ 76,300	$ 77,445	$ 77,445	$ 77,445	$ 77,445	$ 77,445
76	40018	**Subtotal**		**$ 15,854,190**	**$ 15,619,892**	**$ 15,854,190**	**$ 15,854,190**	**$ 15,854,190**	**$ 15,854,190**	**$ 15,854,190**
77	**40019**	**DWO System Maintenance - North**								
78	40019	Personnel	No Inflation	$ 13,115,190	$ 12,921,369	$ 13,115,190	$ 13,115,190	$ 13,115,190	$ 13,115,190	$ 13,115,190
79	40019	Supplies	No Inflation	$ 2,025,737	$ 1,995,800	$ 2,025,737	$ 2,025,737	$ 2,025,737	$ 2,025,737	$ 2,025,737
80	40019	Other Services and Charges	No Inflation	$ 2,169,461	$ 2,137,400	$ 2,169,461	$ 2,169,461	$ 2,169,461	$ 2,169,461	$ 2,169,461
81	40019	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
82	40019	Non-Capital Equipment	No Inflation	$ 14,921	$ 14,700	$ 14,921	$ 14,921	$ 14,921	$ 14,921	$ 14,921
83	40019	Capital Equipment	No Inflation	$ 1,718,829	$ 1,693,428	$ 1,718,829	$ 1,718,829	$ 1,718,829	$ 1,718,829	$ 1,718,829
84	40019	**Subtotal**		**$ 19,044,137**	**$ 18,762,697**	**$ 19,044,137**	**$ 19,044,137**	**$ 19,044,137**	**$ 19,044,137**	**$ 19,044,137**
85	**40020**	**DWO System Maintenance - South**								
86	40020	Personnel	No Inflation	$ 11,157,333	$ 10,992,446	$ 11,157,333	$ 11,157,333	$ 11,157,333	$ 11,157,333	$ 11,157,333
87	40020	Supplies	No Inflation	$ 1,764,679	$ 1,738,600	$ 1,764,679	$ 1,764,679	$ 1,764,679	$ 1,764,679	$ 1,764,679
88	40020	Other Services and Charges	No Inflation	$ 5,876,546	$ 5,789,700	$ 5,876,546	$ 5,876,546	$ 5,876,546	$ 5,876,546	$ 5,876,546
89	40020	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
90	40020	Non-Capital Equipment	No Inflation	$ 20,300	$ 20,000	$ 20,300	$ 20,300	$ 20,300	$ 20,300	$ 20,300
91	40020	Capital Equipment	No Inflation	$ 44,412	$ 43,756	$ 44,412	$ 44,412	$ 44,412	$ 44,412	$ 44,412
92	40020	**Subtotal**		**$ 18,863,270**	**$ 18,584,502**	**$ 18,863,270**	**$ 18,863,270**	**$ 18,863,270**	**$ 18,863,270**	**$ 18,863,270**
93	**River Authority Contributed Debt Service**									
94	RACDS	Personnel	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
95	RACDS	Supplies	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
96	RACDS	River Authority Contracts	No Inflation	$ 13,567,304	$ 13,366,802	$ 13,567,304	$ 13,567,304	$ 13,567,304	$ 13,567,304	$ 13,567,304
97		CWA O&M Trinity River	No Inflation	$ 21,937,845	$ 21,613,640	$ 21,937,845	$ 21,937,845	$ 21,937,845	$ 21,937,845	$ 21,937,845
98		TRA O&M	No Inflation	$ 4,815,625	$ 4,744,458	$ 4,815,625	$ 4,815,625	$ 4,815,625	$ 4,815,625	$ 4,815,625
99	RACDS	CWA Debt Service (1993A-H & 2004 R	No Inflation	$ 2,482,792	$ 2,446,100	$ 2,482,792	$ 2,482,792	$ 2,482,792	$ 2,482,792	$ 2,482,792
100	RACDS	CWA Debt Service (96" line)	No Inflation	$ 4,011,889	$ 3,952,600	$ 4,011,889	$ 4,011,889	$ 4,011,889	$ 4,011,889	$ 4,011,889
101	RACDS	DS for Wallisville and Allens' Creek		$ 1,857,558	$ 1,912,097	$ 1,912,097	$ 1,843,880	$ 1,843,646	$ 1,841,391	$ 1,846,774
102	RACDS	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
103	RACDS	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
104	RACDS	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
105	RACDS	**Subtotal**		**$ 48,673,012**	**$ 48,035,697**	**$ 48,727,551**	**$ 48,659,334**	**$ 48,659,100**	**$ 48,656,845**	**$ 48,662,228**
106		**DWO Total**		**$ 218,764,259**	**$ 205,950,356**	**$ 208,073,629**	**$ 211,203,477**	**$ 217,376,584**	**$ 221,544,862**	**$ 235,622,743**

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
108	**EXPENSES Operation Services - Houston Water G&A**									
109	**40021 OPS Financial & Support Operation Services G&A**									
110	40021	Personnel	No Inflation	$ 1,284,278	$ 1,265,299	$ 1,284,278	$ 1,284,278	$ 1,284,278	$ 1,284,278	$ 1,284,278
111	40021	Supplies	No Inflation	$ 26,797	$ 26,401	$ 26,797	$ 26,797	$ 26,797	$ 26,797	$ 26,797
112	40021	Other Services and Charges	No Inflation	$ 1,582,224	$ 1,558,842	$ 1,582,224	$ 1,582,224	$ 1,582,224	$ 1,582,224	$ 1,582,224
113	40021	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
114	40021	Non-Capital Equipment	No Inflation	$ 1,987	$ 1,957	$ 1,987	$ 1,987	$ 1,987	$ 1,987	$ 1,987
115	40021	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
116	40021	**Subtotal**		**$ 2,895,286**	**$ 2,852,499**	**$ 2,895,286**	**$ 2,895,286**	**$ 2,895,286**	**$ 2,895,286**	**$ 2,895,286**
117	**40022 HW Planning**									
118	40022	Personnel	No Inflation	$ 874,133	$ 861,215	$ 874,133	$ 874,133	$ 874,133	$ 874,133	$ 874,133
119	40022	Supplies	No Inflation	$ 16,863	$ 16,613	$ 16,863	$ 16,863	$ 16,863	$ 16,863	$ 16,863
120	40022	Other Services and Charges	No Inflation	$ 730,998	$ 720,195	$ 730,998	$ 730,998	$ 730,998	$ 730,998	$ 730,998
121	40022	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
122	40022	Non-Capital Equipment	No Inflation	$ 2,140	$ 2,108	$ 2,140	$ 2,140	$ 2,140	$ 2,140	$ 2,140
123	40022	Capital Equipment	No Inflation	$ 24,453	$ 24,092	$ 24,453	$ 24,453	$ 24,453	$ 24,453	$ 24,453
124	40022	**Subtotal**		**$ 1,648,587**	**$ 1,624,223**	**$ 1,648,587**	**$ 1,648,587**	**$ 1,648,587**	**$ 1,648,587**	**$ 1,648,587**
125	**40023 OPS Maintenance Operation Services - Restoration**									
126	40023	Personnel	No Inflation	$ 3,421,037	$ 3,370,480	$ 3,421,037	$ 3,421,037	$ 3,421,037	$ 3,421,037	$ 3,421,037
127	40023	Supplies	No Inflation	$ 804,358	$ 792,471	$ 804,358	$ 804,358	$ 804,358	$ 804,358	$ 804,358
128	40023	Other Services and Charges	No Inflation	$ 1,853,095	$ 1,825,709	$ 1,853,095	$ 1,853,095	$ 1,853,095	$ 1,853,095	$ 1,853,095
129	40023	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
130	40023	Non-Capital Equipment	No Inflation	$ 4,381	$ 4,316	$ 4,381	$ 4,381	$ 4,381	$ 4,381	$ 4,381
131	40023	Capital Equipment	No Inflation	$ 2,292	$ 2,259	$ 2,292	$ 2,292	$ 2,292	$ 2,292	$ 2,292
132	40023	Capital Equipment-CP Capital	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
133	40023	**Subtotal**		**$ 6,085,163**	**$ 5,995,234**	**$ 6,085,163**	**$ 6,085,163**	**$ 6,085,163**	**$ 6,085,163**	**$ 6,085,163**
134	**40024 OPS Maintenance Operation Services-COS/DIS**									
135	40024	Personnel	No Inflation	$ 1,202,010	$ 1,184,246	$ 1,202,010	$ 1,202,010	$ 1,202,010	$ 1,202,010	$ 1,202,010
136	40024	Supplies	No Inflation	$ 4,330	$ 4,266	$ 4,330	$ 4,330	$ 4,330	$ 4,330	$ 4,330
137	40024	Other Services and Charges	No Inflation	$ 178,916	$ 176,272	$ 178,916	$ 178,916	$ 178,916	$ 178,916	$ 178,916
138	40024	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
139	40024	Non-Capital Equipment	No Inflation	$ 6,928	$ 6,826	$ 6,928	$ 6,928	$ 6,928	$ 6,928	$ 6,928
140	40024	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
141	40024	**Subtotal**		**$ 1,392,184**	**$ 1,371,610**	**$ 1,392,184**	**$ 1,392,184**	**$ 1,392,184**	**$ 1,392,184**	**$ 1,392,184**

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
142	**40025 HW GIS Services**									
143	40025	Personnel	No Inflation	$ 1,129,852	$ 1,113,154	$ 1,129,852	$ 1,129,852	$ 1,129,852	$ 1,129,852	$ 1,129,852
144	40025	Supplies	No Inflation	$ 5,604	$ 5,521	$ 5,604	$ 5,604	$ 5,604	$ 5,604	$ 5,604
145	40025	Other Services and Charges	No Inflation	$ 525,948	$ 518,175	$ 525,948	$ 525,948	$ 525,948	$ 525,948	$ 525,948
146	40025	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
147	40025	Non-Capital Equipment	No Inflation	$ 22,263	$ 21,934	$ 22,263	$ 22,263	$ 22,263	$ 22,263	$ 22,263
148	40025	Capital Equipment	No Inflation	$ 5,859	$ 5,772	$ 5,859	$ 5,859	$ 5,859	$ 5,859	$ 5,859
149	40025	**Subtotal**		**$ 1,689,525**	**$ 1,664,556**	**$ 1,689,525**	**$ 1,689,525**	**$ 1,689,525**	**$ 1,689,525**	**$ 1,689,525**

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	FYE 2021 (Current Budget)	FYE 2022 (Forecasted)	FYE 2023	FYE 2024	FYE 2025	FYE 2026
150	**40026 OPS Executive Support**									
151	40026 Personnel	No Inflation	$	224,979	$ 221,654	$ 224,979	$ 224,979	$ 224,979	$ 224,979	$ 224,979
152	40026 Supplies	No Inflation	$	3,159	$ 3,112	$ 3,159	$ 3,159	$ 3,159	$ 3,159	$ 3,159
153	40026 Other Services and Charges	No Inflation	$	1,112,621	$ 1,096,178	$ 1,112,621	$ 1,112,621	$ 1,112,621	$ 1,112,621	$ 1,112,621
154	40026 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
155	40026 Non-Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
156	40026 Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
157	40026 **Subtotal**		**$**	**1,340,758**	**$ 1,320,944**	**$ 1,340,758**	**$ 1,340,758**	**$ 1,340,758**	**$ 1,340,758**	**$ 1,340,758**
158	**40027 OPS Support Services**									
159	40027 Personnel	No Inflation	$	584,416	$ 575,780	$ 584,416	$ 584,416	$ 584,416	$ 584,416	$ 584,416
160	40027 Supplies	No Inflation	$	2,496	$ 2,459	$ 2,496	$ 2,496	$ 2,496	$ 2,496	$ 2,496
161	40027 Other Services and Charges	No Inflation	$	517,695	$ 510,044	$ 517,695	$ 517,695	$ 517,695	$ 517,695	$ 517,695
162	40027 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
163	40027 Non-Capital Equipment	No Inflation	$	24,453	$ 24,092	$ 24,453	$ 24,453	$ 24,453	$ 24,453	$ 24,453
164	40027 Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
165	40027 **Subtotal**		**$**	**1,129,061**	**$ 1,112,375**	**$ 1,129,061**	**$ 1,129,061**	**$ 1,129,061**	**$ 1,129,061**	**$ 1,129,061**
166	**40028 HW Infrastructure Planning**									
167	40028 Personnel	No Inflation	$	984,057	$ 969,514	$ 984,057	$ 984,057	$ 984,057	$ 984,057	$ 984,057
168	40028 Supplies	No Inflation	$	2,955	$ 2,911	$ 2,955	$ 2,955	$ 2,955	$ 2,955	$ 2,955
169	40028 Other Services and Charges	No Inflation	$	45,442	$ 44,771	$ 45,442	$ 45,442	$ 45,442	$ 45,442	$ 45,442
170	40028 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
171	40028 Non-Capital Equipment	No Inflation	$	44,118	$ 43,466	$ 44,118	$ 44,118	$ 44,118	$ 44,118	$ 44,118
172	40028 Capital Equipment	No Inflation	$	14,570	$ 14,355	$ 14,570	$ 14,570	$ 14,570	$ 14,570	$ 14,570
173	40028 **Subtotal**		**$**	**1,091,142**	**$ 1,075,017**	**$ 1,091,142**	**$ 1,091,142**	**$ 1,091,142**	**$ 1,091,142**	**$ 1,091,142**
174	**40029 HW Utility Analysis**									
175	40029 Personnel	No Inflation	$	2,666,806	$ 2,627,395	$ 2,666,806	$ 2,666,806	$ 2,666,806	$ 2,666,806	$ 2,666,806
176	40029 Supplies	No Inflation	$	6,317	$ 6,224	$ 6,317	$ 6,317	$ 6,317	$ 6,317	$ 6,317
177	40029 Other Services and Charges	No Inflation	$	208,311	$ 205,232	$ 208,311	$ 208,311	$ 208,311	$ 208,311	$ 208,311
178	40029 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
179	40029 Non-Capital Equipment	No Inflation	$	49,059	$ 48,334	$ 49,059	$ 49,059	$ 49,059	$ 49,059	$ 49,059
180	40029 Capital Equipment	No Inflation	$	45,850	$ 45,172	$ 45,850	$ 45,850	$ 45,850	$ 45,850	$ 45,850
181	40029 **Subtotal**		**$**	**2,976,343**	**$ 2,932,358**	**$ 2,976,343**	**$ 2,976,343**	**$ 2,976,343**	**$ 2,976,343**	**$ 2,976,343**
182	**OPS Subtotal**		**$**	**20,248,048**	**$ 19,948,817**	**$ 20,248,049**	**$ 20,248,048**	**$ 20,248,048**	**$ 20,248,048**	**$ 20,248,048**
					$ 19,948,816					
183	**Houston Water Division**		**$**	**239,012,307**	**$ 225,899,173**	**$ 228,321,678**	**$ 231,451,525**	**$ 237,624,633**	**$ 241,792,910**	**$ 255,870,791**

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center		5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
185	**EXPENSES Other O&M**								
186	**30001-30009 Director's Office**								
187	30001-30009 Personnel	No Inflation	$ 3,664,346	$ 3,610,193	$ 3,664,346	$ 3,664,346	$ 3,664,346	$ 3,664,346	$ 3,664,346
188	30001-30009 Supplies	No Inflation	$ 24,759	$ 24,393	$ 24,759	$ 24,759	$ 24,759	$ 24,759	$ 24,759
189	30001-30009 Other Services and Charges	No Inflation	$ 242,494	$ 238,911	$ 242,494	$ 242,494	$ 242,494	$ 242,494	$ 242,494
190	30001-30009 Indirect Cost Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
191	30001-30009 Non-Capital Equipment	No Inflation	$ 10,749	$ 10,590	$ 10,749	$ 10,749	$ 10,749	$ 10,749	$ 10,749
192	30001-30009 Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
193	30001-30009 **Subtotal**		**$ 3,942,348**	**$ 3,884,087**	**$ 3,942,348**	**$ 3,942,348**	**$ 3,942,348**	**$ 3,942,348**	**$ 3,942,348**
194	**80001 Information Technology**								
195	80001 Personnel	No Inflation	$ 4,241,846	$ 4,179,159	$ 4,241,846	$ 4,241,846	$ 4,241,846	$ 4,241,846	$ 4,241,846
196	80001 Supplies	No Inflation	$ 153,087	$ 150,825	$ 153,087	$ 153,087	$ 153,087	$ 153,087	$ 153,087
197	80001 Other Services and Charges	No Inflation	$ 4,692,265	$ 4,622,921	$ 4,692,265	$ 4,692,265	$ 4,692,265	$ 4,692,265	$ 4,692,265
198	80001 Indirect Cost Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
199	80001 Non-Capital Equipment	No Inflation	$ 387,278	$ 381,554	$ 387,278	$ 387,278	$ 387,278	$ 387,278	$ 387,278
200	80001 Capital Equipment	No Inflation	$ 523,961	$ 516,218	$ 523,961	$ 523,961	$ 523,961	$ 523,961	$ 523,961
201	80001 **Subtotal**		**$ 9,998,437**	**$ 9,850,677**	**$ 9,998,437**	**$ 9,998,437**	**$ 9,998,437**	**$ 9,998,437**	**$ 9,998,437**
202	**90001-90011 Management Support**								
203	90001-90011 Personnel	No Inflation	$ 1,770,393	$ 1,744,229	$ 1,770,393	$ 1,770,393	$ 1,770,393	$ 1,770,393	$ 1,770,393
204	90001-90011 Supplies	No Inflation	$ 119,923	$ 118,150	$ 119,923	$ 119,923	$ 119,923	$ 119,923	$ 119,923
205	90001-90011 Other Services and Charges	No Inflation	$ 4,662,511	$ 4,593,606	$ 4,662,511	$ 4,662,511	$ 4,662,511	$ 4,662,511	$ 4,662,511
206	90001-90011 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
207	90001-90011 Non-Capital Equipment	No Inflation	$ 107,288	$ 105,703	$ 107,288	$ 107,288	$ 107,288	$ 107,288	$ 107,288
208	90001-90011 Capital Equipment	No Inflation	$ 195,371	$ 192,484	$ 195,371	$ 195,371	$ 195,371	$ 195,371	$ 195,371
209	90001-90011 **Subtotal**		**$ 6,855,485**	**$ 6,754,173**	**$ 6,855,485**	**$ 6,855,485**	**$ 6,855,485**	**$ 6,855,485**	**$ 6,855,485**
210	**60005 & 60008 Houston Water - Planning**								
211	60005 & 60008 Personnel	No Inflation	$ 114,688	$ 112,993	$ 114,688	$ 114,688	$ 114,688	$ 114,688	$ 114,688
212	60005 & 60008 Supplies	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
213	60005 & 60008 Other Services and Charges	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
214	60005 & 60008 Indirect Cost Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
215	60005 & 60008 Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
216	60005 & 60008 Capital Equipment	No Inflation	$ 152,833	$ 150,574	$ 152,833	$ 152,833	$ 152,833	$ 152,833	$ 152,833
217	60005 & 60008 **Subtotal**		**$ 267,521**	**$ 263,567**	**$ 267,521**	**$ 267,521**	**$ 267,521**	**$ 267,521**	**$ 267,521**
218	**50002,50005,50 Financial Mangt Services Support**								

Houston Combined Utility System

Water Operations & Maintenance

Line No.	Cost Center			5-Year Average	Current Budget FYE 2021	Forecasted -----> FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
219	50002,50005,500	Personnel	No Inflation	$ 6,436,576	$ 6,341,454	$ 6,436,576	$ 6,436,576	$ 6,436,576	$ 6,436,576	$ 6,436,576
220	50002,50005,500	Supplies	No Inflation	$ 428,237	$ 421,908	$ 428,237	$ 428,237	$ 428,237	$ 428,237	$ 428,237
221	50002,50005,500	Other Services and Charges	No Inflation	$ 5,451,078	$ 5,370,521	$ 5,451,078	$ 5,451,078	$ 5,451,078	$ 5,451,078	$ 5,451,078
222	50002,50005,500	Indirect Cost Recovery Payment	No Inflation	$ 4,841,022	$ 4,769,480	$ 4,841,022	$ 4,841,022	$ 4,841,022	$ 4,841,022	$ 4,841,022
223	50002,50005,500	Other Indirect Costs	No Inflation	$ 124,364	$ 122,526	$ 124,364	$ 124,364	$ 124,364	$ 124,364	$ 124,364
224		Property and Terrorism Insurance	No Inflation	$ 3,784,427	$ 3,728,499	$ 3,784,427	$ 3,784,427	$ 3,784,427	$ 3,784,427	$ 3,784,427
225		Security	No Inflation	$ 1,874,444	$ 1,846,742	$ 1,874,444	$ 1,874,444	$ 1,874,444	$ 1,874,444	$ 1,874,444
226	50002,50005,500	Pension DS		$ 1,243,107	$ 1,217,419	$ 1,225,701	$ 1,233,900	$ 1,242,765	$ 1,252,102	$ 1,261,065
227	50002,50005,500	Non-Capital Equipment	No Inflation	$ 36,221	$ 35,686	$ 36,221	$ 36,221	$ 36,221	$ 36,221	$ 36,221
228	50002,50005,500	Capital Equipment	No Inflation	$ 242,698	$ 239,111	$ 242,698	$ 242,698	$ 242,698	$ 242,698	$ 242,698
229	50002,50005,500	**Subtotal**		**$ 24,462,173**	**$ 24,093,347**	**$ 24,444,768**	**$ 24,452,967**	**$ 24,461,832**	**$ 24,471,169**	**$ 24,480,132**
230	**100007-15, 100025**	**CAS - Customer Account Services**								
231	100007-15, 100025	Personnel	No Inflation	$ 15,600,980	$ 15,370,424	$ 15,600,980	$ 15,600,980	$ 15,600,980	$ 15,600,980	$ 15,600,980
232	100007-15, 100025	Supplies	No Inflation	$ 1,730,625	$ 1,705,049	$ 1,730,625	$ 1,730,625	$ 1,730,625	$ 1,730,625	$ 1,730,625
233	100007-15, 100025	Other Services and Charges	No Inflation	$ 4,795,987	$ 4,725,111	$ 4,795,987	$ 4,795,987	$ 4,795,987	$ 4,795,987	$ 4,795,987
234	100007-15, 100025	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
235	100007-15, 100025	Non-Capital Equipment	No Inflation	$ 93,788	$ 92,402	$ 93,788	$ 93,788	$ 93,788	$ 93,788	$ 93,788
236	100007-15, 100025	Capital Equipment	No Inflation	$ 2,926,641	$ 2,883,390	$ 2,926,641	$ 2,926,641	$ 2,926,641	$ 2,926,641	$ 2,926,641
237	100007-15, 100025	**Subtotal**		**$ 25,148,022**	**$ 24,776,376**	**$ 25,148,022**	**$ 25,148,022**	**$ 25,148,022**	**$ 25,148,022**	**$ 25,148,022**
238	**Deductions**	**Deductions**								
239	Deductions	HPW Allocated Recovery	No Inflation	$ (3,127,820)	$ (3,081,596)	$ (3,127,820)	$ (3,127,820)	$ (3,127,820)	$ (3,127,820)	$ (3,127,820)
240	Deductions	611 Walker Facility Rental Fees	No Inflation	$ (1,197,800)	$ (1,180,098)	$ (1,197,800)	$ (1,197,800)	$ (1,197,800)	$ (1,197,800)	$ (1,197,800)
241	Deductions	**Subtotal**		**$ (4,325,620)**	**$ (4,261,694)**	**$ (4,325,620)**	**$ (4,325,620)**	**$ (4,325,620)**	**$ (4,325,620)**	**$ (4,325,620)**
242		**Other Subtotal**		**$ 66,348,367**	**$ 65,360,532**	**$ 66,330,961**	**$ 66,339,160**	**$ 66,348,025**	**$ 66,357,362**	**$ 66,366,325**
243		**TOTAL O&M, CAPITAL, EXPENSES**		**$ 305,360,674**	**$ 291,259,705**	**$ 294,652,640**	**$ 297,790,685**	**$ 303,972,658**	**$ 308,150,272**	**$ 322,237,116**

Appendix B

WASTEWATER FYE 2021 BUDGET AND FYE 2022-2026 PROJECTIONS

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center		5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**REVENUES Wastewater**								
2	**Operating**								
3	**Wastewater Revenues**								
4	Wastewater system user charges	No Inflation	$ 729,892,442	$ 515,679,089	$ 523,414,275	$ 697,187,815	$ 739,019,084	$ 820,311,183	$ 869,529,854
5	455010 Sewer Service Penalties	No Inflation	$ 7,784,703	$ 5,500,000	$ 5,582,500	$ 7,435,890	$ 7,882,043	$ 8,749,068	$ 9,274,012
6	**Wastewater Revenues Subtotal**		**$ 737,677,145**	**$ 521,179,089**	**$ 528,996,775**	**$ 704,623,705**	**$ 746,901,127**	**$ 829,060,251**	**$ 878,803,866**
7	**Impact Fee Revenue**								
8	Wastewater Allocation	Wastewater IF	$ 21,992,238	$ 15,064,659	$ 20,550,106	$ 21,247,105	$ 21,967,828	$ 22,712,879	$ 23,483,270
9	**Other Wastewater Revenue (Non rate)**								
10	431020 Contributions from Others	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
11	455040 Utility Service Penalties	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	425030 Indirect Cost Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	426270 Utility District Appl Review	No Inflation	$ 31,345	$ 30,881	$ 31,345	$ 31,345	$ 31,345	$ 31,345	$ 31,345
14	426330 Miscellaneous Copies Fees	No Inflation	$ 6,002	$ 5,913	$ 6,002	$ 6,002	$ 6,002	$ 6,002	$ 6,002
15	456110 Storm Water Quality Management Permit	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	456115 Industrial Waste Discharge Permits	No Inflation	$ 7,308	$ 7,200	$ 7,308	$ 7,308	$ 7,308	$ 7,308	$ 7,308
17	456125 Fire Sprinkler Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
18	456130 Water Meter Rental Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
19	456135 Delinquent Reconnection Fees	No Inflation	$ 202,223	$ 199,235	$ 202,223	$ 202,223	$ 202,223	$ 202,223	$ 202,223
20	456140 Tap Installation Fees	No Inflation	$ 1,011	$ 996	$ 1,011	$ 1,011	$ 1,011	$ 1,011	$ 1,011
21	456145 Meter Installation Fees	No Inflation	$ 505,558	$ 498,087	$ 505,558	$ 505,558	$ 505,558	$ 505,558	$ 505,558
22	456150 Engineering Inspection Fees	No Inflation	$ 252,779	$ 249,043	$ 252,779	$ 252,779	$ 252,779	$ 252,779	$ 252,779
23	456155 Meter Testing Fees	No Inflation	$ 1,011	$ 996	$ 1,011	$ 1,011	$ 1,011	$ 1,011	$ 1,011
24	456160 Transient Meter Relocation Fee	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
25	456165 New Customer Fees	No Inflation	$ 126,390	$ 124,522	$ 126,390	$ 126,390	$ 126,390	$ 126,390	$ 126,390
26	456170 Account Record Fees	No Inflation	$ 506	$ 498	$ 506	$ 506	$ 506	$ 506	$ 506
27	456175 Disposal Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
28	456180 Fertilizers Sales	No Inflation	$ 152,250	$ 150,000	$ 152,250	$ 152,250	$ 152,250	$ 152,250	$ 152,250
29	456185 Contract Revenues: River Authorities	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
30	456195 Water Connection Violation	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
31	456205 Failure to Connect Sewer	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
32	456210 Missed Appointment	No Inflation	$ 7,583	$ 7,471	$ 7,583	$ 7,583	$ 7,583	$ 7,583	$ 7,583
33	456220 Tenant Notice	No Inflation	$ 5,056	$ 4,981	$ 5,056	$ 5,056	$ 5,056	$ 5,056	$ 5,056
34	456225 Failure to Apply	No Inflation	$ 25,278	$ 24,904	$ 25,278	$ 25,278	$ 25,278	$ 25,278	$ 25,278
35	456230 Illegal Turn on Water	No Inflation	$ 506	$ 498	$ 506	$ 506	$ 506	$ 506	$ 506
36	456235 Lock Devise Damage	No Inflation	$ 51	$ 50	$ 51	$ 51	$ 51	$ 51	$ 51
37	456240 Submeter Application	No Inflation	$ 15,225	$ 15,000	$ 15,225	$ 15,225	$ 15,225	$ 15,225	$ 15,225
38	456245 Evap Cr. Process Fee	No Inflation	$ 203,000	$ 200,000	$ 203,000	$ 203,000	$ 203,000	$ 203,000	$ 203,000
39	456250 Sewage Disposal	No Inflation	$ 10,150	$ 10,000	$ 10,150	$ 10,150	$ 10,150	$ 10,150	$ 10,150
40	456255 Misc Operating Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
41	456260 Oper Recov & Refunds	No Inflation	$ 2,528	$ 2,490	$ 2,528	$ 2,528	$ 2,528	$ 2,528	$ 2,528
42	456265 MSD Application Fee	No Inflation	$ 25,278	$ 24,904	$ 25,278	$ 25,278	$ 25,278	$ 25,278	$ 25,278

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
43		**Other Wastewater Revenue (Non rate) Subtotal**		**$ 1,581,036**	**$ 1,557,671**	**$ 1,581,036**	**$ 1,581,036**	**$ 1,581,036**	**$ 1,581,036**	**$ 1,581,036**
44	**Other Wastewater Revenues (Non rate)**									
45	421280	Other Licenses & Permits	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	421630	Admin Fee-Lic/Prmts	No Inflation	$ 252,779	$ 249,043	$ 252,779	$ 252,779	$ 252,779	$ 252,779	$ 252,779
46	421530	Special Event Permits	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
47	434205	Sale Of Scrap Metal	No Inflation	$ 37,917	$ 37,357	$ 37,917	$ 37,917	$ 37,917	$ 37,917	$ 37,917
47	434225	Sale of Non-Capital Equipment and Merchandise	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
48	434235	Sale of Other Assets	No Inflation	$ 25,278	$ 24,904	$ 25,278	$ 25,278	$ 25,278	$ 25,278	$ 25,278
49	434240	Sale of Land/Street	No Inflation	$ 1,011,116	$ 996,174	$ 1,011,116	$ 1,011,116	$ 1,011,116	$ 1,011,116	$ 1,011,116
50	434245	Sale Cap-Vehicles	No Inflation	$ 101,112	$ 99,617	$ 101,112	$ 101,112	$ 101,112	$ 101,112	$ 101,112
51	424110	Other Interfund Services	No Inflation	$ 293,426	$ 289,090	$ 293,426	$ 293,426	$ 293,426	$ 293,426	$ 293,426
52	424120	Intfd Vehicle Fuel	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
53	424170	Intfd Vehicle Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
54	424510	Prior Yr Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
55	426090	Demolition Fees	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
56	426320	City Map & Related Items	No Inflation	$ 51	$ 50	$ 51	$ 51	$ 51	$ 51	$ 51
57	426370	Training Services	No Inflation	$ 50,556	$ 49,809	$ 50,556	$ 50,556	$ 50,556	$ 50,556	$ 50,556
58	426420	Bldg Space Rental Fee	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
59	426430	Facility Rental Fees	No Inflation	$ 1,188,668	$ 1,171,102	$ 1,188,668	$ 1,188,668	$ 1,188,668	$ 1,188,668	$ 1,188,668
60	428030	Release Of Liens	No Inflation	$ 607	$ 598	$ 607	$ 607	$ 607	$ 607	$ 607
61	428060	Other Interest Income	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
62	428080	Returned Check Charges	No Inflation	$ 25,278	$ 24,904	$ 25,278	$ 25,278	$ 25,278	$ 25,278	$ 25,278
63	428090	Misc Fines & Forfeit	No Inflation	$ 506	$ 498	$ 506	$ 506	$ 506	$ 506	$ 506
64	429095	Medicare Part D Distribution	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
65	434305	Judgments & Claims	No Inflation	$ 506	$ 498	$ 506	$ 506	$ 506	$ 506	$ 506
66	434335	Recoveries Damage Infrastructure	No Inflation	$ 7,583	$ 7,471	$ 7,583	$ 7,583	$ 7,583	$ 7,583	$ 7,583
67	434340	Cashier Overage	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
68	434345	Adjustments to Allowances	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
69	434505	Prior Yr Exp Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
70	434510	Prior Year Revenue	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
71	445050	Cell Tower Revenue	No Inflation	$ 15,672	$ 15,441	$ 15,672	$ 15,672	$ 15,672	$ 15,672	$ 15,672
72	452020	Recoveries & Refunds	No Inflation	$ 101,112	$ 99,617	$ 101,112	$ 101,112	$ 101,112	$ 101,112	$ 101,112
73	452030	Miscellaneous Revenues	No Inflation	$ 60,667	$ 59,770	$ 60,667	$ 60,667	$ 60,667	$ 60,667	$ 60,667
74	456105	Oil and Gas Well Permits	No Inflation	$ 2,528	$ 2,490	$ 2,528	$ 2,528	$ 2,528	$ 2,528	$ 2,528
75	456120	Development Permits	No Inflation	$ 202,223	$ 199,235	$ 202,223	$ 202,223	$ 202,223	$ 202,223	$ 202,223
76	456185	Contract Revenues from Water Authorities	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
77	456235	Lock Device Damage/Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
78	457020	Intfd Comm Equip Repair	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
79	457040	Intfd Fleet Maintenance	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
80	457080	Intfd Employee Training Materials	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
81	490040	Transfer from Water and Sewer Fund	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
82	425120	PWE Allocated Cost Recovery	No Inflation	$ 3,103,976	$ 3,058,104	$ 3,103,976	$ 3,103,976	$ 3,103,976	$ 3,103,976	$ 3,103,976
83		**Other Wastewater Revenues (Non rate) Subtotal**		**$ 6,481,559**	**$ 6,385,773**	**$ 6,481,559**	**$ 6,481,559**	**$ 6,481,559**	**$ 6,481,559**	**$ 6,481,559**

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center	5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
84	**Interest**							
85	432010 Interest on Investment	$ 2,209,227	$ 5,622,405	$ 4,136,460	$ 2,958,701	$ 2,018,016	$ 1,204,282	$ 728,674
86	**Interest Subtotal**	**$ 2,209,227**	**$ 5,622,405**	**$ 4,136,460**	**$ 2,958,701**	**$ 2,018,016**	**$ 1,204,282**	**$ 728,674**
87	**TOTAL WASTEWATER REVENUE**	**$ 769,941,205**	**$ 549,809,596**	**$ 561,745,937**	**$ 736,892,106**	**$ 778,949,567**	**$ 861,040,008**	**$ 911,078,405**

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center		5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**EXPENSES Wastewater Operations**								
2	**40001 WWO Executive Support G&A**								
3	40001 Personnel	No Inflation	$ 2,167,836	$ 2,135,799	$ 2,167,836	$ 2,167,836	$ 2,167,836	$ 2,167,836	$ 2,167,836
4	40001 Supplies	No Inflation	$ 427,315	$ 421,000	$ 427,315	$ 427,315	$ 427,315	$ 427,315	$ 427,315
5	40001 Other Services and Charges	No Inflation	$ 895,332	$ 882,100	$ 895,332	$ 895,332	$ 895,332	$ 895,332	$ 895,332
6	40001 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	40001 Pension DS		$ 2,889,526	$ 2,829,817	$ 2,849,069	$ 2,868,126	$ 2,888,732	$ 2,910,436	$ 2,931,269
8	40001 Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	40001 Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
10	40001 **Subtotal**		**$ 6,380,009**	**$ 6,268,716**	**$ 6,339,551**	**$ 6,358,608**	**$ 6,379,215**	**$ 6,400,918**	**$ 6,421,752**
11	**40002 WWO Collection System Analysis**								
12	40002 Personnel	No Inflation	$ 3,090,384	$ 3,044,713	$ 3,090,384	$ 3,090,384	$ 3,090,384	$ 3,090,384	$ 3,090,384
13	40002 Supplies	No Inflation	$ 33,394	$ 32,900	$ 33,394	$ 33,394	$ 33,394	$ 33,394	$ 33,394
14	40002 Other Services and Charges	No Inflation	$ 1,246,522	$ 1,228,100	$ 1,246,522	$ 1,246,522	$ 1,246,522	$ 1,246,522	$ 1,246,522
15	40002 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	40002 Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
17	40002 Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
18	40002 **Subtotal**		**$ 4,370,299**	**$ 4,305,713**	**$ 4,370,299**	**$ 4,370,299**	**$ 4,370,299**	**$ 4,370,299**	**$ 4,370,299**
19	**40003 WWO Collection System Repairs**								
20	40003 Personnel	No Inflation	$ 10,794,009	$ 10,634,492	$ 10,794,009	$ 10,794,009	$ 10,794,009	$ 10,794,009	$ 10,794,009
21	40003 Supplies	No Inflation	$ 705,831	$ 695,400	$ 705,831	$ 705,831	$ 705,831	$ 705,831	$ 705,831
22	40003 Other Services and Charges	No Inflation	$ 2,376,623	$ 2,341,500	$ 2,376,623	$ 2,376,623	$ 2,376,623	$ 2,376,623	$ 2,376,623
23	40003 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
24	40003 Non-Capital Equipment	No Inflation	$ 15,225	$ 15,000	$ 15,225	$ 15,225	$ 15,225	$ 15,225	$ 15,225
25	40003 Capital Equipment	No Inflation	$ 568,400	$ 560,000	$ 568,400	$ 568,400	$ 568,400	$ 568,400	$ 568,400
26	40003 **Subtotal**		**$ 14,460,088**	**$ 14,246,392**	**$ 14,460,088**	**$ 14,460,088**	**$ 14,460,088**	**$ 14,460,088**	**$ 14,460,088**
27	**40004 WWO Regulatory and Compliance**								
28	40004 Personnel	No Inflation	$ 5,879,955	$ 5,793,059	$ 5,879,955	$ 5,879,955	$ 5,879,955	$ 5,879,955	$ 5,879,955
29	40004 Supplies	No Inflation	$ 353,220	$ 348,000	$ 353,220	$ 353,220	$ 353,220	$ 353,220	$ 353,220
30	40004 Other Services and Charges	No Inflation	$ 3,564,274	$ 3,511,600	$ 3,564,274	$ 3,564,274	$ 3,564,274	$ 3,564,274	$ 3,564,274
31	40004 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
32	40004 Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
33	40004 Capital Equipment	No Inflation	$ 356,537	$ 351,268	$ 356,537	$ 356,537	$ 356,537	$ 356,537	$ 356,537
34	40004 **Subtotal**		**$ 10,153,986**	**$ 10,003,927**	**$ 10,153,986**	**$ 10,153,986**	**$ 10,153,986**	**$ 10,153,986**	**$ 10,153,986**
35	**40005 WWO Technical Services G&A**								
36	40005 Personnel	No Inflation	$ 2,106,393	$ 2,075,264	$ 2,106,393	$ 2,106,393	$ 2,106,393	$ 2,106,393	$ 2,106,393
37	40005 Supplies	No Inflation	$ 13,566,998	$ 13,366,500	$ 13,566,998	$ 13,566,998	$ 13,566,998	$ 13,566,998	$ 13,566,998
38	40005 Other Services and Charges	No Inflation	$ 1,634,658	$ 1,610,500	$ 1,634,658	$ 1,634,658	$ 1,634,658	$ 1,634,658	$ 1,634,658
39	40005 Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
40	40005 Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
41	40005	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
42	40005	**Subtotal**		**$ 17,308,048**	**$ 17,052,264**	**$ 17,308,048**	**$ 17,308,048**	**$ 17,308,048**	**$ 17,308,048**	**$ 17,308,048**
43	**40006**	**WWO Plant Operations**								
44	40006	Personnel	No Inflation	$ 16,306,744	$ 16,065,758	$ 16,306,744	$ 16,306,744	$ 16,306,744	$ 16,306,744	$ 16,306,744
45	40006	Supplies	No Inflation	$ 801,749	$ 789,900	$ 801,749	$ 801,749	$ 801,749	$ 801,749	$ 801,749
46	40006	Other Services and Charges	No Inflation	$ 30,772,364	$ 30,317,600	$ 30,772,364	$ 30,772,364	$ 30,772,364	$ 30,772,364	$ 30,772,364
47	40006	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
48	40006	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
49	40006	Capital Equipment	No Inflation	$ 6,576,099	$ 6,478,915	$ 6,576,099	$ 6,576,099	$ 6,576,099	$ 6,576,099	$ 6,576,099
50	40006	**Subtotal**		**$ 54,456,956**	**$ 53,652,173**	**$ 54,456,956**	**$ 54,456,956**	**$ 54,456,956**	**$ 54,456,956**	**$ 54,456,956**
51	**40007**	**WWO Electrical & Automation**								
52	40007	Personnel	No Inflation	$ 6,884,287	$ 6,782,549	$ 6,884,287	$ 6,884,287	$ 6,884,287	$ 6,884,287	$ 6,884,287
53	40007	Supplies	No Inflation	$ 821,034	$ 808,900	$ 821,034	$ 821,034	$ 821,034	$ 821,034	$ 821,034
54	40007	Other Services and Charges	No Inflation	$ 1,563,608	$ 1,540,500	$ 1,563,608	$ 1,563,608	$ 1,563,608	$ 1,563,608	$ 1,563,608
55	40007	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
56	40007	Non-Capital Equipment	No Inflation	$ 273,238	$ 269,200	$ 273,238	$ 273,238	$ 273,238	$ 273,238	$ 273,238
57	40007	Capital Equipment	No Inflation	$ 488,263	$ 481,047	$ 488,263	$ 488,263	$ 488,263	$ 488,263	$ 488,263
58	40007	**Subtotal**		**$ 10,030,429**	**$ 9,882,196**	**$ 10,030,429**	**$ 10,030,429**	**$ 10,030,429**	**$ 10,030,429**	**$ 10,030,429**
59	**40008**	**WWO Construction Management**								
60	40008	Personnel	No Inflation	$ 5,069,309	$ 4,994,393	$ 5,069,309	$ 5,069,309	$ 5,069,309	$ 5,069,309	$ 5,069,309
61	40008	Supplies	No Inflation	$ 67,599	$ 66,600	$ 67,599	$ 67,599	$ 67,599	$ 67,599	$ 67,599
62	40008	Other Services and Charges	No Inflation	$ 123,424	$ 121,600	$ 123,424	$ 123,424	$ 123,424	$ 123,424	$ 123,424
63	40008	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
64	40008	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
65	40008	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
66	40008	**Subtotal**		**$ 5,260,332**	**$ 5,182,593**	**$ 5,260,332**	**$ 5,260,332**	**$ 5,260,332**	**$ 5,260,332**	**$ 5,260,332**
67	**40009**	**WWO Contract Management**								
68	40009	Personnel	No Inflation	$ 1,221,853	$ 1,203,796	$ 1,221,853	$ 1,221,853	$ 1,221,853	$ 1,221,853	$ 1,221,853
69	40009	Supplies	No Inflation	$ 15,733	$ 15,500	$ 15,733	$ 15,733	$ 15,733	$ 15,733	$ 15,733
70	40009	Other Services and Charges	No Inflation	$ 25,168,752	$ 24,796,800	$ 25,168,752	$ 25,168,752	$ 25,168,752	$ 25,168,752	$ 25,168,752
71	40009	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
72	40009	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
73	40009	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
74	40009	**Subtotal**		**$ 26,406,337**	**$ 26,016,096**	**$ 26,406,337**	**$ 26,406,337**	**$ 26,406,337**	**$ 26,406,337**	**$ 26,406,337**
75	**40010**	**WWO Mechanical Management**								
76	40010	Personnel	No Inflation	$ 13,344,929	$ 13,147,713	$ 13,344,929	$ 13,344,929	$ 13,344,929	$ 13,344,929	$ 13,344,929
77	40010	Supplies	No Inflation	$ 1,904,749	$ 1,876,600	$ 1,904,749	$ 1,904,749	$ 1,904,749	$ 1,904,749	$ 1,904,749
78	40010	Other Services and Charges	No Inflation	$ 4,554,610	$ 4,487,300	$ 4,554,610	$ 4,554,610	$ 4,554,610	$ 4,554,610	$ 4,554,610
79	40010	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
80	40010	Non-Capital Equipment	No Inflation	$ 14,210	$ 14,000	$ 14,210	$ 14,210	$ 14,210	$ 14,210	$ 14,210

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
81	40010	Capital Equipment	No Inflation	$ 1,540,973	$ 1,518,200	$ 1,540,973	$ 1,540,973	$ 1,540,973	$ 1,540,973	$ 1,540,973
82	40010	**Subtotal**		**$ 21,359,470**	**$ 21,043,813**	**$ 21,359,470**	**$ 21,359,470**	**$ 21,359,470**	**$ 21,359,470**	**$ 21,359,470**
83		**OLD WWO Maintenance Operation Services - old COS/Investigation CC G&A**								
84	OLD	Personnel	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
85	OLD	Supplies	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
86	OLD	Other Services and Charges	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
87	OLD	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
88	OLD	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
89	OLD	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
90	OLD	**Subtotal**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
91		**40031 WWO EPA Compliance**								
92	40031	EPA Compliance	No Inflation	$ 34,509,997	$ 33,999,997	$ 34,509,997	$ 34,509,997	$ 34,509,997	$ 34,509,997	$ 34,509,997
93	40031	EPA Compliance - Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
94	40031	**Subtotal**		**$ 34,509,997**	**$ 33,999,997**	**$ 34,509,997**	**$ 34,509,997**	**$ 34,509,997**	**$ 34,509,997**	**$ 34,509,997**
95		**WWO Total Operating Expenses**		**$ 204,695,951**	**$ 201,653,880**	**$ 204,655,493**	**$ 204,674,550**	**$ 204,695,156**	**$ 204,716,860**	**$ 204,737,694**
96		**Wastewater Allocation of G&A**			**49.8%**	**49.8%**				

Houston Combined Utility System

Wastewater Operations & Maintenance

Proposed Budget Forecasted ----->

Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
97	**EXPENSES Operation Services - Houston Water G&A**									
98	**40021 OPS Financial & Support Operation Services G&A**									
99	40021 Personnel	No Inflation	$	1,274,488	$ 1,255,653	$ 1,274,488	$ 1,274,488	$ 1,274,488	$ 1,274,488	$ 1,274,488
100	40021 Supplies	No Inflation	$	26,592	$ 26,199	$ 26,592	$ 26,592	$ 26,592	$ 26,592	$ 26,592
101	40021 Other Services and Charges	No Inflation	$	1,570,163	$ 1,546,958	$ 1,570,163	$ 1,570,163	$ 1,570,163	$ 1,570,163	$ 1,570,163
102	40021 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
103	40021 Non-Capital Equipment	No Inflation	$	1,972	$ 1,943	$ 1,972	$ 1,972	$ 1,972	$ 1,972	$ 1,972
104	40021 Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
105	40021 **Subtotal**		**$**	**2,873,215**	**$ 2,830,753**	**$ 2,873,215**	**$ 2,873,215**	**$ 2,873,215**	**$ 2,873,215**	**$ 2,873,215**
106	**40022 HW Planning**									
107	40022 Personnel	No Inflation	$	867,470	$ 854,650	$ 867,470	$ 867,470	$ 867,470	$ 867,470	$ 867,470
108	40022 Supplies	No Inflation	$	16,734	$ 16,487	$ 16,734	$ 16,734	$ 16,734	$ 16,734	$ 16,734
109	40022 Other Services and Charges	No Inflation	$	725,425	$ 714,705	$ 725,425	$ 725,425	$ 725,425	$ 725,425	$ 725,425
110	40022 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
111	40022 Non-Capital Equipment	No Inflation	$	2,123	$ 2,092	$ 2,123	$ 2,123	$ 2,123	$ 2,123	$ 2,123
112	40022 Capital Equipment	No Inflation	$	24,267	$ 23,908	$ 24,267	$ 24,267	$ 24,267	$ 24,267	$ 24,267
113	40022 **Subtotal**		**$**	**1,636,019**	**$ 1,611,842**	**$ 1,636,019**	**$ 1,636,019**	**$ 1,636,019**	**$ 1,636,019**	**$ 1,636,019**
114	**40023 OPS Maintenance Operation Services - Restoration**									
115	40023 Personnel	No Inflation	$	3,394,957	$ 3,344,785	$ 3,394,957	$ 3,394,957	$ 3,394,957	$ 3,394,957	$ 3,394,957
116	40023 Supplies	No Inflation	$	798,226	$ 786,429	$ 798,226	$ 798,226	$ 798,226	$ 798,226	$ 798,226
117	40023 Other Services and Charges	No Inflation	$	1,838,968	$ 1,811,791	$ 1,838,968	$ 1,838,968	$ 1,838,968	$ 1,838,968	$ 1,838,968
118	40023 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
119	40023 Non-Capital Equipment	No Inflation	$	4,348	$ 4,284	$ 4,348	$ 4,348	$ 4,348	$ 4,348	$ 4,348
120	40023 Capital Equipment	No Inflation	$	2,275	$ 2,241	$ 2,275	$ 2,275	$ 2,275	$ 2,275	$ 2,275
121	40023 Capital Equipment-CP Capital	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
122	40023 **Subtotal**		**$**	**6,038,774**	**$ 5,949,531**	**$ 6,038,774**	**$ 6,038,774**	**$ 6,038,774**	**$ 6,038,774**	**$ 6,038,774**
123	**40024 OPS Maintenance Operation Services-COS/DIS**									
124	40024 Personnel	No Inflation	$	1,192,846	$ 1,175,218	$ 1,192,846	$ 1,192,846	$ 1,192,846	$ 1,192,846	$ 1,192,846
125	40024 Supplies	No Inflation	$	4,297	$ 4,234	$ 4,297	$ 4,297	$ 4,297	$ 4,297	$ 4,297
126	40024 Other Services and Charges	No Inflation	$	177,552	$ 174,928	$ 177,552	$ 177,552	$ 177,552	$ 177,552	$ 177,552
127	40024 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
128	40024 Non-Capital Equipment	No Inflation	$	6,876	$ 6,774	$ 6,876	$ 6,876	$ 6,876	$ 6,876	$ 6,876
129	40024 Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
130	40024 **Subtotal**		**$**	**1,381,571**	**$ 1,361,154**	**$ 1,381,571**	**$ 1,381,571**	**$ 1,381,571**	**$ 1,381,571**	**$ 1,381,571**
131	**40025 HW GIS Services**									
132	40025 Personnel	No Inflation	$	1,121,239	$ 1,104,669	$ 1,121,239	$ 1,121,239	$ 1,121,239	$ 1,121,239	$ 1,121,239
133	40025 Supplies	No Inflation	$	5,561	$ 5,479	$ 5,561	$ 5,561	$ 5,561	$ 5,561	$ 5,561
134	40025 Other Services and Charges	No Inflation	$	521,938	$ 514,225	$ 521,938	$ 521,938	$ 521,938	$ 521,938	$ 521,938
135	40025 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
136	40025 Non-Capital Equipment	No Inflation	$	22,093	$ 21,766	$ 22,093	$ 22,093	$ 22,093	$ 22,093	$ 22,093

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Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
137	40025	Capital Equipment	No Inflation	$ 5,814	$ 5,728	$ 5,814	$ 5,814	$ 5,814	$ 5,814	$ 5,814
138	40025	**Subtotal**		**$ 1,676,645**	**$ 1,651,867**	**$ 1,676,645**	**$ 1,676,645**	**$ 1,676,645**	**$ 1,676,645**	**$ 1,676,645**
139		**40026 OPS Executive Support**								
140	40026	Personnel	No Inflation	$ 223,264	$ 219,964	$ 223,264	$ 223,264	$ 223,264	$ 223,264	$ 223,264
141	40026	Supplies	No Inflation	$ 3,134	$ 3,088	$ 3,134	$ 3,134	$ 3,134	$ 3,134	$ 3,134
142	40026	Other Services and Charges	No Inflation	$ 1,104,139	$ 1,087,822	$ 1,104,139	$ 1,104,139	$ 1,104,139	$ 1,104,139	$ 1,104,139
143	40026	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
144	40026	Non-Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
145	40026	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
146	40026	**Subtotal**		**$ 1,330,537**	**$ 1,310,874**	**$ 1,330,537**	**$ 1,330,537**	**$ 1,330,537**	**$ 1,330,537**	**$ 1,330,537**
147		**40027 OPS Support Services**								
148	40027	Personnel	No Inflation	$ 579,961	$ 571,390	$ 579,961	$ 579,961	$ 579,961	$ 579,961	$ 579,961
149	40027	Supplies	No Inflation	$ 2,477	$ 2,441	$ 2,477	$ 2,477	$ 2,477	$ 2,477	$ 2,477
150	40027	Other Services and Charges	No Inflation	$ 513,748	$ 506,156	$ 513,748	$ 513,748	$ 513,748	$ 513,748	$ 513,748
151	40027	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
152	40027	Non-Capital Equipment	No Inflation	$ 24,267	$ 23,908	$ 24,267	$ 24,267	$ 24,267	$ 24,267	$ 24,267
153	40027	Capital Equipment	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
154	40027	**Subtotal**		**$ 1,120,453**	**$ 1,103,895**	**$ 1,120,453**	**$ 1,120,453**	**$ 1,120,453**	**$ 1,120,453**	**$ 1,120,453**
155		**40028 HW Infrastructure Planning**								
156	40028	Personnel	No Inflation	$ 976,555	$ 962,124	$ 976,555	$ 976,555	$ 976,555	$ 976,555	$ 976,555
157	40028	Supplies	No Inflation	$ 2,932	$ 2,889	$ 2,932	$ 2,932	$ 2,932	$ 2,932	$ 2,932
158	40028	Other Services and Charges	No Inflation	$ 45,096	$ 44,429	$ 45,096	$ 45,096	$ 45,096	$ 45,096	$ 45,096
159	40028	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
160	40028	Non-Capital Equipment	No Inflation	$ 43,781	$ 43,134	$ 43,781	$ 43,781	$ 43,781	$ 43,781	$ 43,781
161	40028	Capital Equipment	No Inflation	$ 14,459	$ 14,245	$ 14,459	$ 14,459	$ 14,459	$ 14,459	$ 14,459
162	40028	**Subtotal**		**$ 1,082,824**	**$ 1,066,821**	**$ 1,082,824**	**$ 1,082,824**	**$ 1,082,824**	**$ 1,082,824**	**$ 1,082,824**
163		**40029 HW Utility Analysis**								
164	40029	Personnel	No Inflation	$ 2,646,476	$ 2,607,366	$ 2,646,476	$ 2,646,476	$ 2,646,476	$ 2,646,476	$ 2,646,476
165	40029	Supplies	No Inflation	$ 6,269	$ 6,176	$ 6,269	$ 6,269	$ 6,269	$ 6,269	$ 6,269
166	40029	Other Services and Charges	No Inflation	$ 206,723	$ 203,668	$ 206,723	$ 206,723	$ 206,723	$ 206,723	$ 206,723
167	40029	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
168	40029	Non-Capital Equipment	No Inflation	$ 48,685	$ 47,966	$ 48,685	$ 48,685	$ 48,685	$ 48,685	$ 48,685
169	40029	Capital Equipment	No Inflation	$ 45,500	$ 44,828	$ 45,500	$ 45,500	$ 45,500	$ 45,500	$ 45,500
170	40029	**Subtotal**		**$ 2,953,653**	**$ 2,910,003**	**$ 2,953,653**	**$ 2,953,653**	**$ 2,953,653**	**$ 2,953,653**	**$ 2,953,653**
171		**OPS Subtotal**		**$ 20,093,691**	**$ 19,796,740**	**$ 20,093,691**	**$ 20,093,691**	**$ 20,093,691**	**$ 20,093,691**	**$ 20,093,691**
					$ 19,796,740					
172		**Houston Water Division**		**$ 224,789,642**	**$ 221,450,620**	**$ 224,749,184**	**$ 224,768,241**	**$ 224,788,848**	**$ 224,810,551**	**$ 224,831,385**
173										

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Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
174	**EXPENSES Other O&M**									
175	**30001-30009 Director's Office**									
176	30001-30009 Personnel	No Inflation	$	3,636,411	$ 3,582,671	$ 3,636,411	$ 3,636,411	$ 3,636,411	$ 3,636,411	$ 3,636,411
177	30001-30009 Supplies	No Inflation	$	24,570	$ 24,207	$ 24,570	$ 24,570	$ 24,570	$ 24,570	$ 24,570
178	30001-30009 Other Services and Charges	No Inflation	$	240,646	$ 237,089	$ 240,646	$ 240,646	$ 240,646	$ 240,646	$ 240,646
179	30001-30009 Indirect Cost Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
180	30001-30009 Non-Capital Equipment	No Inflation	$	10,667	$ 10,510	$ 10,667	$ 10,667	$ 10,667	$ 10,667	$ 10,667
181	30001-30009 Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
182	30001-30009 **Subtotal**		**$**	**3,912,294**	**$ 3,854,477**	**$ 3,912,294**	**$ 3,912,294**	**$ 3,912,294**	**$ 3,912,294**	**$ 3,912,294**
183	**80001 Information Technology**									
184	80001 Personnel	No Inflation	$	4,209,509	$ 4,147,300	$ 4,209,509	$ 4,209,509	$ 4,209,509	$ 4,209,509	$ 4,209,509
185	80001 Supplies	No Inflation	$	151,920	$ 149,675	$ 151,920	$ 151,920	$ 151,920	$ 151,920	$ 151,920
186	80001 Other Services and Charges	No Inflation	$	4,656,494	$ 4,587,679	$ 4,656,494	$ 4,656,494	$ 4,656,494	$ 4,656,494	$ 4,656,494
187	80001 Indirect Cost Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
188	80001 Non-Capital Equipment	No Inflation	$	384,325	$ 378,646	$ 384,325	$ 384,325	$ 384,325	$ 384,325	$ 384,325
189	80001 Capital Equipment	No Inflation	$	519,967	$ 512,282	$ 519,967	$ 519,967	$ 519,967	$ 519,967	$ 519,967
190	80001 **Subtotal**		**$**	**9,922,216**	**$ 9,775,582**	**$ 9,922,216**	**$ 9,922,216**	**$ 9,922,216**	**$ 9,922,216**	**$ 9,922,216**
191	**90001-90011 Management Support**									
192	90001-90011 Personnel	No Inflation	$	1,756,897	$ 1,730,933	$ 1,756,897	$ 1,756,897	$ 1,756,897	$ 1,756,897	$ 1,756,897
193	90001-90011 Supplies	No Inflation	$	119,008	$ 117,250	$ 119,008	$ 119,008	$ 119,008	$ 119,008	$ 119,008
194	90001-90011 Other Services and Charges	No Inflation	$	4,626,967	$ 4,558,588	$ 4,626,967	$ 4,626,967	$ 4,626,967	$ 4,626,967	$ 4,626,967
195	90001-90011 Salary Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
196	90001-90011 Non-Capital Equipment	No Inflation	$	106,471	$ 104,897	$ 106,471	$ 106,471	$ 106,471	$ 106,471	$ 106,471
197	90001-90011 Capital Equipment	No Inflation	$	193,882	$ 191,016	$ 193,882	$ 193,882	$ 193,882	$ 193,882	$ 193,882
198	90001-90011 **Subtotal**		**$**	**6,803,224**	**$ 6,702,684**	**$ 6,803,224**	**$ 6,803,224**	**$ 6,803,224**	**$ 6,803,224**	**$ 6,803,224**
199	**60005 & 60008 Houston Water - Planning**									
200	60005 & 60008 Personnel	No Inflation	$	113,814	$ 112,132	$ 113,814	$ 113,814	$ 113,814	$ 113,814	$ 113,814
201	60005 & 60008 Supplies	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
202	60005 & 60008 Other Services and Charges	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
203	60005 & 60008 Indirect Cost Recovery	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
204	60005 & 60008 Non-Capital Equipment	No Inflation	$	-	$ -	$ -	$ -	$ -	$ -	$ -
205	60005 & 60008 Capital Equipment	No Inflation	$	151,667	$ 149,426	$ 151,667	$ 151,667	$ 151,667	$ 151,667	$ 151,667
206	60005 & 60008 **Subtotal**		**$**	**265,481**	**$ 261,558**	**$ 265,481**	**$ 265,481**	**$ 265,481**	**$ 265,481**	**$ 265,481**
	50002,50005,5									
207	**0006,50030 Financial Mangt Services Support**									
208	50002,50005,500 Personnel	No Inflation	$	6,387,508	$ 6,293,111	$ 6,387,508	$ 6,387,508	$ 6,387,508	$ 6,387,508	$ 6,387,508
209	50002,50005,500 Supplies	No Inflation	$	424,972	$ 418,692	$ 424,972	$ 424,972	$ 424,972	$ 424,972	$ 424,972
210	50002,50005,500 Other Services and Charges	No Inflation	$	5,409,523	$ 5,329,579	$ 5,409,523	$ 5,409,523	$ 5,409,523	$ 5,409,523	$ 5,409,523
211	50002,50005,500 Indirect Cost Recovery Payment	No Inflation	$	4,804,117	$ 4,733,120	$ 4,804,117	$ 4,804,117	$ 4,804,117	$ 4,804,117	$ 4,804,117
212	50002,50005,500 Other Indirect Costs	No Inflation	$	5,739,147	$ 5,654,332	$ 5,739,147	$ 5,739,147	$ 5,739,147	$ 5,739,147	$ 5,739,147

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Line No.	Cost Center			5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
213	50002,50005,500	Pension DS		$ 1,233,630	$ 1,208,138	$ 1,216,357	$ 1,224,494	$ 1,233,291	$ 1,242,557	$ 1,251,452
214	50002,50005,500	Non-Capital Equipment	No Inflation	$ 35,945	$ 35,414	$ 35,945	$ 35,945	$ 35,945	$ 35,945	$ 35,945
215	50002,50005,500	Capital Equipment	No Inflation	$ 240,848	$ 237,289	$ 240,848	$ 240,848	$ 240,848	$ 240,848	$ 240,848
216	50002,50005,500	**Subtotal**		**$ 24,275,691**	**$ 23,909,675**	**$ 24,258,418**	**$ 24,266,554**	**$ 24,275,351**	**$ 24,284,617**	**$ 24,293,512**
217	**100007-15, 100025**	**CAS - Customer Account Services**								
218	100007-15, 100025	Personnel	No Inflation	$ 15,482,049	$ 15,253,250	$ 15,482,049	$ 15,482,049	$ 15,482,049	$ 15,482,049	$ 15,482,049
219	100007-15, 100025	Supplies	No Inflation	$ 1,717,432	$ 1,692,051	$ 1,717,432	$ 1,717,432	$ 1,717,432	$ 1,717,432	$ 1,717,432
220	100007-15, 100025	Other Services and Charges	No Inflation	$ 4,759,426	$ 4,689,089	$ 4,759,426	$ 4,759,426	$ 4,759,426	$ 4,759,426	$ 4,759,426
221	100007-15, 100025	Salary Recovery	No Inflation	$ -	$ -	$ -	$ -	$ -	$ -	$ -
222	100007-15, 100025	Non-Capital Equipment	No Inflation	$ 93,073	$ 91,698	$ 93,073	$ 93,073	$ 93,073	$ 93,073	$ 93,073
223	100007-15, 100025	Capital Equipment	No Inflation	$ 2,904,331	$ 2,861,410	$ 2,904,331	$ 2,904,331	$ 2,904,331	$ 2,904,331	$ 2,904,331
224	100007-15, 100025	**Subtotal**		**$ 24,956,310**	**$ 24,587,498**	**$ 24,956,310**	**$ 24,956,310**	**$ 24,956,310**	**$ 24,956,310**	**$ 24,956,310**
225	**Deductions**	**Deductions**								
226	Deductions	HPW Allocated Recovery	No Inflation	$ (3,103,976)	$ (3,058,104)	$ (3,103,976)	$ (3,103,976)	$ (3,103,976)	$ (3,103,976)	$ (3,103,976)
227	Deductions	611 Walker Facility Rental Fees	No Inflation	$ (1,188,668)	$ (1,171,102)	$ (1,188,668)	$ (1,188,668)	$ (1,188,668)	$ (1,188,668)	$ (1,188,668)
228	Deductions	**Subtotal**		**$ (4,292,644)**	**$ (4,229,206)**	**$ (4,292,644)**	**$ (4,292,644)**	**$ (4,292,644)**	**$ (4,292,644)**	**$ (4,292,644)**
229		**Other Subtotal**		**$ 65,842,572**	**$ 64,862,268**	**$ 65,825,299**	**$ 65,833,436**	**$ 65,842,233**	**$ 65,851,499**	**$ 65,860,394**
230		**TOTAL O&M, CAPITAL, EXPENSES**		**$ 290,632,214**	**$ 286,312,888**	**$ 290,574,483**	**$ 290,601,677**	**$ 290,631,081**	**$ 290,662,050**	**$ 290,691,778**

Appendix C

WATER REVENUE REQUIREMENTS

Houston Combined Utility System

Water Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**Water Revenue Requirements**						
2	**CUS Fund Balance**						
3	Beginning Fund Balance	$ 1,010,798,945	$ 931,566,827	$ 746,466,842	$ 603,607,519	$ 477,199,907	$ 382,775,848
4	Ending Fund Balance	$ 931,566,827	$ 746,466,842	$ 603,607,519	$ 477,199,907	$ 382,775,848	$ 289,067,293
5	**CUS Fund Balance Applied to Water**	**$ 517,920,787**	**$ 450,596,766**	**$ 401,805,894**	**$ 356,771,691**	**$ 309,908,434**	**$ 277,139,743**
6	**Cash Flow / Reserves Test**						
7	**Revenues**						
8	**Operating**						
9	Water Sales	$ 598,722,887	$ 607,703,730	$ 712,076,846	$ 754,801,457	$ 807,637,559	$ 856,095,812
10	Water Service Penalties	$ 5,500,000	$ 5,582,500	$ 6,541,294	$ 6,933,772	$ 7,419,136	$ 7,864,284
11	Other Water Operating Revenue (Non rate)	$ 1,333,971	$ 1,353,981	$ 1,353,981	$ 1,353,981	$ 1,353,981	$ 1,353,981
12	**Total Operating Revenues**	**$ 605,556,858**	**$ 614,640,211**	**$ 719,972,121**	**$ 763,089,209**	**$ 816,410,675**	**$ 865,314,077**
13	**Non Operating**						
14	Impact Fee Revenue	$ 9,935,341	$ 20,608,310	$ 21,406,537	$ 26,682,879	$ 27,716,430	$ 33,588,319
15	Operating transfer from General Purpose Fund	$ -	$ -	$ -	$ -	$ -	$ -
16	Non Operating Water Revenue (Non rate)	$ 8,298,357	$ 8,422,833	$ 8,422,833	$ 8,422,833	$ 8,422,833	$ 8,422,833
17	Interest	$ 5,665,595	$ 5,179,208	$ 4,505,968	$ 4,018,059	$ 3,567,717	$ 3,099,084
18	**Total Non-Operating Revenues**	**$ 23,899,293**	**$ 34,210,350**	**$ 34,335,337**	**$ 39,123,770**	**$ 39,706,980**	**$ 45,110,235**
19	**Total Water Revenues**	**$ 629,456,152**	**$ 648,850,561**	**$ 754,307,458**	**$ 802,212,980**	**$ 856,117,655**	**$ 910,424,313**
20	**Expenses**						
21	**Operating**						
22	EXPENSES Drinking Water Operations	$ 157,914,660	$ 159,346,079	$ 162,544,143	$ 168,717,484	$ 172,888,017	$ 186,960,515
23	River Authority Contributed Debt Service	$ 48,035,697	$ 48,727,551	$ 48,659,334	$ 48,659,100	$ 48,656,845	$ 48,662,228
24	EXPENSES Operation Services - Houston Water G&A	$ 19,948,817	$ 20,248,049	$ 20,248,048	$ 20,248,048	$ 20,248,048	$ 20,248,048
25	EXPENSES Other O&M	$ 65,360,532	$ 66,330,961	$ 66,339,160	$ 66,348,025	$ 66,357,362	$ 66,366,325
26	**Total Operating Expenses**	**$ 291,259,705**	**$ 294,652,640**	**$ 297,790,685**	**$ 303,972,658**	**$ 308,150,272**	**$ 322,237,116**

Houston Combined Utility System

Water Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
27	**Non-Operating Expenses**						
28	Junior Bonds	$ 9,902,764	$ 6,841,990	$ 7,666,299	$ 8,400,001	$ 7,951,382	$ 8,024,310
29	First Lien	$ 217,849,867	$ 229,957,965	$ 229,548,705	$ 228,811,982	$ 229,153,919	$ 226,785,989
30	Future First Lien Debt Service	$ 13,185,134	$ 46,392,796	$ 82,691,240	$ 110,740,876	$ 143,503,428	$ 183,710,673
31	Future First Lien Debt Service - NEWPP	$ -	$ -	$ 13,271,200	$ 22,848,511	$ 22,848,511	$ 22,848,511
32	TRA/Lake Livingston Dam	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585
33	Subordinate Lien	$ 22,817,930	$ 24,224,844	$ 24,209,476	$ 24,199,938	$ 24,185,621	$ 24,180,953
34	Luce Bayou	$ 4,278,954	$ 4,829,498	$ 5,527,270	$ 6,273,797	$ 7,316,090	$ 8,365,596
35	Commercial Paper Debt Service	$ 3,995,962	$ 4,496,112	$ 5,632,581	$ 4,211,068	$ 5,211,481	$ 4,794,603
36	Commercial Paper Fees	$ 1,750,000	$ 2,100,000	$ 2,100,000	$ 2,450,000	$ 2,450,000	$ 2,450,000
37	Bad Debt	$ 11,974,458	$ 12,154,075	$ 14,241,537	$ 15,096,029	$ 16,152,751	$ 17,121,916
38	Cash Funded CIP	$ -	$ 105,996,073	$ 89,181,545	$ 91,606,217	$ 106,294,932	$ 94,760,276
39	**Total Non-Operating Expenses**	**$ 287,568,653**	**$ 438,806,936**	**$ 475,883,438**	**$ 516,452,004**	**$ 566,881,699**	**$ 594,856,411**
40	**Total Expenses**	**$ 578,828,358**	**$ 733,459,576**	**$ 773,674,123**	**$ 820,424,661**	**$ 875,031,971**	**$ 917,093,527**
41	**Total Expenditures for Cash Flow Test**	**$ 578,828,358**	**$ 733,459,576**	**$ 773,674,123**	**$ 820,424,661**	**$ 875,031,971**	**$ 917,093,527**
42	**Cash Flow Surplus (Deficit)**	**$ 50,627,794**	**$ (84,609,015)**	**$ (19,366,665)**	**$ (18,211,682)**	**$ (18,914,316)**	**$ (6,669,215)**
43	**Cash Flow Surplus (Deficit) with Reserves**	**$ 326,846,272**	**$ 66,105,256**	**$ 126,686,719**	**$ 75,124,740**	**$ 25,251,612**	**$ (8,699,670)**
44	**Debt Coverage Test**						
45	**Junior Lien**						
46	Gross Revenues	$ 619,520,811	$ 628,242,251	$ 732,900,921	$ 775,530,101	$ 828,401,225	$ 876,835,994
47	Less: O&M	$ (291,259,705)	$ (294,652,640)	$ (297,790,685)	$ (303,972,658)	$ (308,150,272)	$ (322,237,116)
46	Less: Bad Debt	$ (11,974,458)	$ (12,154,075)	$ (14,241,537)	$ (15,096,029)	$ (16,152,751)	$ (17,121,916)
48	Plus: Total Capital Equipment included (8305)	$ 10,318,158	$ 10,472,930	$ 10,472,930	$ 10,472,930	$ 10,472,930	$ 10,472,930
49	Plus: Total Service in 8305	$ 1,421,518	$ 1,442,841	$ 1,442,841	$ 1,442,841	$ 1,442,841	$ 1,442,841
50	Plus: PIB Debt	$ 5,049,600	$ 3,805,697	$ 3,805,542	$ 2,548,047	$ 2,547,168	$ -
51	Plus: Wallisville & Allens' Creek DS	$ 1,912,097	$ 1,912,097	$ 1,843,880	$ 1,843,646	$ 1,841,391	$ 1,846,774
52	Plus: Pension DS	$ 4,047,235	$ 4,074,770	$ 4,102,026	$ 4,131,497	$ 4,162,538	$ 4,192,335
51	Plus: CWA Debt Service	$ 6,398,700	$ 6,494,681	$ 6,494,681	$ 6,494,681	$ 6,494,681	$ 6,494,681
52	Less: Deduction of Allocated recovery	$ (4,261,694)	$ (4,325,620)	$ (4,325,620)	$ (4,325,620)	$ (4,325,620)	$ (4,325,620)
53	**Net Revenue Available for Junior Lien**	**$ 341,172,262**	**$ 345,312,933**	**$ 444,704,979**	**$ 479,069,437**	**$ 526,734,131**	**$ 557,600,903**

Houston Combined Utility System

Water Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
54	Junior Lien Debt Service	$ 9,902,764	$ 6,841,990	$ 7,666,299	$ 8,400,001	$ 7,951,382	$ 8,024,310
55	**Junior Lien Coverage Ratio**	**34.45x**	**50.47x**	**58.01x**	**57.03x**	**66.24x**	**69.49x**
56	**Junior Lien Coverage Surplus / (Deficit)**	**$ 328,298,669**	**$ 336,418,346**	**$ 434,738,790**	**$ 468,149,435**	**$ 516,397,334**	**$ 547,169,299**
57	**First Lien**						
58	Net Revenues Available	$ 341,172,262	$ 345,312,933	$ 444,704,979	$ 479,069,437	$ 526,734,131	$ 557,600,903
59	Less: Junior Lien Debt Service	$ (9,902,764)	$ (6,841,990)	$ (7,666,299)	$ (8,400,001)	$ (7,951,382)	$ (8,024,310)
60	Plus: Restricted Revenues	$ 9,935,341	$ 20,608,310	$ 21,406,537	$ 26,682,879	$ 27,716,430	$ 33,588,319
61	**Net Revenue Available for First Lien**	**$ 341,204,839**	**$ 359,079,253**	**$ 458,445,217**	**$ 497,352,314**	**$ 546,499,179**	**$ 583,164,911**
62	First Lien Debt Service	$ 231,035,002	$ 276,350,761	$ 325,511,146	$ 362,401,369	$ 395,505,857	$ 433,345,172
63	**First Lien Coverage**	**1.48x**	**1.30x**	**1.41x**	**1.37x**	**1.38x**	**1.35x**
64	**First Lien Coverage Surplus / (Deficit)**	**$ 40,859,337**	**$ (176,736)**	**$ 35,280,727**	**$ 26,230,535**	**$ 32,341,565**	**$ 19,816,187**
65	**Second Lien**						
66	Net Revenues Available	$ 341,204,839	$ 359,079,253	$ 458,445,217	$ 497,352,314	$ 546,499,179	$ 583,164,911
67	Less: First Lien Debt Service	$ (231,035,002)	$ (276,350,761)	$ (325,511,146)	$ (362,401,369)	$ (395,505,857)	$ (433,345,172)
68	Plus: Restricted Revenues						
69	**Revenues Available for Second Lien**	**$ 110,169,838**	**$ 82,728,492**	**$ 132,934,071**	**$ 134,950,945**	**$ 150,993,322**	**$ 149,819,738**
70	Second Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
71	**Second Lien Coverage**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
72	**Second Lien Coverage Surplus / (Deficit)**	**$ 110,169,838**	**$ 82,728,492**	**$ 132,934,071**	**$ 134,950,945**	**$ 150,993,322**	**$ 149,819,738**
73	**Total Debt Coverage**						
74	Net Revenues Available	$ 341,172,262	$ 345,312,933	$ 444,704,979	$ 479,069,437	$ 526,734,131	$ 557,600,903
75	Plus: Restricted Revenues	$ 9,935,341	$ 20,608,310	$ 21,406,537	$ 26,682,879	$ 27,716,430	$ 33,588,319
76	**Revenues Available for Total Debt Coverage**	**$ 351,107,603**	**$ 365,921,243**	**$ 466,111,516**	**$ 505,752,315**	**$ 554,450,561**	**$ 591,189,221**
77	Junior Lien Debt Service	$ 9,902,764	$ 6,841,990	$ 7,666,299	$ 8,400,001	$ 7,951,382	$ 8,024,310

Houston Combined Utility System

Water Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
78	First Lien Debt Service	$ 231,035,002	$ 276,350,761	$ 312,239,946	$ 339,552,858	$ 372,657,346	$ 410,496,662
79	First Lien Debt Service - NEWPP	$ -	$ -	$ 13,271,200	$ 22,848,511	$ 22,848,511	$ 22,848,511
80	Third Lien Debt Service	$ 5,745,962	$ 6,596,112	$ 7,732,581	$ 6,661,068	$ 7,661,481	$ 7,244,603
81	Subordinate Lien Debt Service	$ 29,008,980	$ 30,966,438	$ 31,580,626	$ 32,317,381	$ 33,343,102	$ 34,393,324
82	Other Debt Service Payments	$ 13,165,296	$ 11,921,708	$ 11,918,845	$ 10,470,616	$ 10,647,987	$ 8,342,042
83	**Total Debt Service**	**$ 288,858,003**	**$ 332,677,008**	**$ 384,409,497**	**$ 420,250,435**	**$ 455,109,809**	**$ 491,349,451**
84	**Junior + First + Second Coverage Ratio (1.4x)**	**1.46x**	**1.29x**	**1.40x**	**1.36x**	**1.37x**	**1.34x**
85	**Second Lien Coverage Surplus / (Deficit)**	**$ 13,794,732**	**$ (30,548,608)**	**$ (336,907)**	**$ (13,369,603)**	**$ (10,389,574)**	**$ (26,728,055)**
86	**Junior + First Coverage Ratio (1.3x)**	**1.46x**	**1.29x**	**1.40x**	**1.36x**	**1.37x**	**1.34x**
87	**First Lien Coverage Surplus / (Deficit)**	**$ 37,888,508**	**$ (2,229,333)**	**$ 50,233,398**	**$ 53,413,598**	**$ 59,659,214**	**$ 47,111,958**

88 Revenue Requirement Calculation

89	**Surplus (Shortfall) - Pre Increase**	**$ 13,794,732**	**$ (30,548,608)**	**$ (336,907)**	**$ (13,369,603)**	**$ (10,389,574)**	**$ (26,728,055)**
		Surplus	*Need Additional Coverage*	*Need Additional Coverage*	*Need Additional Coverage*	*Need Additional Coverage*	*Need Additional Coverage*
90	Month of Revenue Adjustment 1	April	September	April	April	April	April
91	*Rate Revenue before Increase 1*	*$ 598,722,887*	*$ 607,703,730*	*$ 712,076,846*	*$ 754,801,457*	*$ 807,637,559*	*$ 856,095,812*
92	**Calculated Revenue Increase**	**0.0%**	**7.0%**	**1.0%**	**7.0%**	**5.0%**	**13.0%**
93	**Revenue Increase 1 Override**	**1.5%**	**9.0%**	**6.0%**	**7.0%**	**6.0%**	**6.5%**
94	**Utilized Revenue Increase 1**	**1.5%**	**9.0%**	**6.0%**	**7.0%**	**6.0%**	**6.5%**

95 Resulting Cash Flows following Revenue Adjustment 1

96	Revenues before rate adjustment 1	$ 598,722,887	$ 607,703,730	$ 712,076,846	$ 754,801,457	$ 807,637,559	$ 856,095,812
97	Revenues from revenue adjustment 1	$ 8,980,843	$ 54,693,336	$ 42,724,611	$ 52,836,102	$ 48,458,254	$ 55,646,228
98	Less: Revenue Increase Delay	$ (6,670,072)	$ (9,773,699)	$ (31,731,568)	$ (39,241,373)	$ (35,989,945)	$ (41,328,453)
99	Other revenues	$ 30,733,265	$ 41,146,831	$ 42,230,612	$ 47,411,523	$ 48,480,096	$ 54,328,500
100	Less Expenditures (from Cash Flow)	$ (578,828,358)	$ (733,459,576)	$ (773,674,123)	$ (820,424,661)	$ (875,031,971)	$ (917,093,527)
101	**Cash Flow**	**$ 52,938,565**	**$ (39,689,378)**	**$ (8,373,623)**	**$ (4,616,953)**	**$ (6,446,008)**	**$ 7,648,560**

Houston Combined Utility System

Water Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
102	*First Lien Coverage*	*1.467x*	*1.451x*	*1.432x*	*1.401x*	*1.405x*	*1.372x*
103	Month of COS Revenue Adjustment		April				
104	*Rate Revenue before Increase 2*	*$ 601,033,658*	*$ 652,623,367*	*$ 723,069,888*	*$ 768,396,186*	*$ 820,105,867*	*$ 870,413,587*
105	**Calculated Revenue Increase**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**6.0%**
106	**Revenue Increase 2 Override**	**0.0%**	**7.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
107	**Utilized Revenue Increase 2**	**0.0%**	**7.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
108	*Cumulative Increase*	*1.5%*	*18.9%*	*26.1%*	*34.9%*	*43.0%*	*52.3%*
109	**Resulting Cash Flows following Revenue Adjustment 2**						
110	Revenues before revenue adjustment 2	$ 601,033,658	$ 652,623,367	$ 723,069,888	$ 768,396,186	$ 820,105,867	$ 870,413,587
111	Revenues from revenue adjustment 2	$ -	$ 49,679,780	$ -	$ -	$ -	$ -
112	Less: Revenue Increase Delay	$ -	$ (36,897,173)	$ -	$ -	$ -	$ -
113	Other revenues	$ 30,733,265	$ 41,146,831	$ 42,230,612	$ 47,411,523	$ 48,480,096	$ 54,328,500
114	Less Expenditures (from Cash Flow)	$ (578,828,358)	$ (733,459,576)	$ (773,674,123)	$ (820,424,661)	$ (875,031,971)	$ (917,093,527)
115	**Cash Flow**	**$ 52,938,565**	**$ (26,906,771)**	**$ (8,373,623)**	**$ (4,616,953)**	**$ (6,446,008)**	**$ 7,648,560**
116	**Total Coverage Ratio**	**1.22x**	**1.27x**	**1.24x**	**1.24x**	**1.25x**	**1.23x**
117	*First Lien Coverage*	*1.467x*	*1.496x*	*1.432x*	*1.401x*	*1.405x*	*1.372x*
118	*Second Lien Coverage*	*1.467x*	*1.496x*	*1.432x*	*1.401x*	*1.405x*	*1.372x*
119	*Annualized Rate Revenue Requirements for Adjustment 1*	*$ 607,703,730*	*$ 662,397,066*	*$ 754,801,457*	*$ 807,637,559*	*$ 856,095,812*	*$ 911,742,040*
120	*Annualized Rate Revenue Requirements for Adjustment 2*	*$ 607,703,730*	*$ 712,076,846*	*$ 754,801,457*	*$ 807,637,559*	*$ 856,095,812*	*$ 911,742,040*

Appendix D

WASTEWATER REVENUE REQUIREMENTS

Houston Combined Utility System

Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**Wastewater Revenue Requirements**						
		50%	*50%*	*50%*	*50%*	*50%*	*50%*
2	**CUS Fund Balances**						
3	Beginning Fund Balance	$ 1,010,798,945	$ 931,566,827	$ 746,466,842	$ 603,607,519	$ 477,199,907	$ 382,775,848
4	Ending Fund Balance	$ 931,566,827	$ 746,466,842	$ 603,607,519	$ 477,199,907	$ 382,775,848	$ 289,067,293
5	**CUS Fund Balance Applied to Wastewater**	**$ 413,646,040**	**$ 295,870,076**	**$ 201,801,626**	**$ 120,428,215**	**$ 72,867,414**	**$ 11,927,549**
6	**Cash Flow Test**						
7	**Revenues**						
8	**Operating**						
9	Wastewater system user charges	$ 515,679,089	$ 523,414,275	$ 697,187,815	$ 739,019,084	$ 820,311,183	$ 869,529,854
10	Sewer Service Penalties	$ 5,500,000	$ 5,582,500	$ 7,435,890	$ 7,882,043	$ 8,749,068	$ 9,274,012
11	Other Wastewater Revenue (Non rate)	$ 1,468,101	$ 1,490,122	$ 1,490,122	$ 1,490,122	$ 1,490,122	$ 1,490,122
12	**Total Operating Revenues**	**$ 522,647,190**	**$ 530,486,898**	**$ 706,113,827**	**$ 748,391,249**	**$ 830,550,373**	**$ 880,293,988**
13	**Non Operating**						
14	Impact Fee Revenue	$ 15,064,659	$ 20,550,106	$ 21,247,105	$ 21,967,828	$ 22,712,879	$ 23,483,270
15	Operating transfer from General Purpose Fund	$ -	$ -	$ -	$ -	$ -	$ -
16	Non-Operating Other Wastewater Revenues (Non rate)	$ 6,475,343	$ 6,572,473	$ 6,572,473	$ 6,572,473	$ 6,572,473	$ 6,572,473
17	Interest	$ 5,622,405	$ 4,136,460	$ 2,958,701	$ 2,018,016	$ 1,204,282	$ 728,674
18	**Total Non-Operating Revenues**	**$ 27,162,407**	**$ 31,259,040**	**$ 30,778,279**	**$ 30,558,317**	**$ 30,489,634**	**$ 30,784,417**
19	**Total Revenues**	**$ 549,809,596**	**$ 561,745,937**	**$ 736,892,106**	**$ 778,949,567**	**$ 861,040,008**	**$ 911,078,405**
20	**Expenses**						
21	**Operating**						
22	Wastewater Operations	$ 201,653,880	$ 204,655,493	$ 204,674,550	$ 204,695,156	$ 204,716,860	$ 204,737,694
23	Operation Services - Houston Water G&A	$ 19,796,740	$ 20,093,691	$ 20,093,691	$ 20,093,691	$ 20,093,691	$ 20,093,691
24	Other O&M	$ 64,862,268	$ 65,825,299	$ 65,833,436	$ 65,842,233	$ 65,851,499	$ 65,860,394
25	Additional Consent Decree O&M	$ -	$ -	$ -	$ -	$ -	$ -

Houston Combined Utility System

Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
26	**Total Operating Expenses**	$ 286,312,888	$ 290,574,483	$ 290,601,677	$ 290,631,081	$ 290,662,050	$ 290,691,778
27	**Non-Operating**						
28	Junior Bonds	$ 12,502,236	$ 8,638,010	$ 9,678,701	$ 10,604,999	$ 10,038,618	$ 10,130,690
29	First Lien	$ 277,325,050	$ 292,611,520	$ 292,094,830	$ 291,164,717	$ 291,596,412	$ 288,606,901
30	Future First Lien Debt Service	$ 11,428,248	$ 40,520,100	$ 78,326,653	$ 116,695,791	$ 169,950,633	$ 225,178,384
31	Second Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
32	Subordinate Lien	$ -	$ -	$ -	$ -	$ -	$ -
33	Commercial Paper Debt Service	$ 3,504,038	$ 3,941,388	$ 3,742,419	$ 6,101,432	$ 6,038,519	$ 6,455,397
34	Commercial Paper Fees	$ 1,750,000	$ 2,100,000	$ 2,100,000	$ 2,450,000	$ 2,450,000	$ 2,450,000
35	Bad Debt	$ 10,313,582	$ 10,468,286	$ 13,943,756	$ 14,780,382	$ 16,406,224	$ 17,390,597
36	Cash Funded CIP	$ -	$ 94,003,927	$ 110,818,455	$ 108,393,783	$ 93,705,068	$ 105,239,724
37	**Total Non-Operating Expenses**	$ 316,823,155	$ 452,283,230	$ 510,704,814	$ 550,191,103	$ 590,185,473	$ 655,451,694
38	**Total Expenses**	$ 603,136,043	$ 742,857,714	$ 801,306,491	$ 840,822,184	$ 880,847,523	$ 946,143,472
39	**Total Expenditures for Cash Flow Test**	$ 603,136,043	$ 742,857,714	$ 801,306,491	$ 840,822,184	$ 880,847,523	$ 946,143,472
40	**Cash Flow Surplus (Deficit)**	$ (53,326,446)	$ (181,111,776)	$ (64,414,385)	$ (61,872,617)	$ (19,807,515)	$ (35,065,067)
41	**Cash Flow Surplus (Deficit) with Reserves**	$ 123,003,669	$ (227,823,105)	$ (112,226,639)	$ (201,235,720)	$ (198,504,380)	$ (276,604,719)
42	**Debt Coverage Test**						
43	**Junior Lien**						
44	Gross Revenues	$ 534,744,937	$ 541,195,831	$ 715,645,001	$ 756,981,739	$ 838,327,129	$ 887,595,136
45	Less: O&M	$ (286,312,888)	$ (290,574,483)	$ (290,601,677)	$ (290,631,081)	$ (290,662,050)	$ (290,691,778)
45	Less: Bad Debt	$ (10,313,582)	$ (10,468,286)	$ (13,943,756)	$ (14,780,382)	$ (16,406,224)	$ (17,390,597)
46	Plus: Total Capital Equipment included (8305)	$ 10,239,499	$ 10,393,092	$ 10,393,092	$ 10,393,092	$ 10,393,092	$ 10,393,092
47	Plus: Total Service in 8305	$ 1,410,682	$ 1,431,842	$ 1,431,842	$ 1,431,842	$ 1,431,842	$ 1,431,842
48	Plus: PIB Debt	$ -	$ -	$ -	$ -	$ -	$ -
49	Plus: Wallisville & Allens' Creek DS	$ -	$ -	$ -	$ -	$ -	$ -
50	Plus: Pension DS	$ 4,037,955	$ 4,065,426	$ 4,092,620	$ 4,122,023	$ 4,152,993	$ 4,182,721
49	Plus: CWA Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
50	Less: Deduction of Allocated recovery	$ (4,229,206)	$ (4,292,644)	$ (4,292,644)	$ (4,292,644)	$ (4,292,644)	$ (4,292,644)

Houston Combined Utility System

Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
51	Plus: EPA Consent Decree Reimbursed by Fund 8305	$ 33,999,997	$ 34,509,997	$ 34,509,997	$ 34,509,997	$ 34,509,997	$ 34,509,997
52	**Net Revenue Available for Junior Lien**	**$ 283,577,394**	**$ 286,260,775**	**$ 457,234,474**	**$ 497,734,586**	**$ 577,454,134**	**$ 625,737,768**
53	Junior Lien Debt Service	$ 12,502,236	$ 8,638,010	$ 9,678,701	$ 10,604,999	$ 10,038,618	$ 10,130,690
54	**Junior Lien Coverage Ratio**	**22.68x**	**33.14x**	**47.24x**	**46.93x**	**57.52x**	**61.77x**
55	**Junior Lien Coverage Surplus / (Deficit)**	**$ 267,324,487**	**$ 275,031,362**	**$ 444,652,163**	**$ 483,948,088**	**$ 564,403,931**	**$ 612,567,871**
56	**First Lien**						
57	Net Revenue Available	$ 283,577,394	$ 286,260,775	$ 457,234,474	$ 497,734,586	$ 577,454,134	$ 625,737,768
58	Less: Junior Lien Debt Service	$ (12,502,236)	$ (8,638,010)	$ (9,678,701)	$ (10,604,999)	$ (10,038,618)	$ (10,130,690)
59	Plus: Restricted Revenue	$ 15,064,659	$ 20,550,106	$ 21,247,105	$ 21,967,828	$ 22,712,879	$ 23,483,270
60	**Net Revenue Available for Junior Lien**	**$ 286,139,817**	**$ 298,172,871**	**$ 468,802,878**	**$ 509,097,415**	**$ 590,128,396**	**$ 639,090,348**
61	First Lien Debt Service	$ 288,753,298	$ 333,131,620	$ 370,421,483	$ 407,860,507	$ 461,547,045	$ 513,785,285
62	**First Lien Coverage**	**0.99x**	**0.90x**	**1.27x**	**1.25x**	**1.28x**	**1.24x**
63	**First Lien Coverage Surplus / (Deficit)**	**$ (89,239,470)**	**$ (134,898,235)**	**$ (12,745,050)**	**$ (21,121,245)**	**$ (9,882,762)**	**$ (28,830,523)**
64	**Total Debt Coverage**						
65	Net Revenue Available	$ 283,577,394	$ 286,260,775	$ 457,234,474	$ 497,734,586	$ 577,454,134	$ 625,737,768
66	Plus: Restricted Revenue	$ 15,064,659	$ 20,550,106	$ 21,247,105	$ 21,967,828	$ 22,712,879	$ 23,483,270
67	**Net Revenue Available**	**$ 298,642,053**	**$ 306,810,881**	**$ 478,481,579**	**$ 519,702,414**	**$ 600,167,014**	**$ 649,221,037**
68	Junior Lien Debt Service	$ 12,502,236	$ 8,638,010	$ 9,678,701	$ 10,604,999	$ 10,038,618	$ 10,130,690
69	First Lien Debt Service	$ 288,753,298	$ 333,131,620	$ 370,421,483	$ 407,860,507	$ 461,547,045	$ 513,785,285
70	Second Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
71	Third Lien Debt Service	$ 5,254,038	$ 6,041,388	$ 5,842,419	$ 8,551,432	$ 8,488,519	$ 8,905,397
72	Subordinate Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
73	Other Debt Service Payments	$ 8,115,696	$ 8,116,011	$ 8,113,304	$ 7,922,569	$ 8,100,819	$ 8,342,042
74	**Total Debt Service**	**$ 314,625,268**	**$ 355,927,029**	**$ 394,055,907**	**$ 434,939,508**	**$ 488,175,000**	**$ 541,163,414**
75	**Junior + First + Second Coverage Ratio (1.4x)**	**0.99x**	**0.90x**	**1.26x**	**1.24x**	**1.27x**	**1.24x**

Houston Combined Utility System

Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
76	**Second Lien Coverage Surplus / (Deficit)**	**$ (123,115,695)**	**$ (171,666,601)**	**$ (53,658,679)**	**$ (66,149,295)**	**$ (60,052,914)**	**$ (84,261,328)**
77	**Junior + First Coverage Ratio (1.3x)**	**0.99x**	**0.90x**	**1.26x**	**1.24x**	**1.27x**	**1.24x**
78	**First Lien Coverage Surplus / (Deficit)**	**$ (92,990,141)**	**$ (137,489,638)**	**$ (15,648,660)**	**$ (24,302,744)**	**$ (12,894,348)**	**$ (31,869,730)**
79	**Revenue Requirement Calculation**						
80	**Surplus (Shortfall) - Pre Increase**	**$ (123,115,695)**	**$ (227,823,105)**	**$ (112,226,639)**	**$ (201,235,720)**	**$ (198,504,380)**	**$ (276,604,719)**
		Need Additional Coverage	*Need Cash Flow*	*Need Cash Flow*	*Need Cash Flow*	*Need Cash Flow*	*Need Cash Flow*
81	Month of Revenue Adjustment 1	April	September	April	April	April	April
82	*Rate Revenue before Increase 1*	*$ 515,679,089*	*$ 523,414,275*	*$ 697,187,815*	*$ 739,019,084*	*$ 820,311,183*	*$ 869,529,854*
83	**Calculated Revenue Increase**	**93.0%**	**53.0%**	**63.0%**	**106.0%**	**95.0%**	**124.0%**
84	**Revenue Increase 1 Override**	**1.5%**	**20.0%**	**6.0%**	**11.0%**	**6.0%**	**6.5%**
85	**Utilized Revenue Increase 1**	**1.5%**	**20.0%**	**6.0%**	**11.0%**	**6.0%**	**6.5%**
86	**Resulting Cash Flows following Revenue Adjustment 1**						
87	Revenues before revenue adjustment 1	$ 515,679,089	$ 523,414,275	$ 697,187,815	$ 739,019,084	$ 820,311,183	$ 869,529,854
88	Revenues from revenue adjustment 1	$ 7,735,186	$ 104,682,855	$ 41,831,269	$ 81,292,099	$ 49,218,671	$ 56,519,440
89	Less: Revenue Increase Delay	$ (5,744,923)	$ (18,706,826)	$ (31,068,083)	$ (60,375,642)	$ (36,554,707)	$ (41,976,988)
90	Other revenues	$ 34,130,507	$ 38,331,662	$ 39,704,291	$ 39,930,483	$ 40,728,825	$ 41,548,551
91	Less Expenditures (from Cash Flow)	$ (603,136,043)	$ (742,857,714)	$ (801,306,491)	$ (840,822,184)	$ (880,847,523)	$ (946,143,472)
92	**Cash Flow**	**$ (51,336,183)**	**$ (95,135,747)**	**$ (53,651,200)**	**$ (40,956,160)**	**$ (7,143,551)**	**$ (20,522,615)**
93	*First Lien Coverage*	*0.998x*	*1.149x*	*1.287x*	*1.292x*	*1.300x*	*1.267x*
94	Month of Revenue Adjustment 2		April				
95	*Rate Revenue before Increase 2*	*$ 517,669,352*	*$ 609,390,304*	*$ 707,951,000*	*$ 759,935,541*	*$ 832,975,147*	*$ 884,072,306*
96	**Calculated Revenue Increase**	**91.0%**	**91.0%**	**56.0%**	**93.0%**	**87.0%**	**116.0%**
97	**Revenue Increase 2 Override**	**0.0%**	**11.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Houston Combined Utility System

Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
98	**Utilized Revenue Increase 2**	**0.0%**	**11.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
99	*Cumulative Increase*	*1.5%*	*35.2%*	*43.3%*	*59.1%*	*68.6%*	*79.6%*
100	**Resulting Cash Flows following Revenue Adjustment 2**						
101	Revenues before revenue adjustment 2	$ 517,669,352	$ 609,390,304	$ 707,951,000	$ 759,935,541	$ 832,975,147	$ 884,072,306
102	Revenues from revenue adjustment 2	$ -	$ 69,090,684	$ -	$ -	$ -	$ -
103	Less: Revenue Increase Delay	$ -	$ (51,313,651)	$ -	$ -	$ -	$ -
104	Other revenues	$ 34,130,507	$ 38,331,662	$ 39,704,291	$ 39,930,483	$ 40,728,825	$ 41,548,551
105	Less Expenditures (from Cash Flow)	$ (603,136,043)	$ (742,857,714)	$ (801,306,491)	$ (840,822,184)	$ (880,847,523)	$ (946,143,472)
106	**Cash Flow**	**$ (51,336,183)**	**$ (77,358,714)**	**$ (53,651,200)**	**$ (40,956,160)**	**$ (7,143,551)**	**$ (20,522,615)**
107	**Total Coverage Ratio**	**0.96x**	**1.15x**	**1.24x**	**1.24x**	**1.26x**	**1.23x**
108	*First Lien Coverage*	*0.998x*	*1.201x*	*1.287x*	*1.292x*	*1.300x*	*1.267x*
108	*Second Lien Coverage*	*0.998x*	*1.201x*	*1.287x*	*1.292x*	*1.300x*	*1.267x*
109	*Annualized Rate Revenue Requirements for Adjustment 1*	*$ 523,414,275*	*$ 628,097,130*	*$ 739,019,084*	*$ 820,311,183*	*$ 869,529,854*	*$ 926,049,294*
110	*Annualized Rate Revenue Requirements for Adjustment 2*	*$ 523,414,275*	*$ 697,187,815*	*$ 739,019,084*	*$ 820,311,183*	*$ 869,529,854*	*$ 926,049,294*

Appendix E

COMBINED UTILITY SYSTEM REVENUE REQUIREMENTS

Houston Combined Utility System

Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
1	**Combined Revenue Requirements**						
		50%	*50%*	*50%*	*50%*	*50%*	*50%*
2	**CUS Fund Balance**						
3	Beginning Fund Balance	$1,010,798,945	$931,566,827	$746,466,842	$603,607,519	$477,199,907	$382,775,848
4	Planned Fund Balance	$931,566,827	$746,466,842	$603,607,519	$477,199,907	$382,775,848	$289,067,293
5	**CUS Fund Balance Applied to Water**	**$ 517,920,787**	**$ 450,596,766**	**$ 401,805,894**	**$ 356,771,691**	**$ 309,908,434**	**$ 277,139,743**
6	**CUS Fund Balance Applied to Wastewater**	**$ 413,646,040**	**$ 295,870,076**	**$ 201,801,626**	**$ 120,428,215**	**$ 72,867,414**	**$ 11,927,549**
7	**Cash Flow Test**						
8	**Revenues**						
9	**Operating**						
10	Water Sales	$ 598,722,887	$ 607,703,730	$ 712,076,846	$ 754,801,457	$ 807,637,559	$ 856,095,812
11	Sewer system user charges	$ 515,679,089	$ 523,414,275	$ 697,187,815	$ 739,019,084	$ 820,311,183	$ 869,529,854
12	Penalties	$ 11,000,000	$ 11,165,000	$ 13,977,184	$ 14,815,815	$ 16,168,204	$ 17,138,297
13	Other Water Operating Revenue (Non rate)	$ 2,802,072	$ 2,844,103	$ 2,844,103	$ 2,844,103	$ 2,844,103	$ 2,844,103
14	**Total Operating Revenues**	**$ 1,128,204,048**	**$ 1,145,127,109**	**$ 1,426,085,948**	**$ 1,511,480,459**	**$ 1,646,961,049**	**$ 1,745,608,066**
15	**Non-Operating**						
16	Impact Fee Revenue	$ 25,000,000	$ 41,158,416	$ 42,653,642	$ 48,650,707	$ 50,429,310	$ 57,071,588
17	Operating transfer from General Purpose Fund	$ -	$ -	$ -	$ -	$ -	$ -
18	Non Operating Water Revenue (Non rate)	$ 14,773,700	$ 14,995,306	$ 14,995,306	$ 14,995,306	$ 14,995,306	$ 14,995,306
19	Interest	$ 11,288,000	$ 9,315,668	$ 7,464,668	$ 6,036,075	$ 4,771,999	$ 3,827,758
20	**Total Non-Operating Revenues**	**$ 51,061,700**	**$ 65,469,390**	**$ 65,113,616**	**$ 69,682,087**	**$ 70,196,614**	**$ 75,894,652**
21	**Total Revenues**	**$ 1,179,265,748**	**$ 1,210,596,499**	**$ 1,491,199,564**	**$ 1,581,162,546**	**$ 1,717,157,663**	**$ 1,821,502,718**
22	*Debt Coverage Revenues*	*$ 1,154,265,748*	*$ 1,169,438,082*	*$ 1,448,545,922*	*$ 1,532,511,840*	*$ 1,666,728,353*	*$ 1,764,431,130*
23	**Expenses**						
24	**Operating**						
25	EXPENSES Drinking Water Operations	$ 157,914,660	$ 159,346,079	$ 162,544,143	$ 168,717,484	$ 172,888,017	$ 186,960,515
26	River Authority Contributed Debt Service	$ 48,035,697	$ 48,727,551	$ 48,659,334	$ 48,659,100	$ 48,656,845	$ 48,662,228
27	EXPENSES Wastewater Operations	$ 201,653,880	$ 204,655,493	$ 204,674,550	$ 204,695,156	$ 204,716,860	$ 204,737,694

Houston Combined Utility System

Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
28	EXPENSES Operation Services - G&A	$ 39,745,557	$ 40,341,740	$ 40,341,739	$ 40,341,739	$ 40,341,739	$ 40,341,739
29	EXPENSES Other O&M	$ 130,222,800	$ 132,156,261	$ 132,172,596	$ 132,190,258	$ 132,208,861	$ 132,226,719
30	Additional Consent Decree O&M	$ -	$ -	$ -	$ -	$ -	$ -
31	**Total Operating Expenses**	**$ 577,572,593**	**$ 585,227,123**	**$ 588,392,362**	**$ 594,603,738**	**$ 598,812,323**	**$ 612,928,895**
32	**Non-Operating**						
33	Junior Bonds	$ 22,405,000	$ 15,480,000	$ 17,345,000	$ 19,005,000	$ 17,990,000	$ 18,155,000
34	First Lien	$ 495,174,917	$ 522,569,484	$ 521,643,535	$ 519,976,699	$ 520,750,330	$ 515,392,890
35	Future First Lien Debt Service	$ 24,613,382	$ 86,912,896	$ 161,017,894	$ 227,436,667	$ 313,454,060	$ 408,889,057
36	Future First Lien Debt Service - NEWPP	$ -	$ -	$ 13,271,200	$ 22,848,511	$ 22,848,511	$ 22,848,511
37	TRA/Lake Livingston Dam	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585	$ 1,813,585
38	Subordinate Lien	$ 22,817,930	$ 24,224,844	$ 24,209,476	$ 24,199,938	$ 24,185,621	$ 24,180,953
39	Luce Bayou	$ 4,278,954	$ 4,829,498	$ 5,527,270	$ 6,273,797	$ 7,316,090	$ 8,365,596
40	Commercial Paper Interest	$ 7,500,000	$ 8,437,500	$ 9,375,000	$ 10,312,500	$ 11,250,000	$ 11,250,000
41	Commercial Paper Fees	$ 3,500,000	$ 4,200,000	$ 4,200,000	$ 4,900,000	$ 4,900,000	$ 4,900,000
42	Bad Debt	$ 22,288,040	$ 22,622,360	$ 28,185,293	$ 29,876,411	$ 32,558,975	$ 34,512,513
43	Cash Funded CIP	$ -	$ 200,000,000	$ 200,000,000	$ 200,000,000	$ 200,000,000	$ 200,000,000
44	**Total Non-Operating Expenses**	**$ 604,391,808**	**$ 891,090,166**	**$ 986,588,253**	**$ 1,066,643,107**	**$ 1,157,067,172**	**$ 1,250,308,105**
45	**Total Expenses**	**$ 1,181,964,400**	**$ 1,476,317,290**	**$ 1,574,980,615**	**$ 1,661,246,845**	**$ 1,755,879,494**	**$ 1,863,236,999**
		$ 577,572,593	*$ 585,227,123*	*$ 588,392,362*	*$ 594,603,738*	*$ 598,812,323*	*$ 612,928,895*
46	**Total Expenditures for Cash Flow Test**	**$ 1,181,964,400**	**$ 1,476,317,290**	**$ 1,574,980,615**	**$ 1,661,246,845**	**$ 1,755,879,494**	**$ 1,863,236,999**
47	**Cash Flow Surplus (Deficit)**	**$ (2,698,652)**	**$ (265,720,791)**	**$ (83,781,050)**	**$ (80,084,299)**	**$ (38,721,831)**	**$ (41,734,282)**
48	**Cash Flow Surplus (Deficit) with Reserves**	**$ 449,849,940**	**$ (161,717,849)**	**$ 14,460,081**	**$ (126,110,980)**	**$ (173,252,768)**	**$ (285,304,389)**

49 Debt Coverage Test

50 Junior Lien

51	Gross Revenues	$ 1,154,265,748	$ 1,169,438,082	$ 1,448,545,922	$ 1,532,511,840	$ 1,666,728,353	$ 1,764,431,130
52	Less: O&M	(577,572,593)	(585,227,123)	(588,392,362)	(594,603,738)	(598,812,323)	(612,928,895)
52	Less: Bad Debt	(22,288,040)	(22,622,360)	(28,185,293)	(29,876,411)	(32,558,975)	(34,512,513)
53	Plus: Total Capital Equipment included (8305)	20,557,657	20,866,022	20,866,022	20,866,022	20,866,022	20,866,022
54	Plus: Total Service in 8305	2,832,200	2,874,683	2,874,683	2,874,683	2,874,683	2,874,683

Houston Combined Utility System

Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
55	Plus: PIB Debt	5,049,600	3,805,697	3,805,542	2,548,047	2,547,168	0
56	Plus: Wallisville & Allens' Creek DS	1,912,097	1,912,097	1,843,880	1,843,646	1,841,391	1,846,774
57	Plus: Pension DS	8,085,190	8,140,196	8,194,646	8,253,521	8,315,531	8,375,056
57	Plus: CWA Debt Service	6,398,700	6,494,681	6,494,681	6,494,681	6,494,681	6,494,681
58	Less: Deduction of Allocated recovery	(8,490,900)	(8,618,264)	(8,618,264)	(8,618,264)	(8,618,264)	(8,618,264)
59	Plus: EPA Consent Decree Reimbursed by Fund 83(	33,999,997	34,509,997	34,509,997	34,509,997	34,509,997	34,509,997
60	**Revenues Available for Junior Lien**	**$ 624,749,656**	**$ 631,573,708**	**$ 901,939,453**	**$ 976,804,023**	**$ 1,104,188,265**	**$ 1,183,338,670**
61	Junior Lien Debt Service	$ 22,405,000	$ 15,480,000	$ 17,345,000	$ 19,005,000	$ 17,990,000	$ 18,155,000
62	**Junior Lien Coverage Ratio**	**27.88x**	**40.80x**	**52.00x**	**51.40x**	**61.38x**	**65.18x**
63	**Junior Lien Coverage Surplus / (Deficit)**	**$ 595,623,156**	**$ 611,449,708**	**$ 879,390,953**	**$ 952,097,523**	**$ 1,080,801,265**	**$ 1,159,737,170**
64	**First Lien**						
65	Net Revenues Available	$ 624,749,656	$ 631,573,708	$ 901,939,453	$ 976,804,023	$ 1,104,188,265	$ 1,183,338,670
66	Less: Junior Lien Debt Service	$ (22,405,000)	$ (15,480,000)	$ (17,345,000)	$ (19,005,000)	$ (17,990,000)	$ (18,155,000)
67	Plus: Restricted Revenues	$ 25,000,000	$ 41,158,416	$ 42,653,642	$ 48,650,707	$ 50,429,310	$ 57,071,588
68	**Revenues Available for Junior Lien**	**$ 627,344,656**	**$ 657,252,124**	**$ 927,248,095**	**$ 1,006,449,730**	**$ 1,136,627,574**	**$ 1,222,255,259**
69	First Lien Debt Service	$ 519,788,300	$ 609,482,381	$ 695,932,629	$ 770,261,876	$ 857,052,901	$ 947,130,458
70	**First Lien Coverage**	**1.21x**	**1.08x**	**1.33x**	**1.31x**	**1.33x**	**1.29x**
71	**First Lien Coverage Surplus / (Deficit)**	**$ (77,506,633)**	**$ (155,198,971)**	**$ (12,823)**	**$ (19,597,210)**	**$ (928,198)**	**$ (32,615,836)**
72	**Second Lien**						
73	Net Revenues Available	$ 627,344,656	$ 657,252,124	$ 927,248,095	$ 1,006,449,730	$ 1,136,627,574	$ 1,222,255,259
74	Less: First Lien Debt Service	$ (519,788,300)	$ (609,482,381)	$ (695,932,629)	$ (770,261,876)	$ (857,052,901)	$ (947,130,458)
75	Plus: Restricted Revenues						
76	**Revenues Available for Second Lien**	**$ 107,556,357**	**$ 47,769,743**	**$ 231,315,466**	**$ 236,187,853**	**$ 279,574,673**	**$ 275,124,801**
77	Second Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
78	**Second Lien Coverage**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
79	**Second Lien Coverage Surplus / (Deficit)**	**$ 107,556,357**	**$ 47,769,743**	**$ 231,315,466**	**$ 236,187,853**	**$ 279,574,673**	**$ 275,124,801**

Houston Combined Utility System

Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
80	**Total Debt Coverage**						
81	Net Revenues Available	$ 624,749,656	$ 631,573,708	$ 901,939,453	$ 976,804,023	$ 1,104,188,265	$ 1,183,338,670
82	Plus: Restricted Revenues	$ 25,000,000	$ 41,158,416	$ 42,653,642	$ 48,650,707	$ 50,429,310	$ 57,071,588
83	**Revenues Available for Junior Lien**	**$ 649,749,656**	**$ 672,732,124**	**$ 944,593,095**	**$ 1,025,454,730**	**$ 1,154,617,574**	**$ 1,240,410,259**
84	Junior Lien Debt Service	$ 22,405,000	$ 15,480,000	$ 17,345,000	$ 19,005,000	$ 17,990,000	$ 18,155,000
85	First Lien Debt Service	$ 519,788,300	$ 609,482,381	$ 695,932,629	$ 770,261,876	$ 857,052,901	$ 947,130,458
86	Second Lien Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
87	Third Lien Debt Service	$ 11,000,000	$ 12,637,500	$ 13,575,000	$ 15,212,500	$ 16,150,000	$ 16,150,000
88	Subordinate Lien Debt Service	$ 29,008,980	$ 30,966,438	$ 31,580,626	$ 32,317,381	$ 33,343,102	$ 34,393,324
89	Other Debt Service Payments	$ 21,280,991	$ 20,037,719	$ 20,032,149	$ 18,393,185	$ 18,748,806	$ 16,684,084
90	**Total Debt Service**	**$ 603,483,271**	**$ 688,604,037**	**$ 778,465,403**	**$ 855,189,943**	**$ 943,284,809**	**$ 1,032,512,865**
91	**Total Coverage Ratio (First + Junior)**	**1.20x**	**1.08x**	**1.32x**	**1.30x**	**1.32x**	**1.29x**
92	**Total Coverage Surplus / (Deficit)**	**$ (134,778,596)**	**$ (222,453,125)**	**$ (67,411,929)**	**$ (86,292,196)**	**$ (71,652,678)**	**$ (101,856,466)**
93	**Resulting Cash Flows After Revenue Adjustment 1**						
94	Revenues before rate adjustment 1	$ 1,114,401,976	$ 1,131,118,006	$ 1,409,264,661	$ 1,493,820,540	$ 1,627,948,742	$ 1,725,625,666
95	Revenues from revenue adjustment 1	$ 16,716,030	$ 159,376,191	$ 84,555,880	$ 134,128,201	$ 97,676,924	$ 112,165,668
96	Less: Revenue Increase Delay	$ (12,414,995)	$ (28,480,525)	$ (62,799,652)	$ (99,617,015)	$ (72,544,652)	$ (83,305,442)
97	Other revenues	$ 64,863,772	$ 79,478,493	$ 81,934,903	$ 87,342,006	$ 89,208,922	$ 95,877,052
98	Less Expenditures (from Cash Flow)	$ (1,181,964,400)	$ (1,476,317,290)	$ (1,574,980,615)	$ (1,661,246,845)	$ (1,755,879,494)	$ (1,863,236,999)
99	**Cash Flow**	**$ 1,602,382**	**$ (134,825,125)**	**$ (62,024,823)**	**$ (45,573,113)**	**$ (13,589,559)**	**$ (12,874,055)**
100	**Resulting Cash Flows After Revenue Adjustment 2**						
101	Revenues before rate adjustment 2	$ 1,118,703,010	$ 1,262,013,671	$ 1,431,020,889	$ 1,528,331,727	$ 1,653,081,014	$ 1,754,485,892
102	Revenues from revenue adjustment 2	$ -	$ 118,770,464	$ -	$ -	$ -	$ -
103	Less: Revenue Increase Delay	$ -	$ (88,210,824)	$ -	$ -	$ -	$ -
104	Other revenues	$ 64,863,772	$ 79,478,493	$ 81,934,903	$ 87,342,006	$ 89,208,922	$ 95,877,052
105	Less Expenditures (from Cash Flow)	$ (1,181,964,400)	$ (1,476,317,290)	$ (1,574,980,615)	$ (1,661,246,845)	$ (1,755,879,494)	$ (1,863,236,999)
106	**Cash Flow**	**$ 1,602,382**	**$ (104,265,485)**	**$ (62,024,823)**	**$ (45,573,113)**	**$ (13,589,559)**	**$ (12,874,055)**

Houston Combined Utility System

Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
107	**Junior + First + Second Coverage Ratio (1.4x)**	**1.21x**	**1.33x**	**1.35x**	**1.34x**	**1.35x**	**1.31x**
108	**Second Lien Coverage Surplus / (Deficit)**	**$ (50,800,599)**	**$ 21,736,335**	**$ 39,088,405**	**$ 33,918,976**	**$ 42,194,075**	**$ 14,399,390**
109	**Junior + First Coverage Ratio (1.3x)**	**1.21x**	**1.33x**	**1.35x**	**1.34x**	**1.35x**	**1.31x**
110	**First Lien Coverage Surplus / (Deficit)**	**$ (50,800,599)**	**$ 21,736,335**	**$ 39,088,405**	**$ 33,918,976**	**$ 42,194,075**	**$ 14,399,390**
111	**Total Coverage Ratio (1.2x)**	**1.08x**	**1.21x**	**1.24x**	**1.24x**	**1.25x**	**1.23x**
112	**Total Coverage Surplus / (Deficit)**	**$ (130,477,562)**	**$ (60,997,819)**	**$ (45,655,702)**	**$ (51,781,010)**	**$ (46,520,405)**	**$ (72,996,240)**
113	*Annualized Rate Revenue Requirements for Adjustment 1*	*$ 1,131,118,006*	*$ 1,290,494,196*	*$ 1,493,820,540*	*$ 1,627,948,742*	*$ 1,725,625,666*	*$ 1,837,791,334*
114	*Annualized Rate Revenue Requirements for Adjustment 2*	*$ 1,131,118,006*	*$ 1,409,264,661*	*$ 1,493,820,540*	*$ 1,627,948,742*	*$ 1,725,625,666*	*$ 1,837,791,334*

Appendix F

CUSTOMER PROFILE AND DEMAND ANALYSIS

Carollo analyzed FYE 2019 customer billing data to understand how different types of customers use the water and wastewater systems. This analysis drives the allocation of costs to improve equity among customers.

F.1. Customer Accounts and Growth

F.1.1. Water System Customer Accounts

Houston Water's customer base is made up of distinctly different customer types with varied usage characteristics. Carollo analyzed each customer group's meter counts by size to equitably distribute customer and capacity costs based on this information.

Table F.1 summarizes the number of retail water accounts by meter size and customer type. Single family residential is the largest customer type with approximately 87 percent of retail water accounts. Commercial/industrial is the next largest with approximately 8 percent of retail water accounts. The remaining accounts are distributed among all other customer types such as multifamily residential, irrigation, transient, resale, emergency backup service, and fire customers.

Table F.1 Water System Retail Accounts by Meter Size

Meter Size	SFR	MFR	COM/IND	IRRIG	TRANS	RESALE	EMERG	MTR FIRE	UNMTR FIRE(1)
5/8"	339,078	6,483	13,150	1,687	---	---	---	---	3
3/4"	1	1,513	7,112	---	---	---	---	---	---
1"	83,704	773	5,087	1,790	107	---	---	---	5
1½"	5,547	3,757	9,174	697	---	---	---	1	6
2"	1,373	480	810	1,957	728	---	---	18	69
3"	2	603	760	15	32	---	---	---	12
4"	---	341	682	11	---	1	---	7	446
6"	---	273	552	3	---	---	6	107	2,799
8"	---	6	66	2	---	---	5	139	1,853
10"	---	3	5	---	---	---	3	7	23
12"	---	---	---	---	---	---	---	---	16
Total	**429,705**	**14,232**	**37,398**	**6,162**	**867**	**1**	**14**	**279**	**5,232**

Note:
(1) Meter sizes shown for unmetered fire accounts are based on service line size.

To reflect the impact of larger meters on the system, the meters are scaled based on the hydraulic capacity of the meter. Larger meters have the potential to demand more capacity, or rather, exert a greater instantaneous demand on the system. The potential capacity demand is proportional to the potential flow through each meter size as established by AWWA hydraulic capacity ratios. These ratios, provided in Table F.2, are known as meter equivalent units (MEU). Table F.2 also provides the number of meter equivalents for each retail customer type, which are calculated by multiplying the number of meters from Table F.1 by the appropriate MEU.

Table F.2 Water System Retail Meter Equivalents

Meter Size	MEU	SFR	MFR	COM/IND	IRRIG	TRANS	RESALE	EMERG	MTR FIRE	UNMTR FIRE(1)
5/8"	1.0	339,078	6,483	13,150	1,687	---	---	---	---	3
3/4"	1.0	1	1,513	7,112	---	---	---	---	---	---
1"	1.7	142,297	1,314	8,648	3,043	182	---	---	---	9
1½"	2.7	14,977	10,144	24,770	1,882	---	---	---	3	16
2"	3.3	4,531	1,584	2,673	6,458	1,799	---	---	59	228
3"	8.3	17	5,005	6,308	125	266	---	---	---	100
4"	16.7	---	5,695	11,389	184	---	17	---	117	7,448
6"	40.0	---	10,920	22,080	120	---	---	240	4,280	111,960
8"	50.0	---	300	3,300	100	---	---	250	6,950	92,650
10"	66.7	---	200	334	---	---	---	200	467	1,534
12"	93.3	---	---	---	---	---	---	---	---	1,493
Total	**---**	**500,900**	**43,158**	**99,764**	**13,598**	**2,246**	**17**	**690**	**11,876**	**215,440**

Note:
(1) Meter sizes shown for unmetered fire accounts are based on service line size.

By considering meter size to determine meter equivalents, costs that are higher for customers with larger meters can be shifted away from customer types with mostly small meters to customer types with many large meters. A comparison of Table F.1 and Table F.2 shows a shift away from single family residential (87 percent of retail accounts but only 56 percent of retail MEUs) to other customer types like unmetered fire (1 percent of retail accounts but 24 percent of retail MEUs).

F.1.2. Wastewater System Customer Accounts

For wastewater, Carollo used number of accounts and each customer's water meter size to equitably distribute customer and capacity costs.

Table F.3 summarizes the number of retail wastewater accounts by water meter size and customer type. Single family residential is the largest customer type with approximately 89 percent of retail wastewater accounts. Commercial/industrial (without surcharges) is the next largest with approximately 8 percent of retail wastewater accounts. The remaining accounts are distributed among multifamily residential and industrial surcharge customers.

Table F.3 Wastewater System Retail Accounts by Meter Size

Meter Size[(1)]	SFR	MFR	COM/IND	IND w/SURCH
5/8"	298,004	5,884	11,306	35
3/4"	1	---	---	1
1"	77,002	1,439	6,751	21
1½"	5,093	736	6,030	31
2"	1,236	3,587	8,978	83
3"	2	450	685	25
4"	---	561	672	34
6"	---	309	507	15
8"	---	240	370	17
10"	---	6	39	4
12"	---	---	---	1
16"	---	---	---	1
Total	**381,338**	**13,211**	**35,338**	**268**

Note:
(1) Water meter sizes are shown for customers without effluent meters.

Table F.4 provides the number of meter equivalents for each retail customer type, which are calculated by multiplying the number of meters from Table F.3 by the appropriate MEU.

Table F.4 Wastewater System Retail Meter Equivalents

Meter Size[(1)]	MEU	SFR	MFR	COM/IND	IND w/SURCH
5/8"	1.0	298,004	5,884	11,306	35
3/4"	1.0	1	---	---	1
1"	1.7	130,904	2,447	11,477	36
1½"	2.7	13,751	1,987	16,281	83
2"	3.3	4,079	11,836	29,627	275
3"	8.3	17	3,731	5,686	208
4"	16.7	---	9,365	11,222	559
6"	40.0	---	12,347	20,280	600
8"	50.0	---	12,000	18,500	825
10"	66.7	---	384	2,601	289
12"	93.3	---	---	---	93
16"	229.2	---	---	---	229
Total	**---**	**446,755**	**59,980**	**126,980**	**3,233**

Notes:
(1) Water meter sizes are shown for customers without effluent meters.

By considering meter size to determine meter equivalents, costs that are higher for customers with larger meters can be shifted away from customer types with mostly small meters to customer types with many large meters. A comparison of Table F.3 and Table F.4 shows a shift away from single family residential (89 percent of retail accounts but only 70 percent of retail MEUs) to other customer types like commercial / industrial without surcharges (8 percent of retail accounts but 20 percent of retail MEUs).

F.1.3. Forecasted Customer Account Growth

Based on discussions with Houston Water staff, Carollo used an annual growth rate of 0.2 percent to project the number of customer accounts and MEUs in each year of the study period. It is assumed that all customer types and meter sizes grow at this rate so the distribution of accounts among customer types and meter sizes does not change.

F.2. Customer Demands

Retail water customers account for approximately 58 percent of treated water demand. The remaining 42 percent of treated water is purchased by contract and wholesale customers, including Southeast Water Purification Plant (WPP) co-participants and Northeast WPP and East WPP Water Authorities.

Figure F.1 illustrates the findings of this analysis for single family residential, multifamily residential, and commercial customers, although the full analysis included all retail and wholesale customers.

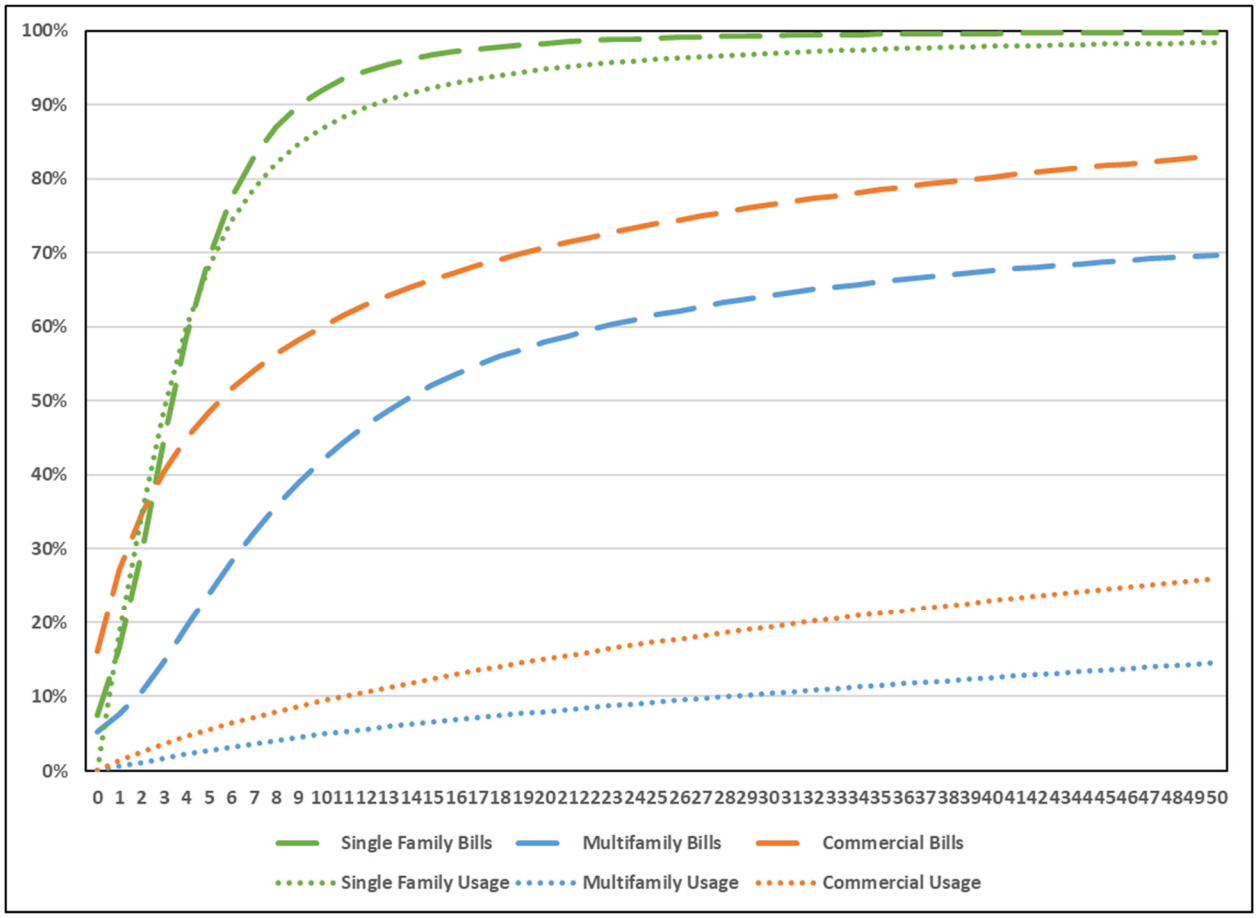


Figure F.3 Bill Frequency and Usage Analysis

Appendix G

WATER COST OF SERVICE ANALYSIS

Houston Combined Utility System

Water Cost Allocation

Allocation of Functionalized Assets to Rate Components

Line No.		Allocation Basis	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	General	Total FYE 2022
1	Plants & Structures	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 454,668
2	Electrical, Mechanical, Controls	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 380,735
3	Source of Supply - Wells	Source of Supply - Treated	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 139,157
4	Lifts and Pump Stations	Storage	0.0%	49.2%	17.5%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 216,801
	Water and Wastewater Lines																	
5	Distribution	Distribution	0.0%	0.0%	0.0%	0.0%	46.7%	16.6%	31.7%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 1,786,781
6	Transmission	Transmission	0.0%	73.8%	26.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 1,417,065
7	Land & Site	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 35,049
8	Meters & Water Supply Line to the Meter	Meters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 74,131
9	SCADA System	Production - Other	0.0%	73.8%	26.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 29,334
10	Pumps	Pumping	0.0%	49.2%	17.5%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 3,004
11	Fuel Tanks	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 1,108
12	Chemical Tanks	Production - Other	0.0%	73.8%	26.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 15,097
13	Ground Storage Tanks	Storage	0.0%	49.2%	17.5%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 166,420
14	Elevated Storage Tank	Storage	0.0%	49.2%	17.5%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 35,724
15	Asset Allocation Subtotal		$ -	$ 1,424,535	$ 457,417	$ 140,649	$ 834,619	$ 297,009	$ 565,814	$ 89,339	$ 74,131	$ -	$ -	$ -	$ -	$ -	$ 871,560	$ 4,755,073
16			0%	30%	10%	3%	18%	6%	12%	2%	2%	0%	0%	0%	0%	0%	18%	
17	Reallocation as "As All Others"		0%	7%	2%	1%	4%	1%	3%	0%	0%	0%	0%	0%	0%	0%		
18	**Total ($) Allocation**		$ -	$ 1,744,237	$ 560,073	$ 172,215	$ 1,021,929	$ 363,666	$ 692,797	$ 109,389	$ 90,768	$ -	$ -	$ -	$ -	$ -		$ 4,755,073
19	**Total (%) Allocation**		0%	37%	12%	4%	21%	8%	15%	2%	2%	0%	0%	0%	0%	0%		

Houston Combined Utility System

Water Functionalization of Costs

Line No.	Cost Center	Source of Supply - Untreated	Source of Supply - Treated	Pumping	Transmission	Production - EWPP	Production - NEWPP	Production - NEWPP Expansion	Production - SEWPP	Production - Other	Storage	Distribution	Meters	Fire Protection	Customer Billing	Admin	WA OH - EWPP	WA OH - NEWPP	Co-part OH SEWPP	TCEQ Fees	General
1	**Functional Allocation of O&M Cost Centers (%)**																				
2	**Drinking Water Operations**																				
3	40011 DWO Executive Support G&A	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	2.0%	3.1%	3.3%	0%	0%
4	DWO Water Maintenance	0%	0%	6%	0%	52%	10%	0%	22%	6%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	40012 DWO Regulatory and Compliance	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	81%	4.6%	7.4%	6.9%	0%	0%
6	TCEQ Fee	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
7	40013 DWO Ground Water Operations	0%	0%	40%	0%	0%	0%	0%	0%	40%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	40014 DWO East Water Purification Plant	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	40015 DWO Technical Services G&A	4%	6%	0%	35%	0%	0%	0%	0%	5%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	Cust. Complaints and Water System Maint.	4%	5%	0%	32%	0%	0%	0%	0%	5%	0%	45%	0%	0%	0%	0%	3.3%	2.3%	4.3%	0%	0%
11	Source Water Protection	4%	5%	0%	32%	0%	0%	0%	0%	5%	0%	45%	0%	0%	0%	0%	3.3%	2.3%	4.3%	0%	0%
12	40016 DWO NEWPP Expansion	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
13	PIB DS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
14	40017 DWO Southeast Water Purification Plant	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
15	40018 DWO Northeast Water Purification Plant	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
16	40019 DWO System Maintenance - North	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	95%	0%	5%	0%	0%	0%	0%	0%	0%	0%
17	40020 DWO System Maintenance - South	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	95%	0%	5%	0%	0%	0%	0%	0%	0%	0%
18	RACDS River Authority Contributed Debt Service	40%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
19	CWA O&M (CWA Trinity River and TRA)	35%	0%	0%	0%	47%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
20	CWA Debt Service (1993A-H & 2004 Ref to 2014)	35%	0%	0%	0%	47%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
21	CWA Debt Service (96" line)	19%	0%	0%	0%	0%	0%	0%	81%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22	**Operation Services - Houston Water G&A**																				
23	40021 OPS Financial & Support Operation Services G&A	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
24	40022 HW Planning	2%	3%	5%	15%	0%	0%	0%	0%	5%	5%	15%	0%	0%	0%	50%	0%	0%	0%	0%	0%
25	40023 OPS Maintenance Operation Services - Restoration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
26	40024 OPS Maintenance Operation Services-COS/DIS	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	40025 HW GIS Services	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	45%	10%	25%	0%	2%	0%	0%	0%	0%	3%
28	40026 OPS Executive Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	2.0%	3.1%	3.3%	0%	0%
29	40027 OPS Support Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
30	40028 HW Infrastructure Planning	0%	0%	10%	30%	0%	0%	0%	0%	0%	10%	30%	0%	0%	0%	20%	0%	0%	0%	0%	0%
31	40029 HW Utility Analysis	2%	3%	5%	15%	0%	0%	0%	0%	5%	5%	15%	0%	0%	0%	50%	0%	0%	0%	0%	0%
32	**Other O&M**																				
33	30001-30009 Director's Office	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.0%	3.1%	3.3%	0%	92%
34	80001 Information Technology	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.0%	3.1%	3.3%	0%	92%
35	90001-90011 Management Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.0%	3.1%	3.3%	0%	92%
36	60005 & 60008 Houston Water - Planning	2%	3%	5%	15%	0%	0%	0%	0%	5%	5%	15%	0%	0%	0%	50%	0%	0%	0%	0%	0%
37	)005,50006,50030 Financial Mangt Services Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.1%	0.1%	0.3%	0%	100%
38	Property and Terrorism Insurance	0%	0%	0%	0%	17%	5%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	70%
39	Security	0%	0%	0%	0%	24%	24%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%
40	00007-15, 100025 CAS - Customer Account Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49.5%	0%	50.0%	0%	0.1%	0.1%	0.3%	0%	0%
41	**Deductions**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

Houston Combined Utility System

Water Cost Allocation

Line No.		Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	General		Total FYE 2022
	Allocation of Functionalized O&M to Rate Components																	
1	Source of Supply - Untreated	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	22,108
2	Source of Supply - Treated	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	12,620
3	Pumping	0%	49%	17%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	13,466
4	Transmission	0%	74%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	6,060
5	Production - EWPP	0%	61%	22%	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	$	49,588
6	Production - NEWPP	0%	34%	12%	0%	0%	0%	0%	0%	0%	0%	0%	54%	0%	0%	0%	$	17,587
7	Production - NEWPP Expansion	0%	10%	4%	0%	0%	0%	0%	0%	0%	0%	0%	86%	0%	0%	0%	$	1,860
8	Production - SEWPP	0%	32%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	56%	0%	0%	$	24,029
9	Production - Other	0%	74%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	13,932
10	Storage	0%	49%	17%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	6,956
11	Distribution	0%	0%	0%	0%	47%	17%	32%	5%	0%	0%	0%	0%	0%	0%	0%	$	63,036
12	Meters	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	$	15,928
13	Fire Protection	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	$	2,925
	Recycled Water	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$	-
14	Customer Billing	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	$	15,866
15	Admin	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	$	22,140
16	WA OH - EWPP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	$	981
17	WA OH - NEWPP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	$	1,385
18	Co-part OH - SEWPP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	$	1,633
19	TCEQ Fees	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	$	2,553
20	General	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%		

Houston Combined Utility System

Water System Customer Allocation - FYE 2022 September Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Development of Unit Costs																
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*		
2	Single Family Residential	-	23,340,203	30,899	47,423	23,340,203	30,899	47,423	503,912	503,912	4,947,559	-	-	-	410,045		
3	Multifamily Residential	-	25,815,307	25,140	47,934	25,815,307	25,140	47,934	43,417	43,417	161,408	-	-	-	573,968		
4	CII - Commercial	-	21,656,992	25,296	42,315	21,656,992	25,296	42,315	88,790	88,790	407,916	-	-	-	43,300		
5	CII - Emergency Backup	-	11,907	643	338	11,907	643	338	694	694	165	-	-	-	17		
6	CII - Extra Container	-	791	25	14	791	25	14	4	4	24	-	-	-	-		
7	CII - Government	-	3,746,549	23,425	16,845	3,746,549	23,425	16,845	10,150	10,150	14,488	-	-	-	4,376		
8	CII - Industrial Sewer Surcharge	-	686,428	882	1,381	686,428	882	1,381	1,422	1,422	2,015	-	-	-	269		
9	CII - Resale	-	8,798	29	26	8,798	29	26	17	17	12	-	-	-	2		
10	CII - Transient	-	384,573	2,953	2,003	384,573	2,953	2,003	2,867	2,867	7,708	-	-	-	643		
11	Irrigation	-	2,409,002	6,733	6,667	2,409,002	6,733	6,667	13,680	13,680	70,384	-	-	-	469		
12	Metered Fire	-	12,976	462	249	12,976	462	249	11,947	11,947	3,368	-	-	-	32		
13	Unmetered Fire	-	-	-	-	-	-	-	216,735	216,735	63,161	-	-	-	-		
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
16	GRP Participants - Areas 1 & 2	-	29,350	298	-	-	-	-	-	-	85	-	-	-	16		
17	GRP Participants - Area 3	-	2,491,173	14,415	-	-	-	-	-	-	1,086	-	-	-	208		
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,538,357	74		
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	12,996,195	-	-	12		
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	9,365,481	-	8		
21	Contract Treated with Airgap	-	10,470,163	13,973	-	-	-	-	-	120	435	-	-	-	92		
22	Contract Treated without Airgap	-	1,351,009	1,669	2,685	-	-	-	-	50	181	-	-	-	38		
23	Contract Water - Untreated	78,971,731	-	-	-	-	-	-	-	432	1,569	-	-	-	5		
24	**Total**	**78,971,731**	**92,415,220**	**146,843**	**167,880**	**78,073,526**	**116,489**	**165,194**	**893,636**	**894,236**	**5,681,563**	**12,996,195**	**9,365,481**	**19,538,357**	**1,033,575**		
25	**Test Year Unit Cost**	**$ 0.27**	**$ 2.43**	**$ 481.01**	**$ 124.85**	**$ 1.46**	**$ 348.15**	**$ 467.69**	**$ 16.76**	**$ 25.26**	**$ 2.63**	**$ 0.74**	**$ 1.34**	**$ 0.79**	**$ 2.47**		

Houston Combined Utility System

Water System Customer Allocation - FYE 2022 September Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 56,779,796	$ 14,862,835	$ 5,920,716	$ 34,069,756	$ 10,757,575	$ 22,179,055	$ 8,446,923	$ 12,728,178	$ 13,024,806	$ -	$ -	$ -	$ 1,013,013	$	179,782,653
27	Multifamily Residential	-	62,800,991	12,092,779	5,984,530	37,682,672	8,752,635	22,418,105	727,789	1,096,663	424,917	-	-	-	1,417,982	$	153,399,065
28	CII - Commercial	-	52,685,042	12,167,670	5,283,062	31,612,768	8,806,840	19,790,399	1,488,361	2,242,725	1,073,868	-	-	-	106,972	$	135,257,707
29	CII - Emergency Backup	-	28,967	309,422	42,193	17,381	223,957	158,056	11,637	17,536	434	-	-	-	42	$	809,626
30	CII - Extra Container	-	1,924	12,163	1,714	1,154	8,803	6,420	73	109	64	-	-	-	-	$	32,423
31	CII - Government	-	9,114,242	11,267,832	2,103,099	5,468,847	8,155,546	7,878,228	170,136	256,368	38,140	-	-	-	10,811	$	44,463,249
32	CII - Industrial Sewer Surcharge	-	1,669,876	424,237	172,456	1,001,981	307,059	646,020	23,838	35,920	5,305	-	-	-	664	$	4,287,356
33	CII - Resale	-	21,402	13,778	3,293	12,842	9,973	12,335	282	424	32	-	-	-	5	$	74,365
34	CII - Transient	-	935,553	1,420,459	250,119	561,363	1,028,115	936,950	48,059	72,418	20,292	-	-	-	1,588	$	5,274,915
35	Irrigation	-	5,860,389	3,238,639	832,316	3,516,427	2,344,095	3,117,862	229,313	345,539	185,290	-	-	-	1,158	$	19,671,027
36	Metered Fire	-	31,566	222,290	31,068	18,940	160,891	116,380	200,269	301,774	8,867	-	-	-	80	$	1,092,124
37	Unmetered Fire	-	-	-	-	-	-	-	3,633,071	5,474,464	166,277	-	-	-	-	$	9,273,812
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	71,399	143,142	-	-	-	-	-	-	222	-	-	-	40	$	214,804
41	GRP Participants - Area 3	-	6,060,286	6,933,711	-	-	-	-	-	-	2,860	-	-	-	514	$	12,997,372
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,397,222	184	$	15,397,406
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,562,244	-	-	30	$	9,562,273
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	12,550,799	-	20	$	12,550,818
45	Contract Treated with Airgap	-	25,470,802	6,720,986	-	-	-	-	-	3,019	1,144	-	-	-	226	$	32,196,177
46	Contract Treated without Airgap	-	3,286,604	802,867	335,256	-	-	-	-	1,258	477	-	-	-	94	$	4,426,556
47	Contract Water - Untreated	21,618,292	-	-	-	-	-	-	-	10,901	4,132	-	-	-	12	$	21,633,337
48	**Total**	**$ 21,618,292**	**$ 224,818,839**	**$ 70,632,811**	**$ 20,959,821**	**$ 113,964,131**	**$ 40,555,490**	**$ 77,259,810**	**$ 14,979,751**	**$ 22,587,296**	**$ 14,957,126**	**$ 9,562,244**	**$ 12,550,799**	**$ 15,397,222**	**$ 2,553,436**	**$**	**662,397,066**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2022 - September Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	179,782,653
2	Multifamily Residential		153,399,065
3	CII - Commercial		135,257,707
4	CII - Emergency Backup		809,626
5	CII - Extra Container		32,423
6	CII - Government		44,463,249
7	CII - Industrial Sewer Surcharge		4,287,356
8	CII - Resale		74,365
9	CII - Transient		5,274,915
10	Irrigation		19,671,027
11	Metered Fire		1,092,124
12	Unmetered Fire		9,273,812
13	GRP Participants - Areas 1 & 2		214,804
14	GRP Participants - Area 3		12,997,372
15	Contract Treated - SEWPP Co-participants		15,397,406
16	Contract Treated - EWPP Water Authorities		9,562,273
17	Contract Treated - NEWPP Water Authorities		12,550,818
18	Contract Treated with Airgap		32,196,177
19	Contract Treated without Airgap		4,426,556
20	Contract Water - Untreated		21,633,337
21	**Total**	**$**	**662,397,066**

Houston Combined Utility System

Water System Customer Allocation - FYE 2022 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	Total
	Development of Unit Costs															
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*	
2	Single Family Residential	-	23,340,203	30,899	47,423	23,340,203	30,899	47,423	503,912	503,912	4,947,559	-	-	-	410,045	
3	Multifamily Residential	-	25,815,307	25,140	47,934	25,815,307	25,140	47,934	43,417	43,417	161,408	-	-	-	573,968	
4	CII - Commercial	-	21,656,992	25,296	42,315	21,656,992	25,296	42,315	88,790	88,790	407,916	-	-	-	43,300	
5	CII - Emergency Backup	-	11,907	643	338	11,907	643	338	694	694	165	-	-	-	17	
6	CII - Extra Container	-	791	25	14	791	25	14	4	4	24	-	-	-	-	
7	CII - Government	-	3,746,549	23,425	16,845	3,746,549	23,425	16,845	10,150	10,150	14,488	-	-	-	4,376	
8	CII - Industrial Sewer Surcharge	-	686,428	882	1,381	686,428	882	1,381	1,422	1,422	2,015	-	-	-	269	
9	CII - Resale	-	8,798	29	26	8,798	29	26	17	17	12	-	-	-	2	
10	CII - Transient	-	384,573	2,953	2,003	384,573	2,953	2,003	2,867	2,867	7,708	-	-	-	643	
11	Irrigation	-	2,409,002	6,733	6,667	2,409,002	6,733	6,667	13,680	13,680	70,384	-	-	-	469	
12	Metered Fire	-	12,976	462	249	12,976	462	249	11,947	11,947	3,368	-	-	-	32	
13	Unmetered Fire	-	-	-	-	-	-	-	216,735	216,735	63,161	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,350	298	-	-	-	-	-	-	85	-	-	-	16	
17	GRP Participants - Area 3	-	2,491,173	14,415	-	-	-	-	-	-	1,086	-	-	-	208	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,538,357	74	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	12,996,195	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	9,365,481	-	8	
21	Contract Treated with Airgap	-	10,470,163	13,973	-	-	-	-	-	120	435	-	-	-	92	
22	Contract Treated without Airgap	-	1,351,009	1,669	2,685	-	-	-	-	50	181	-	-	-	38	
23	Contract Water - Untreated	78,971,731	-	-	-	-	-	-	-	432	1,569	-	-	-	5	
24	**Total**	**78,971,731**	**92,415,220**	**146,843**	**167,880**	**78,073,526**	**116,489**	**165,194**	**893,636**	**894,236**	**5,681,563**	**12,996,195**	**9,365,481**	**19,538,357**	**1,033,575**	
25	**Test Year Unit Cost**	**$ 0.29**	**$ 2.63**	**$ 519.72**	**$ 134.87**	**$ 1.58**	**$ 376.41**	**$ 505.66**	**$ 18.09**	**$ 27.16**	**$ 2.82**	**$ 0.74**	**$ 1.34**	**$ 0.79**	**$ 2.47**	

Houston Combined Utility System

Water System Customer Allocation - FYE 2022 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 61,334,051	$ 16,059,092	$ 6,396,051	$ 36,835,411	$ 11,630,835	$ 23,979,468	$ 9,115,890	$ 13,686,445	$ 13,943,158	$ -	$ -	$ -	$ 1,013,013	$	193,993,415
27	Multifamily Residential	-	67,838,201	13,066,084	6,464,989	40,741,611	9,463,142	24,237,923	785,428	1,179,228	454,877	-	-	-	1,417,982	$	165,649,465
28	CII - Commercial	-	56,910,862	13,147,002	5,707,205	34,178,975	9,521,747	21,396,910	1,606,234	2,411,573	1,149,584	-	-	-	106,972	$	146,137,062
29	CII - Emergency Backup	-	31,290	334,327	45,581	18,792	242,137	170,886	12,559	18,856	465	-	-	-	42	$	874,935
30	CII - Extra Container	-	2,078	13,142	1,851	1,248	9,518	6,941	78	117	68	-	-	-	-	$	35,042
31	CII - Government	-	9,845,288	12,174,739	2,271,943	5,912,788	8,817,583	8,517,753	183,610	275,669	40,829	-	-	-	10,811	$	48,051,012
32	CII - Industrial Sewer Surcharge	-	1,803,815	458,383	186,301	1,083,318	331,985	698,462	25,726	38,625	5,679	-	-	-	664	$	4,632,957
33	CII - Resale	-	23,119	14,887	3,557	13,884	10,782	13,336	304	456	34	-	-	-	5	$	80,365
34	CII - Transient	-	1,010,593	1,534,787	270,200	606,932	1,111,573	1,013,008	51,865	77,870	21,723	-	-	-	1,588	$	5,700,138
35	Irrigation	-	6,330,445	3,499,305	899,137	3,801,878	2,534,380	3,370,958	247,474	371,553	198,354	-	-	-	1,158	$	21,254,643
36	Metered Fire	-	34,098	240,181	33,562	20,478	173,952	125,828	216,130	324,493	9,492	-	-	-	80	$	1,178,292
37	Unmetered Fire	-	-	-	-	-	-	-	3,920,798	5,886,620	178,001	-	-	-	-	$	9,985,418
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	77,126	154,663	-	-	-	-	-	-	238	-	-	-	40	$	232,067
41	GRP Participants - Area 3	-	6,546,376	7,491,781	-	-	-	-	-	-	3,062	-	-	-	514	$	14,041,733
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,397,222	184	$	15,397,406
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,562,244	-	-	30	$	9,562,273
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	12,550,799	-	20	$	12,550,818
45	Contract Treated with Airgap	-	27,513,792	7,261,934	-	-	-	-	-	3,246	1,225	-	-	-	226	$	34,780,423
46	Contract Treated without Airgap	-	3,550,219	867,487	362,171	-	-	-	-	1,353	510	-	-	-	94	$	4,781,835
47	Contract Water - Untreated	23,141,388	-	-	-	-	-	-	-	11,722	4,423	-	-	-	12	$	23,157,545
48	**Total**	**$ 23,141,388**	**$ 242,851,353**	**$ 76,317,793**	**$ 22,642,549**	**$ 123,215,314**	**$ 43,847,633**	**$ 83,531,473**	**$ 16,166,096**	**$ 24,287,826**	**$ 16,011,722**	**$ 9,562,244**	**$ 12,550,799**	**$ 15,397,222**	**$ 2,553,436**	**$**	**712,076,846**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2022 - April Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	193,993,415
2	Multifamily Residential		165,649,465
3	CII - Commercial		146,137,062
4	CII - Emergency Backup		874,935
5	CII - Extra Container		35,042
6	CII - Government		48,051,012
7	CII - Industrial Sewer Surcharge		4,632,957
8	CII - Resale		80,365
9	CII - Transient		5,700,138
10	Irrigation		21,254,643
11	Metered Fire		1,178,292
12	Unmetered Fire		9,985,418
13	GRP Participants - Areas 1 & 2		232,067
14	GRP Participants - Area 3		14,041,733
15	Contract Treated - SEWPP Co-participants		15,397,406
16	Contract Treated - EWPP Water Authorities		9,562,273
17	Contract Treated - NEWPP Water Authorities		12,550,818
18	Contract Treated with Airgap		34,780,423
19	Contract Treated without Airgap		4,781,835
20	Contract Water - Untreated		23,157,545
21	**Total**	**$**	**712,076,846**

Houston Combined Utility System

Water System Customer Allocation - FYE 2023 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	Total
	Development of Unit Costs															
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*	
2	Single Family Residential	-	23,386,883	30,961	47,517	23,386,883	30,961	47,517	504,919	504,919	4,957,454	-	-	-	410,866	
3	Multifamily Residential	-	25,866,938	25,191	48,030	25,866,938	25,191	48,030	43,504	43,504	161,730	-	-	-	575,116	
4	CII - Commercial	-	21,700,306	25,347	42,400	21,700,306	25,347	42,400	88,968	88,968	408,732	-	-	-	43,386	
5	CII - Emergency Backup	-	11,931	645	339	11,931	645	339	696	696	165	-	-	-	17	
6	CII - Extra Container	-	792	25	14	792	25	14	4	4	24	-	-	-	-	
7	CII - Government	-	3,754,042	23,472	16,879	3,754,042	23,472	16,879	10,170	10,170	14,517	-	-	-	4,385	
8	CII - Industrial Sewer Surcharge	-	687,801	884	1,384	687,801	884	1,384	1,425	1,425	2,019	-	-	-	269	
9	CII - Resale	-	8,815	29	26	8,815	29	26	17	17	12	-	-	-	2	
10	CII - Transient	-	385,342	2,959	2,007	385,342	2,959	2,007	2,873	2,873	7,723	-	-	-	644	
11	Irrigation	-	2,413,820	6,746	6,680	2,413,820	6,746	6,680	13,707	13,707	70,524	-	-	-	470	
12	Metered Fire	-	13,001	463	249	13,001	463	249	11,971	11,971	3,375	-	-	-	32	
13	Unmetered Fire	-	-	-	-	-	-	-	217,169	217,169	63,288	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,408	298	-	-	-	-	-	-	85	-	-	-	16	
17	GRP Participants - Area 3	-	4,992,311	14,444	-	-	-	-	-	-	1,089	-	-	-	209	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,577,433	75	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	13,022,188	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	14,194,431	-	8	
21	Contract Treated with Airgap	-	10,491,103	14,001	-	-	-	-	-	120	435	-	-	-	92	
22	Contract Treated without Airgap	-	1,353,711	1,672	2,691	-	-	-	-	50	181	-	-	-	38	
23	Contract Water - Untreated	79,129,675	-	-	-	-	-	-	-	432	1,573	-	-	-	5	
24	**Total**	**79,129,675**	**95,096,206**	**147,137**	**168,215**	**78,229,673**	**116,722**	**165,525**	**895,423**	**896,025**	**5,692,927**	**13,022,188**	**14,194,431**	**19,577,433**	**1,035,642**	
25	**Test Year Unit Cost**	**$ 0.29**	**$ 2.71**	**$ 551.08**	**$ 143.07**	**$ 1.68**	**$ 401.21**	**$ 538.97**	**$ 19.08**	**$ 28.03**	**$ 2.83**	**$ 0.73**	**$ 1.08**	**$ 0.79**	**$ 2.47**	

Houston Combined Utility System

Water System Customer Allocation - FYE 2023 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 63,363,575	$ 17,062,088	$ 6,798,253	$ 39,340,738	$ 12,421,895	$ 25,610,410	$ 9,632,068	$ 14,152,212	$ 14,029,052	$ -	$ -	$ -	$ 1,013,013	$	203,423,304
27	Multifamily Residential	-	70,082,945	13,882,146	6,871,526	43,512,614	10,106,769	25,886,443	829,902	1,219,359	457,679	-	-	-	1,417,982	$	174,267,365
28	CII - Commercial	-	58,794,023	13,968,119	6,066,090	36,503,626	10,169,360	22,852,201	1,697,186	2,493,642	1,156,666	-	-	-	106,972	$	153,807,884
29	CII - Emergency Backup	-	32,325	355,208	48,447	20,070	258,606	182,509	13,270	19,498	468	-	-	-	42	$	930,443
30	CII - Extra Container	-	2,147	13,963	1,968	1,333	10,165	7,413	83	121	68	-	-	-	-	$	37,261
31	CII - Government	-	10,171,065	12,935,132	2,414,809	6,314,940	9,417,303	9,097,080	194,007	285,050	41,080	-	-	-	10,811	$	50,881,278
32	CII - Industrial Sewer Surcharge	-	1,863,503	487,012	198,016	1,156,999	354,564	745,967	27,183	39,939	5,714	-	-	-	664	$	4,879,561
33	CII - Resale	-	23,884	15,817	3,781	14,829	11,516	14,243	321	472	34	-	-	-	5	$	84,901
34	CII - Transient	-	1,044,033	1,630,645	287,191	648,212	1,187,176	1,081,906	54,802	80,520	21,857	-	-	-	1,588	$	6,037,929
35	Irrigation	-	6,539,918	3,717,860	955,677	4,060,459	2,706,754	3,600,231	261,487	384,198	199,576	-	-	-	1,158	$	22,427,317
36	Metered Fire	-	35,226	255,182	35,673	21,871	185,783	134,386	228,368	335,536	9,550	-	-	-	80	$	1,241,653
37	Unmetered Fire	-	-	-	-	-	-	-	4,142,809	6,086,949	179,097	-	-	-	-	$	10,408,855
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	79,678	164,323	-	-	-	-	-	-	240	-	-	-	40	$	244,281
41	GRP Participants - Area 3	-	13,525,987	7,959,692	-	-	-	-	-	-	3,081	-	-	-	514	$	21,489,274
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,397,886	184	$	15,398,070
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,562,626	-	-	30	$	9,562,656
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	15,285,466	-	20	$	15,285,486
45	Contract Treated with Airgap	-	28,424,214	7,715,489	-	-	-	-	-	3,357	1,232	-	-	-	226	$	36,144,519
46	Contract Treated without Airgap	-	3,667,695	921,668	384,946	-	-	-	-	1,399	513	-	-	-	94	$	4,976,315
47	Contract Water - Untreated	23,256,523	-	-	-	-	-	-	-	12,121	4,450	-	-	-	12	$	23,273,107
48	**Total**	**$ 23,256,523**	**$ 257,650,219**	**$ 81,084,341**	**$ 24,066,375**	**$ 131,595,691**	**$ 46,829,890**	**$ 89,212,790**	**$ 17,081,484**	**$ 25,114,371**	**$ 16,110,359**	**$ 9,562,626**	**$ 15,285,466**	**$ 15,397,886**	**$ 2,553,436**	**$**	**754,801,457**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2023 - April Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	203,423,304
2	Multifamily Residential		174,267,365
3	CII - Commercial		153,807,884
4	CII - Emergency Backup		930,443
5	CII - Extra Container		37,261
6	CII - Government		50,881,278
7	CII - Industrial Sewer Surcharge		4,879,561
8	CII - Resale		84,901
9	CII - Transient		6,037,929
10	Irrigation		22,427,317
11	Metered Fire		1,241,653
12	Unmetered Fire		10,408,855
13	GRP Participants - Areas 1 & 2		244,281
14	GRP Participants - Area 3		21,489,274
15	Contract Treated - SEWPP Co-participants		15,398,070
16	Contract Treated - EWPP Water Authorities		9,562,656
17	Contract Treated - NEWPP Water Authorities		15,285,486
18	Contract Treated with Airgap		36,144,519
19	Contract Treated without Airgap		4,976,315
20	Contract Water - Untreated		23,273,107
21	**Total**	**$**	**754,801,457**

Houston Combined Utility System

Water System Customer Allocation - FYE 2024 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	Total
	Development of Unit Costs															
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*	
2	Single Family Residential	-	23,433,657	31,023	47,612	23,433,657	31,023	47,612	505,929	505,929	4,967,369	-	-	-	411,687	
3	Multifamily Residential	-	25,918,672	25,241	48,126	25,918,672	25,241	48,126	43,591	43,591	162,054	-	-	-	576,266	
4	CII - Commercial	-	21,743,707	25,397	42,485	21,743,707	25,397	42,485	89,146	89,146	409,549	-	-	-	43,473	
5	CII - Emergency Backup	-	11,955	646	339	11,955	646	339	697	697	166	-	-	-	17	
6	CII - Extra Container	-	794	25	14	794	25	14	4	4	24	-	-	-	-	
7	CII - Government	-	3,761,550	23,519	16,912	3,761,550	23,519	16,912	10,190	10,190	14,546	-	-	-	4,394	
8	CII - Industrial Sewer Surcharge	-	689,177	886	1,387	689,177	886	1,387	1,428	1,428	2,023	-	-	-	270	
9	CII - Resale	-	8,833	29	26	8,833	29	26	17	17	12	-	-	-	2	
10	CII - Transient	-	386,113	2,965	2,011	386,113	2,965	2,011	2,879	2,879	7,739	-	-	-	645	
11	Irrigation	-	2,418,648	6,760	6,693	2,418,648	6,760	6,693	13,735	13,735	70,665	-	-	-	471	
12	Metered Fire	-	13,027	464	250	13,027	464	250	11,995	11,995	3,382	-	-	-	32	
13	Unmetered Fire	-	-	-	-	-	-	-	217,603	217,603	63,414	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,467	299	-	-	-	-	-	-	85	-	-	-	16	
17	GRP Participants - Area 3	-	5,002,296	14,473	-	-	-	-	-	-	1,091	-	-	-	209	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,616,588	75	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	13,048,232	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	23,852,331	-	8	
21	Contract Treated with Airgap	-	10,512,085	14,029	-	-	-	-	-	120	436	-	-	-	92	
22	Contract Treated without Airgap	-	1,356,418	1,676	2,696	-	-	-	-	50	182	-	-	-	38	
23	Contract Water - Untreated	79,287,934	-	-	-	-	-	-	-	433	1,576	-	-	-	5	
24	**Total**	**79,287,934**	**95,286,398**	**147,431**	**168,552**	**78,386,132**	**116,955**	**165,856**	**897,214**	**897,817**	**5,704,312**	**13,048,232**	**23,852,331**	**19,616,588**	**1,037,713**	
25	**Test Year Unit Cost**	**$ 0.29**	**$ 2.89**	**$ 588.46**	**$ 152.43**	**$ 1.80**	**$ 429.67**	**$ 577.20**	**$ 20.19**	**$ 28.96**	**$ 2.83**	**$ 0.73**	**$ 0.91**	**$ 0.78**	**$ 2.46**	

Houston Combined Utility System

Water System Customer Allocation - FYE 2024 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 67,684,012	$ 18,255,946	$ 7,257,462	$ 42,215,452	$ 13,329,590	$ 27,481,818	$ 10,217,099	$ 14,653,423	$ 14,066,604	$ -	$ -	$ -	$ 1,013,013	$	216,174,419
27	Multifamily Residential	-	74,861,542	14,853,500	7,335,685	46,692,176	10,845,292	27,778,022	880,308	1,262,543	458,904	-	-	-	1,417,982	$	186,385,954
28	CII - Commercial	-	62,802,886	14,945,487	6,475,843	39,171,026	10,912,457	24,522,062	1,800,269	2,581,956	1,159,762	-	-	-	106,972	$	164,478,719
29	CII - Emergency Backup	-	34,529	380,062	51,719	21,536	277,502	195,845	14,076	20,188	469	-	-	-	42	$	995,971
30	CII - Extra Container	-	2,293	14,940	2,101	1,430	10,908	7,955	88	126	69	-	-	-	-	$	39,908
31	CII - Government	-	10,864,578	13,840,221	2,577,925	6,776,387	10,105,446	9,761,824	205,790	295,145	41,190	-	-	-	10,811	$	54,479,317
32	CII - Industrial Sewer Surcharge	-	1,990,566	521,089	211,392	1,241,543	380,473	800,477	28,834	41,354	5,729	-	-	-	664	$	5,222,119
33	CII - Resale	-	25,512	16,924	4,036	15,912	12,357	15,284	341	489	34	-	-	-	5	$	90,894
34	CII - Transient	-	1,115,220	1,744,743	306,590	695,578	1,273,925	1,160,964	58,131	83,371	21,915	-	-	-	1,588	$	6,462,026
35	Irrigation	-	6,985,841	3,978,004	1,020,231	4,357,165	2,904,542	3,863,308	277,369	397,804	200,110	-	-	-	1,158	$	23,985,533
36	Metered Fire	-	37,628	273,037	38,082	23,469	199,358	144,206	242,238	347,420	9,576	-	-	-	80	$	1,315,093
37	Unmetered Fire	-	-	-	-	-	-	-	4,394,434	6,302,523	179,577	-	-	-	-	$	10,876,533
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	85,111	175,821	-	-	-	-	-	-	240	-	-	-	40	$	261,212
41	GRP Participants - Area 3	-	14,448,255	8,516,642	-	-	-	-	-	-	3,089	-	-	-	514	$	22,968,501
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,398,604	184	$	15,398,787
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,563,040	-	-	30	$	9,563,069
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	21,658,900	-	20	$	21,658,920
45	Contract Treated with Airgap	-	30,362,316	8,255,353	-	-	-	-	-	3,475	1,236	-	-	-	226	$	38,622,606
46	Contract Treated without Airgap	-	3,917,776	986,158	410,948	-	-	-	-	1,448	515	-	-	-	94	$	5,316,940
47	Contract Water - Untreated	23,324,011	-	-	-	-	-	-	-	12,550	4,462	-	-	-	12	$	23,341,035
48	**Total**	**$ 23,324,011**	**$ 275,218,064**	**$ 86,757,926**	**$ 25,692,015**	**$ 141,211,675**	**$ 50,251,852**	**$ 95,731,764**	**$ 18,118,976**	**$ 26,003,815**	**$ 16,153,481**	**$ 9,563,040**	**$ 21,658,900**	**$ 15,398,604**	**$ 2,553,436**	**$**	**807,637,559**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2024 - April Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	216,174,419
2	Multifamily Residential		186,385,954
3	CII - Commercial		164,478,719
4	CII - Emergency Backup		995,971
5	CII - Extra Container		39,908
6	CII - Government		54,479,317
7	CII - Industrial Sewer Surcharge		5,222,119
8	CII - Resale		90,894
9	CII - Transient		6,462,026
10	Irrigation		23,985,533
11	Metered Fire		1,315,093
12	Unmetered Fire		10,876,533
13	GRP Participants - Areas 1 & 2		261,212
14	GRP Participants - Area 3		22,968,501
15	Contract Treated - SEWPP Co-participants		15,398,787
16	Contract Treated - EWPP Water Authorities		9,563,069
17	Contract Treated - NEWPP Water Authorities		21,658,920
18	Contract Treated with Airgap		38,622,606
19	Contract Treated without Airgap		5,316,940
20	Contract Water - Untreated		23,341,035
21	**Total**	**$**	**807,637,559**

Houston Combined Utility System

Water System Customer Allocation - FYE 2025 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	Total
	Development of Unit Costs															
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*	
2	Single Family Residential	-	23,480,524	31,085	47,708	23,480,524	31,085	47,708	506,941	506,941	4,977,304	-	-	-	412,511	
3	Multifamily Residential	-	25,970,509	25,292	48,222	25,970,509	25,292	48,222	43,678	43,678	162,378	-	-	-	577,419	
4	CII - Commercial	-	21,787,194	25,448	42,570	21,787,194	25,448	42,570	89,324	89,324	410,368	-	-	-	43,560	
5	CII - Emergency Backup	-	11,979	647	340	11,979	647	340	698	698	166	-	-	-	17	
6	CII - Extra Container	-	795	25	14	795	25	14	4	4	24	-	-	-	-	
7	CII - Government	-	3,769,073	23,566	16,946	3,769,073	23,566	16,946	10,211	10,211	14,575	-	-	-	4,402	
8	CII - Industrial Sewer Surcharge	-	690,555	887	1,390	690,555	887	1,390	1,431	1,431	2,027	-	-	-	270	
9	CII - Resale	-	8,850	29	27	8,850	29	27	17	17	12	-	-	-	2	
10	CII - Transient	-	386,885	2,971	2,015	386,885	2,971	2,015	2,884	2,884	7,754	-	-	-	647	
11	Irrigation	-	2,423,485	6,773	6,707	2,423,485	6,773	6,707	13,762	13,762	70,807	-	-	-	472	
12	Metered Fire	-	13,054	465	250	13,054	465	250	12,019	12,019	3,388	-	-	-	32	
13	Unmetered Fire	-	-	-	-	-	-	-	218,038	218,038	63,541	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,526	299	-	-	-	-	-	-	85	-	-	-	16	
17	GRP Participants - Area 3	-	5,012,300	14,502	-	-	-	-	-	-	1,093	-	-	-	209	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,655,822	75	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	13,074,329	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	28,681,281	-	8	
21	Contract Treated with Airgap	-	10,533,109	14,057	-	-	-	-	-	120	437	-	-	-	92	
22	Contract Treated without Airgap	-	1,359,131	1,679	2,701	-	-	-	-	50	182	-	-	-	38	
23	Contract Water - Untreated	79,446,510	-	-	-	-	-	-	-	434	1,579	-	-	-	5	
24	**Total**	**79,446,510**	**95,476,971**	**147,726**	**168,889**	**78,542,904**	**117,189**	**166,188**	**899,008**	**899,613**	**5,715,721**	**13,074,329**	**28,681,281**	**19,655,822**	**1,039,789**	
25	**Test Year Unit Cost**	**$ 0.29**	**$ 3.06**	**$ 623.76**	**$ 161.70**	**$ 1.92**	**$ 458.17**	**$ 615.48**	**$ 21.28**	**$ 29.76**	**$ 2.81**	**$ 0.73**	**$ 0.88**	**$ 0.78**	**$ 2.46**	

Houston Combined Utility System

Water System Customer Allocation - FYE 2025 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 71,790,705	$ 19,389,685	$ 7,714,135	$ 45,105,653	$ 14,242,176	$ 29,363,309	$ 10,789,427	$ 15,087,073	$ 13,973,451	$ -	$ -	$ -	$ 1,013,013	$	228,468,625
27	Multifamily Residential	-	79,403,727	15,775,938	7,797,279	49,888,867	11,587,795	29,679,792	929,620	1,299,906	455,865	-	-	-	1,417,982	$	198,236,772
28	CII - Commercial	-	66,613,419	15,873,639	6,883,332	41,852,796	11,659,558	26,200,918	1,901,114	2,658,366	1,152,081	-	-	-	106,972	$	174,902,195
29	CII - Emergency Backup	-	36,625	403,665	54,974	23,011	296,501	209,254	14,865	20,786	466	-	-	-	42	$	1,060,187
30	CII - Extra Container	-	2,432	15,867	2,233	1,528	11,655	8,499	93	130	68	-	-	-	-	$	42,505
31	CII - Government	-	11,523,780	14,699,732	2,740,140	7,240,319	10,797,296	10,430,149	217,318	303,880	40,917	-	-	-	10,811	$	58,004,343
32	CII - Industrial Sewer Surcharge	-	2,111,342	553,449	224,693	1,326,543	406,522	855,280	30,449	42,578	5,691	-	-	-	664	$	5,557,211
33	CII - Resale	-	27,060	17,975	4,290	17,002	13,203	16,330	360	503	34	-	-	-	5	$	96,762
34	CII - Transient	-	1,182,885	1,853,096	325,882	743,199	1,361,142	1,240,447	61,387	85,839	21,770	-	-	-	1,588	$	6,877,236
35	Irrigation	-	7,409,703	4,225,047	1,084,429	4,655,470	3,103,396	4,127,802	292,906	409,577	198,785	-	-	-	1,158	$	25,508,274
36	Metered Fire	-	39,911	289,993	40,478	25,076	213,007	154,078	255,808	357,701	9,513	-	-	-	80	$	1,385,645
37	Unmetered Fire	-	-	-	-	-	-	-	4,640,596	6,489,038	178,388	-	-	-	-	$	11,308,021
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	90,275	186,740	-	-	-	-	-	-	239	-	-	-	40	$	277,293
41	GRP Participants - Area 3	-	15,324,895	9,045,547	-	-	-	-	-	-	3,069	-	-	-	514	$	24,374,025
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,399,359	184	$	15,399,543
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,563,475	-	-	30	$	9,563,505
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	25,228,320	-	20	$	25,228,339
45	Contract Treated with Airgap	-	32,204,533	8,768,031	-	-	-	-	-	3,578	1,227	-	-	-	226	$	40,977,596
46	Contract Treated without Airgap	-	4,155,485	1,047,401	436,807	-	-	-	-	1,491	511	-	-	-	94	$	5,641,790
47	Contract Water - Untreated	23,168,578	-	-	-	-	-	-	-	12,921	4,432	-	-	-	12	$	23,185,945
48	**Total**	**$ 23,168,578**	**$ 291,916,779**	**$ 92,145,805**	**$ 27,308,672**	**$ 150,879,465**	**$ 53,692,250**	**$ 102,285,857**	**$ 19,133,942**	**$ 26,773,366**	**$ 16,046,509**	**$ 9,563,475**	**$ 25,228,320**	**$ 15,399,359**	**$ 2,553,436**	**$**	**856,095,812**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2025 - April Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	228,468,625
2	Multifamily Residential		198,236,772
3	CII - Commercial		174,902,195
4	CII - Emergency Backup		1,060,187
5	CII - Extra Container		42,505
6	CII - Government		58,004,343
7	CII - Industrial Sewer Surcharge		5,557,211
8	CII - Resale		96,762
9	CII - Transient		6,877,236
10	Irrigation		25,508,274
11	Metered Fire		1,385,645
12	Unmetered Fire		11,308,021
13	GRP Participants - Areas 1 & 2		277,293
14	GRP Participants - Area 3		24,374,025
15	Contract Treated - SEWPP Co-participants		15,399,543
16	Contract Treated - EWPP Water Authorities		9,563,505
17	Contract Treated - NEWPP Water Authorities		25,228,339
18	Contract Treated with Airgap		40,977,596
19	Contract Treated without Airgap		5,641,790
20	Contract Water - Untreated		23,185,945
21	**Total**	**$**	**856,095,812**

Houston Combined Utility System

Water System Customer Allocation - FYE 2026 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Common to Retail & Contract Customers Not Contributing Capital: Max Day	Common to Retail & Contract Customers Not Contributing Capital: Max Hour	Common to Retail: Base	Common to Retail: Max Day	Common to Retail: Max Hour	Common to Retail: Fire	Common to All: Meter Charges	Common to All: Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees	Total
	Development of Unit Costs															
1	*Units of Service*	*kGal*	*kGal*	*kGal / day*	*kGal / day*	*kGal*	*kGal / day*	*kGal / day*	*MEU*	*MEU*	*Bills*	*kGal*	*kGal*	*kGal*	*Connections*	
2	Single Family Residential	-	23,527,485	31,147	47,803	23,527,485	31,147	47,803	507,955	507,955	4,987,258	-	-	-	413,336	
3	Multifamily Residential	-	26,022,450	25,342	48,318	26,022,450	25,342	48,318	43,766	43,766	162,703	-	-	-	578,574	
4	CII - Commercial	-	21,830,768	25,499	42,655	21,830,768	25,499	42,655	89,502	89,502	411,189	-	-	-	43,647	
5	CII - Emergency Backup	-	12,003	648	341	12,003	648	341	700	700	166	-	-	-	17	
6	CII - Extra Container	-	797	25	14	797	25	14	4	4	24	-	-	-	-	
7	CII - Government	-	3,776,611	23,613	16,980	3,776,611	23,613	16,980	10,231	10,231	14,604	-	-	-	4,411	
8	CII - Industrial Sewer Surcharge	-	691,936	889	1,392	691,936	889	1,392	1,434	1,434	2,031	-	-	-	271	
9	CII - Resale	-	8,868	29	27	8,868	29	27	17	17	12	-	-	-	2	
10	CII - Transient	-	387,659	2,977	2,019	387,659	2,977	2,019	2,890	2,890	7,770	-	-	-	648	
11	Irrigation	-	2,428,332	6,787	6,720	2,428,332	6,787	6,720	13,790	13,790	70,948	-	-	-	473	
12	Metered Fire	-	13,080	466	251	13,080	466	251	12,043	12,043	3,395	-	-	-	32	
13	Unmetered Fire	-	-	-	-	-	-	-	218,474	218,474	63,668	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,585	300	-	-	-	-	-	-	85	-	-	-	16	
17	GRP Participants - Area 3	-	5,022,325	14,531	-	-	-	-	-	-	1,095	-	-	-	210	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	19,695,133	75	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	13,100,477	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	47,997,081	-	8	
21	Contract Treated with Airgap	-	10,554,175	14,085	-	-	-	-	-	120	438	-	-	-	92	
22	Contract Treated without Airgap	-	1,361,849	1,683	2,707	-	-	-	-	50	183	-	-	-	39	
23	Contract Water - Untreated	79,605,403	-	-	-	-	-	-	-	435	1,582	-	-	-	5	
24	**Total**	**79,605,403**	**95,667,925**	**148,021**	**169,227**	**78,699,990**	**117,423**	**166,520**	**900,806**	**901,412**	**5,727,153**	**13,100,477**	**47,997,081**	**19,695,133**	**1,041,868**	
25	**Test Year Unit Cost**	**$ 0.29**	**$ 3.22**	**$ 658.39**	**$ 169.49**	**$ 2.02**	**$ 481.74**	**$ 647.15**	**$ 22.22**	**$ 30.59**	**$ 2.82**	**$ 0.73**	**$ 0.82**	**$ 0.78**	**$ 2.45**	

Houston Combined Utility System

Water System Customer Allocation - FYE 2026 April Increase

Line No.	Customer Type	Raw Water	Common to Retail & Contract Customers Not Contributing Capital: Base	Max Day	Max Hour	Common to Retail: Base	Max Day	Max Hour	Fire	Common to All: Meter Charges	Billing & Collecting	EWPP WAs	NEWPP WAs	SEWPP Co-parts	TCEQ Fees		Total
	Allocation of Unit Costs to Customer Types																
26	Single Family Residential	$ -	$ 75,804,658	$ 20,507,148	$ 8,102,061	$ 47,521,357	$ 15,004,938	$ 30,935,907	$ 11,287,496	$ 15,536,268	$ 14,057,679	$ -	$ -	$ -	$ 1,013,013	$	239,770,527
27	Multifamily Residential	-	83,843,339	16,685,135	8,189,386	52,560,745	12,208,397	31,269,340	972,534	1,338,609	458,613	-	-	-	1,417,982	$	208,944,081
28	CII - Commercial	-	70,337,901	16,788,466	7,229,479	44,094,289	12,284,004	27,604,150	1,988,875	2,737,515	1,159,026	-	-	-	106,972	$	184,330,675
29	CII - Emergency Backup	-	38,672	426,929	57,738	24,243	312,381	220,461	15,551	21,405	469	-	-	-	42	$	1,117,890
30	CII - Extra Container	-	2,568	16,782	2,345	1,610	12,279	8,954	97	133	69	-	-	-	-	$	44,837
31	CII - Government	-	12,168,097	15,546,905	2,877,935	7,628,086	11,375,563	10,988,752	227,350	312,927	41,164	-	-	-	10,811	$	61,177,590
32	CII - Industrial Sewer Surcharge	-	2,229,392	585,346	235,993	1,397,588	428,293	901,086	31,855	43,845	5,725	-	-	-	664	$	5,859,786
33	CII - Resale	-	28,573	19,011	4,506	17,912	13,910	17,205	376	518	34	-	-	-	5	$	102,050
34	CII - Transient	-	1,249,023	1,959,893	342,270	783,003	1,434,040	1,306,881	64,221	88,394	21,901	-	-	-	1,588	$	7,251,214
35	Irrigation	-	7,823,994	4,468,545	1,138,962	4,904,802	3,269,603	4,348,873	306,428	421,771	199,984	-	-	-	1,158	$	26,884,119
36	Metered Fire	-	42,142	306,706	42,514	26,419	224,415	162,330	267,617	368,351	9,570	-	-	-	80	$	1,450,143
37	Unmetered Fire	-	-	-	-	-	-	-	4,854,818	6,682,240	179,463	-	-	-	-	$	11,716,521
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
39	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$	-
40	GRP Participants - Areas 1 & 2	-	95,323	197,502	-	-	-	-	-	-	240	-	-	-	40	$	293,104
41	GRP Participants - Area 3	-	16,181,739	9,566,858	-	-	-	-	-	-	3,087	-	-	-	514	$	25,752,199
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	15,400,085	184	$	15,400,269
43	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	9,563,893	-	-	30	$	9,563,923
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	39,503,958	-	20	$	39,503,978
45	Contract Treated with Airgap	-	34,005,150	9,273,348	-	-	-	-	-	3,685	1,235	-	-	-	226	$	43,283,644
46	Contract Treated without Airgap	-	4,387,826	1,107,764	458,773	-	-	-	-	1,535	515	-	-	-	94	$	5,956,508
47	Contract Water - Untreated	23,321,201	-	-	-	-	-	-	-	13,306	4,459	-	-	-	12	$	23,338,979
48	**Total**	**$ 23,321,201**	**$ 308,238,396**	**$ 97,456,339**	**$ 28,681,963**	**$ 158,960,054**	**$ 56,567,823**	**$ 107,763,939**	**$ 20,017,216**	**$ 27,570,504**	**$ 16,143,233**	**$ 9,563,893**	**$ 39,503,958**	**$ 15,400,085**	**$ 2,553,436**	**$**	**911,742,040**

Houston Combined Utility System

Water Cost of Service Comparison

FYE 2026 - April Increase

Line No.	Customer Type		Cost of Service
1	Single Family Residential	$	239,770,527
2	Multifamily Residential		208,944,081
3	CII - Commercial		184,330,675
4	CII - Emergency Backup		1,117,890
5	CII - Extra Container		44,837
6	CII - Government		61,177,590
7	CII - Industrial Sewer Surcharge		5,859,786
8	CII - Resale		102,050
9	CII - Transient		7,251,214
10	Irrigation		26,884,119
11	Metered Fire		1,450,143
12	Unmetered Fire		11,716,521
13	GRP Participants - Areas 1 & 2		293,104
14	GRP Participants - Area 3		25,752,199
15	Contract Treated - SEWPP Co-participants		15,400,269
16	Contract Treated - EWPP Water Authorities		9,563,923
17	Contract Treated - NEWPP Water Authorities		39,503,978
18	Contract Treated with Airgap		43,283,644
19	Contract Treated without Airgap		5,956,508
20	Contract Water - Untreated		23,338,979
21	**Total**	**$**	**911,742,040**

Appendix H

WASTEWATER COST OF SERVICE ANALYSIS

Houston Combined Utility System

Wastewater Cost Allocation

Line No.			Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	General	Total FYE 2022
	Allocation of Functionalized Assets to Rate Components															
		Allocation Basis														
1	Plants & Structures	General	0.0%	0.0%	0.0%	40.0%	0.0%	30.0%	0.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 1,113,643
2	Electrical, Mechanical, Controls	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 810,752
3	Source of Supply - Wells	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 3,472
4	Lifts and Pump Stations	Lift Stations	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 220,842
	Wastewater Lines															
5	Interceptors	Collection System	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 1,654,900
6	Local Collectors	Collection System	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	$ 2,120,338
7	Land & Site	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 34,233
8	Meters & Water Supply Line to the Meter	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ -
9	SCADA System	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 25,464
10	Pumps	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ -
11	Fuel Tanks	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 1,072
12	Chemical Tanks	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ 14,958
13	Ground Storage Tanks	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ -
14	Elevated Storage Tank	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	$ -
15	Asset Allocation Subtotal		$ 2,120,338	$ 1,875,742	$ -	$ 445,457	$ -	$ 334,093	$ -	$ 334,093	$ -	$ -	$ -	$ -	$ 889,952	$ 5,999,676
16			35%	31%	0%	7%	0%	6%	0%	6%	0%	0%	0%	0%	15%	
17	Reallocation as "As All Others"		6%	5%	0%	1%	0%	1%	0%	1%	0%	0%	0%	0%		
18	**Total ($) Allocation**		$ 2,489,634	$ 2,202,437	$ -	$ 523,042	$ -	$ 392,281	$ -	$ 392,281	$ -	$ -	$ -	$ -	$ -	$ 5,999,676
19	**Total (%) Allocation**		**41.5%**	**36.7%**	**0.0%**	**8.7%**	**0.0%**	**6.5%**	**0.0%**	**6.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		

Houston Combined Utility System

Wastewater Functionalization of Costs

Functional Allocation of O&M Cost Centers (%)

Line No.	Cost Center	Influent Pumping & Headworks	Aeration	Clarifiers	Chrlor. / Dechlor.	Solids Thickening / Digestion	Biosolids Handling	Effluent Discharge	Ind. WW Svc.	Lift Stations	Collection System	Customer Billing	Admin	Treatment + Collection General	General
	Wastewater Operations														
1	40001 WWO Executive Support G&A	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
2	40002 WWO Collection System Analysis	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
3	40003 WWO Collection System Repairs	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
4	40004 WWO Regulatory and Compliance	0%	0%	0%	0%	0%	0%	70%	30%	0%	0%	0%	0%	0%	0%
5	40005 WWO Technical Services G&A	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
6	40006 WWO Plant Operations	14%	14%	14%	14%	14%	14%	14%	0%	0%	0%	0%	0%	0%	0%
7	40007 WWO Electrical & Automation	5%	3%	3%	20%	0%	0%	5%	0%	60%	5%	0%	0%	0%	0%
8	40008 WWO Construction Management	1%	1%	1%	0%	0%	0%	0%	0%	2%	95%	0%	0%	0%	0%
9	40009 WWO Contract Management	20%	10%	20%	0%	0%	0%	0%	0%	40%	10%	0%	0%	0%	0%
10	40010 WWO Mechanical Management	10%	10%	10%	0%	10%	10%	0%	0%	50%	0%	0%	0%	0%	0%
11	40031 WWO EPA Compliance	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Operation Services - Houston Wastewater G&A														
12	40021 OPS Financial & Support Operation Services G&A	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
13	40022 HW Planning	0%	0%	0%	0%	0%	0%	5%	0%	0%	45%	0%	50%	0%	0%
14	40023 OPS Maintenance Operation Services - Restoration	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
15	40024 OPS Maintenance Operation Services-COS/DIS	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
16	40025 HW GIS Services	0%	0%	0%	0%	0%	0%	10%	3%	20%	60%	0%	2%	0%	5%
17	40026 OPS Executive Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
18	40027 OPS Support Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
19	40028 HW Infrastructure Planning	0%	0%	0%	0%	0%	0%	5%	0%	0%	45%	0%	50%	0%	0%
20	40029 HW Utility Analysis	0%	0%	0%	0%	0%	0%	5%	0%	0%	45%	0%	50%	0%	0%
	Other O&M														
21	30001-30009 Director's Office	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
22	80001 Information Technology	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
23	90001-90011 Management Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
24	60005 & 60008 Houston Water - Planning	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
25	0005,50006,50030 Financial Mangt Services Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
26	.00007-15, 100025 CAS - Customer Account Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%
27	**Deductions**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

Houston Combined Utility System

Wastewater Cost Allocation

Line No.		Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	General	Total FYE 2022
	Allocation of Functionalized O&M to Rate Components														
1	Influent Pumping & Headworks	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$ 18,335
2	Aeration	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%	0%	0%	$ 14,969
3	Clarifiers	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	$ 18,043
4	Chrlor. / Dechlor.	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$ 11,391
5	Solids Thickening / Digestion	0%	0%	0%	0%	5%	0%	95%	0%	0%	0%	0%	0%	0%	$ 11,542
6	Biosolids Handling	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	$ 11,542
7	Effluent Discharge	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$ 18,438
8	Ind. WW Svc.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	$ 3,604
9	Lift Stations	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	$ 32,245
10	Collection System	51%	39%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	$ 84,344
11	Customer Billing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	$ 29,050
12	Admin	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	$ 16,924
13	Treatment + Collection General	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	$ 20,147
14	General	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2022 September Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,344,168	22,344,168	22,344,168	61,217	18,222,940	18,222,940	55,316,332	55,316,332	3,175,970	3,175,970	-	4,603,570	
3	Multifamily Residential	25,155,956	25,155,956	25,155,956	68,920	22,654,672	22,654,672	68,769,001	68,769,001	3,948,351	3,948,351	-	159,481	
4	Commercial	20,573,586	20,573,586	20,573,586	56,366	16,242,722	16,242,722	49,305,316	49,305,316	2,830,850	2,830,850	-	426,605	
5	Industrial Surcharge	2,135,783	2,135,783	2,135,783	5,851	16,864,851	16,864,851	7,494,091	7,494,091	541,942	541,942	3,229	3,229	
6	Sewer Only	47,581	47,581	47,581	130	44,298	44,298	134,469	134,469	7,721	7,721	-	10,491	
7	Capital without Collection System	-	-	2,922,313	-	2,720,695	-	8,258,758	-	474,174	-	-	169	
8	No Capital with Collection System	-	324,234	324,234	888	301,864	301,864	916,318	916,318	52,610	52,610	-	133	
9	Connections-based Billing	-	55,616	55,616	152	51,779	51,779	157,176	157,176	9,024	9,024	-	24	
10	**Total**	**70,257,074**	**70,636,923**	**73,559,236**	**193,526**	**77,103,821**	**74,383,126**	**190,351,460**	**182,092,703**	**11,040,642**	**10,566,468**	**3,229**	**5,203,703**	
11	**Test Year Unit Cost**	**$ 2.90**	**$ 2.91**	**$ 0.60**	**$ 178.66**	**$ 0.10**	**$ 0.35**	**$ 0.20**	**$ 0.14**	**$ 0.6208**	**$ -**	**$ 1,022.23**	**$ 6.47**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2022 September Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 64,759,594	$ 65,036,056	$ 13,398,887	$ 10,937,181	$ 1,744,943	$ 6,352,992	$ 10,792,040	$ 7,877,621	$ 1,971,797	$ -	$ -	$ 29,766,937	$ 212,638,050
13	Multifamily Residential	72,908,937	73,220,188	15,085,002	12,313,516	2,169,305	7,898,009	13,416,613	9,793,422	2,451,329	-	-	1,031,213	210,287,534
14	Commercial	59,627,959	59,882,513	12,337,142	10,070,505	1,555,327	5,662,636	9,619,310	7,021,590	1,757,529	-	-	2,758,454	170,292,966
15	Industrial Surcharge	6,190,090	6,216,516	1,280,742	1,045,438	1,614,899	5,879,526	1,462,073	1,067,237	336,464	-	3,301,080	20,881	28,414,947
16	Sewer Only	137,903	138,492	28,532	23,290	4,242	15,444	26,235	19,150	4,793	-	-	67,833	465,915
17	Capital without Collection System	-	-	1,752,392	-	260,521	-	1,611,257	-	294,390	-	-	1,093	3,919,654
18	No Capital with Collection System	-	943,731	194,430	158,708	28,905	105,238	178,771	130,493	32,663	-	-	859	1,773,797
19	Connections-based Billing	-	161,879	33,351	27,223	4,958	18,051	30,665	22,384	5,603	-	-	156	304,269
20	**Total**	**$ 203,624,484**	**$ 205,599,374**	**$ 44,110,479**	**$ 34,575,862**	**$ 7,383,100**	**$ 25,931,896**	**$ 37,136,964**	**$ 25,931,896**	**$ 6,854,568**	**$ -**	**$ 3,301,080**	**$ 33,647,426**	**$ 628,097,130**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2022 - September Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$212,638,050
2	Multifamily Residential	210,287,534
3	Commercial	170,292,966
4	Industrial Surcharge	28,414,947
5	Sewer Only	465,915
6	Capital without Collection System	3,919,654
7	No Capital with Collection System	1,773,797
8	Connection-based	304,269
9	**Total**	**$628,097,130**

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2022 April Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,344,168	22,344,168	22,344,168	61,217	18,222,940	18,222,940	55,316,332	55,316,332	3,175,970	3,175,970	-	4,603,570	
3	Multifamily Residential	25,155,956	25,155,956	25,155,956	68,920	22,654,672	22,654,672	68,769,001	68,769,001	3,948,351	3,948,351	-	159,481	
4	Commercial	20,573,586	20,573,586	20,573,586	56,366	16,242,722	16,242,722	49,305,316	49,305,316	2,830,850	2,830,850	-	426,605	
5	Industrial Surcharge	2,135,783	2,135,783	2,135,783	5,851	16,864,851	16,864,851	7,494,091	7,494,091	541,942	541,942	3,229	3,229	
6	Sewer Only	47,581	47,581	47,581	130	44,298	44,298	134,469	134,469	7,721	7,721	-	10,491	
7	Capital without Collection System	-	-	2,922,313	-	2,720,695	-	8,258,758	-	474,174	-	-	169	
8	No Capital with Collection System	-	324,234	324,234	888	301,864	301,864	916,318	916,318	52,610	52,610	-	133	
9	Connections-based Billing	-	55,616	55,616	152	51,779	51,779	157,176	157,176	9,024	9,024	-	24	
10	**Total**	**70,257,074**	**70,636,923**	**73,559,236**	**193,526**	**77,103,821**	**74,383,126**	**190,351,460**	**182,092,703**	**11,040,642**	**10,566,468**	**3,229**	**5,203,703**	
11	**Test Year Unit Cost**	**$ 3.23**	**$ 3.24**	**$ 0.66**	**$ 199.83**	**$ 0.10**	**$ 0.39**	**$ 0.21**	**$ 0.16**	**$ 0.6801**	**$ -**	**$ 1,119.86**	**$ 7.08**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2022 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 72,145,946	$ 72,304,504	$ 14,678,564	$ 12,232,794	$ 1,911,596	$ 7,105,564	$ 11,822,747	$ 8,810,800	$ 2,160,116	$ -	$ -	$ 32,609,868	$ 235,782,499
13	Multifamily Residential	81,224,786	81,403,298	16,525,714	13,772,168	2,376,487	8,833,603	14,697,983	10,953,545	2,685,446	-	-	1,129,701	233,602,731
14	Commercial	66,429,006	66,575,001	13,515,416	11,263,451	1,703,870	6,333,429	10,538,014	7,853,364	1,925,384	-	-	3,021,904	189,158,839
15	Industrial Surcharge	6,896,120	6,911,276	1,403,061	1,169,280	1,769,132	6,576,012	1,601,710	1,193,661	368,598	-	3,616,354	22,875	31,528,079
16	Sewer Only	153,632	153,970	31,257	26,049	4,647	17,273	28,740	21,418	5,251	-	-	74,312	516,550
17	Capital without Collection System	-	-	1,919,756	-	285,402	-	1,765,142	-	322,506	-	-	1,197	4,294,005
18	No Capital with Collection System	-	1,049,202	212,999	177,509	31,666	117,704	195,844	145,951	35,782	-	-	941	1,967,598
19	Connections-based Billing	-	179,970	36,536	30,448	5,432	20,190	33,593	25,035	6,138	-	-	171	337,513
20	**Total**	**$ 226,849,491**	**$ 228,577,221**	**$ 48,323,303**	**$ 38,671,700**	**$ 8,088,232**	**$ 29,003,775**	**$ 40,683,775**	**$ 29,003,775**	**$ 7,509,222**	**$ -**	**$ 3,616,354**	**$ 36,860,968**	**$ 697,187,815**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2022 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$235,782,499
2	Multifamily Residential	233,602,731
3	Commercial	189,158,839
4	Industrial Surcharge	31,528,079
5	Sewer Only	516,550
6	Capital without Collection System	4,294,005
7	No Capital with Collection System	1,967,598
8	Connection-based	337,513
9	**Total**	**$697,187,815**

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2023 April Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,388,856	22,388,856	22,388,856	61,339	18,259,386	18,259,386	55,426,965	55,426,965	3,182,322	3,182,322	-	4,612,777	
3	Multifamily Residential	25,206,268	25,206,268	25,206,268	69,058	22,699,982	22,699,982	68,906,539	68,906,539	3,956,248	3,956,248	-	159,800	
4	Commercial	20,614,734	20,614,734	20,614,734	56,479	16,275,208	16,275,208	49,403,926	49,403,926	2,836,511	2,836,511	-	427,459	
5	Industrial Surcharge	2,140,054	2,140,054	2,140,054	5,863	16,898,581	16,898,581	7,509,079	7,509,079	543,026	543,026	3,236	3,236	
6	Sewer Only	47,676	47,676	47,676	131	44,387	44,387	134,738	134,738	7,736	7,736	-	10,512	
7	Capital without Collection System	-	-	2,928,158	-	2,726,136	-	8,275,275	-	475,122	-	-	169	
8	No Capital with Collection System	-	324,882	324,882	890	302,468	302,468	918,150	918,150	52,715	52,715	-	133	
9	Connections-based Billing	-	55,727	55,727	153	51,882	51,882	157,491	157,491	9,042	9,042	-	24	
10	**Total**	**70,397,588**	**70,778,197**	**73,706,355**	**193,913**	**77,258,029**	**74,531,893**	**190,732,163**	**182,456,888**	**11,062,724**	**10,587,601**	**3,236**	**5,214,110**	
11	**Test Year Unit Cost**	**$ 3.48**	**$ 3.45**	**$ 0.64**	**$ 220.12**	**$ 0.10**	**$ 0.43**	**$ 0.21**	**$ 0.18**	**$ 0.6676**	**$ -**	**$ 1,099.15**	**$ 6.95**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2023 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 77,994,834	$ 77,304,995	$ 14,435,933	$ 13,501,955	$ 1,879,998	$ 7,842,771	$ 11,627,322	$ 9,724,927	$ 2,124,410	$ -	$ -	$ 32,070,857	$ 248,508,001
13	Multifamily Residential	87,809,698	87,033,050	16,252,550	15,201,040	2,337,205	9,750,095	14,455,031	12,089,983	2,641,056	-	-	1,111,028	248,680,736
14	Commercial	71,814,421	71,179,246	13,292,011	12,432,042	1,675,706	6,990,527	10,363,825	8,668,156	1,893,558	-	-	2,971,955	201,281,446
15	Industrial Surcharge	7,455,190	7,389,251	1,379,869	1,290,594	1,739,889	7,258,278	1,575,235	1,317,504	362,506	-	3,556,577	22,497	33,347,388
16	Sewer Only	166,087	164,618	30,741	28,752	4,570	19,065	28,265	23,640	5,164	-	-	73,084	543,987
17	Capital without Collection System	-	-	1,888,024	-	280,685	-	1,735,965	-	317,176	-	-	1,177	4,223,026
18	No Capital with Collection System	-	1,121,764	209,478	195,925	31,142	129,916	192,607	161,094	35,191	-	-	925	2,078,043
19	Connections-based Billing	-	192,417	35,932	33,607	5,342	22,285	33,038	27,632	6,036	-	-	168	356,457
20	**Total**	**$ 245,240,231**	**$ 244,385,340**	**$ 47,524,537**	**$ 42,683,915**	**$ 7,954,536**	**$ 32,012,936**	**$ 40,011,288**	**$ 32,012,936**	**$ 7,385,098**	**$ -**	**$ 3,556,577**	**$ 36,251,691**	**$ 739,019,084**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2023 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$248,508,001
2	Multifamily Residential	248,680,736
3	Commercial	201,281,446
4	Industrial Surcharge	33,347,388
5	Sewer Only	543,987
6	Capital without Collection System	4,223,026
7	No Capital with Collection System	2,078,043
8	Connection-based	356,457
9	**Total**	**$739,019,084**

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2024 April Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,433,634	22,433,634	22,433,634	61,462	18,295,905	18,295,905	55,537,819	55,537,819	3,188,687	3,188,687	-	4,622,003	
3	Multifamily Residential	25,256,680	25,256,680	25,256,680	69,196	22,745,382	22,745,382	69,044,352	69,044,352	3,964,160	3,964,160	-	160,120	
4	Commercial	20,655,963	20,655,963	20,655,963	56,592	16,307,758	16,307,758	49,502,734	49,502,734	2,842,184	2,842,184	-	428,314	
5	Industrial Surcharge	2,144,334	2,144,334	2,144,334	5,875	16,932,378	16,932,378	7,524,098	7,524,098	544,112	544,112	3,242	3,242	
6	Sewer Only	47,772	47,772	47,772	131	44,476	44,476	135,008	135,008	7,751	7,751	-	10,533	
7	Capital without Collection System	-	-	2,934,014	-	2,731,588	-	8,291,826	-	476,073	-	-	170	
8	No Capital with Collection System	-	325,532	325,532	892	303,073	303,073	919,987	919,987	52,821	52,821	-	133	
9	Connections-based Billing	-	55,839	55,839	153	51,986	51,986	157,806	157,806	9,060	9,060	-	24	
10	**Total**	**70,538,383**	**70,919,753**	**73,853,767**	**194,301**	**77,412,545**	**74,680,956**	**191,113,628**	**182,821,802**	**11,084,849**	**10,608,776**	**3,242**	**5,224,538**	
11	**Test Year Unit Cost**	**$ 3.91**	**$ 3.85**	**$ 0.68**	**$ 250.03**	**$ 0.11**	**$ 0.49**	**$ 0.22**	**$ 0.20**	**$ 0.7027**	**$ -**	**$ 1,156.99**	**$ 7.32**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2024 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 87,653,919	$ 86,278,877	$ 15,226,044	$ 15,367,284	$ 1,982,895	$ 8,926,269	$ 12,263,711	$ 11,068,450	$ 2,240,684	$ -	$ -	$ 33,826,188	$ 274,834,320
13	Multifamily Residential	98,684,282	97,136,204	17,142,089	17,301,102	2,465,125	11,097,096	15,246,187	13,760,244	2,785,607	-	-	1,171,838	276,789,774
14	Commercial	80,708,107	79,442,025	14,019,512	14,149,560	1,767,421	7,956,285	10,931,060	9,865,683	1,997,197	-	-	3,134,618	223,971,470
15	Industrial Surcharge	8,378,460	8,247,026	1,455,392	1,468,892	1,835,117	8,261,027	1,661,451	1,499,520	382,346	-	3,751,236	23,728	36,964,196
16	Sewer Only	186,656	183,728	32,423	32,724	4,820	21,699	29,812	26,906	5,447	-	-	77,084	601,300
17	Capital without Collection System	-	-	1,991,359	-	296,047	-	1,830,979	-	334,535	-	-	1,242	4,454,162
18	No Capital with Collection System	-	1,251,983	220,943	222,993	32,847	147,864	203,149	183,349	37,117	-	-	976	2,301,221
19	Connections-based Billing	-	214,753	37,899	38,250	5,634	25,363	34,846	31,450	6,367	-	-	177	394,739
20	**Total**	**$ 275,611,424**	**$ 272,754,596**	**$ 50,125,662**	**$ 48,580,805**	**$ 8,389,906**	**$ 36,435,604**	**$ 42,201,195**	**$ 36,435,604**	**$ 7,789,301**	**$ -**	**$ 3,751,236**	**$ 38,235,851**	**$ 820,311,183**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2024 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$274,834,320
2	Multifamily Residential	276,789,774
3	Commercial	223,971,470
4	Industrial Surcharge	36,964,196
5	Sewer Only	601,300
6	Capital without Collection System	4,454,162
7	No Capital with Collection System	2,301,221
8	Connection-based	394,739
9	**Total**	**$820,311,183**

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2025 April Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,478,501	22,478,501	22,478,501	61,585	18,332,496	18,332,496	55,648,894	55,648,894	3,195,064	3,195,064	-	4,631,247	
3	Multifamily Residential	25,307,194	25,307,194	25,307,194	69,335	22,790,872	22,790,872	69,182,440	69,182,440	3,972,089	3,972,089	-	160,440	
4	Commercial	20,697,275	20,697,275	20,697,275	56,705	16,340,373	16,340,373	49,601,740	49,601,740	2,847,869	2,847,869	-	429,170	
5	Industrial Surcharge	2,148,623	2,148,623	2,148,623	5,887	16,966,242	16,966,242	7,539,146	7,539,146	545,200	545,200	3,249	3,249	
6	Sewer Only	47,867	47,867	47,867	131	44,565	44,565	135,278	135,278	7,767	7,767	-	10,554	
7	Capital without Collection System	-	-	2,939,882	-	2,737,051	-	8,308,409	-	477,025	-	-	170	
8	No Capital with Collection System	-	326,183	326,183	894	303,679	303,679	921,827	921,827	52,926	52,926	-	134	
9	Connections-based Billing	-	55,950	55,950	153	52,090	52,090	158,121	158,121	9,078	9,078	-	24	
10	**Total**	**70,679,460**	**71,061,593**	**74,001,475**	**194,689**	**77,567,370**	**74,830,318**	**191,495,855**	**183,187,445**	**11,107,019**	**10,629,994**	**3,249**	**5,234,987**	
11	**Test Year Unit Cost**	**$ 4.18**	**$ 4.09**	**$ 0.69**	**$ 270.01**	**$ 0.11**	**$ 0.53**	**$ 0.22**	**$ 0.22**	**$ 0.7106**	**$ -**	**$ 1,169.95**	**$ 7.40**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2025 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 93,877,027	$ 91,875,504	$ 15,427,324	$ 16,628,672	$ 2,009,107	$ 9,658,962	$ 12,425,831	$ 11,976,978	$ 2,270,304	$ -	$ -	$ 34,273,372	$ 290,423,082
13	Multifamily Residential	105,690,506	103,437,111	17,368,697	18,721,223	2,497,713	12,007,975	15,447,733	14,889,722	2,822,432	-	-	1,187,329	294,070,442
14	Commercial	86,438,089	84,595,169	14,204,843	15,310,994	1,790,785	8,609,359	11,075,563	10,675,485	2,023,599	-	-	3,176,058	237,899,943
15	Industrial Surcharge	8,973,300	8,781,983	1,474,631	1,589,463	1,859,376	8,939,115	1,683,414	1,622,605	387,401	-	3,800,826	24,042	39,136,156
16	Sewer Only	199,908	195,646	32,852	35,410	4,884	23,480	30,206	29,115	5,519	-	-	78,103	635,123
17	Capital without Collection System	-	-	2,017,684	-	299,961	-	1,855,183	-	338,958	-	-	1,258	4,513,044
18	No Capital with Collection System	-	1,333,195	223,864	241,297	33,281	160,001	205,834	198,399	37,608	-	-	989	2,434,468
19	Connections-based Billing	-	228,683	38,400	41,390	5,709	27,445	35,307	34,031	6,451	-	-	180	417,595
20	**Total**	**$ 295,178,830**	**$ 290,447,291**	**$ 50,788,295**	**$ 52,568,449**	**$ 8,500,816**	**$ 39,426,337**	**$ 42,759,072**	**$ 39,426,337**	**$ 7,892,271**	**$ -**	**$ 3,800,826**	**$ 38,741,331**	**$ 869,529,854**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2025 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$290,423,082
2	Multifamily Residential	294,070,442
3	Commercial	237,899,943
4	Industrial Surcharge	39,136,156
5	Sewer Only	635,123
6	Capital without Collection System	4,513,044
7	No Capital with Collection System	2,434,468
8	Connection-based	417,595
9	**Total**	**$869,529,854**

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2026 April Increase

Development of Unit Costs

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
1	*Units of Service*	*kGal*	*kGal*	*kGal*	*kGal / day*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*lbs*	*Industrial bills*	*Bills*	
2	Single Family Residential	22,523,458	22,523,458	22,523,458	61,708	18,369,161	18,369,161	55,760,192	55,760,192	3,201,454	3,201,454	-	4,640,509	
3	Multifamily Residential	25,357,808	25,357,808	25,357,808	69,473	22,836,454	22,836,454	69,320,805	69,320,805	3,980,033	3,980,033	-	160,761	
4	Commercial	20,738,670	20,738,670	20,738,670	56,818	16,373,054	16,373,054	49,700,943	49,700,943	2,853,565	2,853,565	-	430,029	
5	Industrial Surcharge	2,152,920	2,152,920	2,152,920	5,898	17,000,175	17,000,175	7,554,224	7,554,224	546,291	546,291	3,255	3,255	
6	Sewer Only	47,963	47,963	47,963	131	44,654	44,654	135,548	135,548	7,782	7,782	-	10,575	
7	Capital without Collection System	-	-	2,945,762	-	2,742,526	-	8,325,026	-	477,979	-	-	170	
8	No Capital with Collection System	-	326,835	326,835	895	304,286	304,286	923,670	923,670	53,032	53,032	-	134	
9	Connections-based Billing	-	56,062	56,062	154	52,194	52,194	158,438	158,438	9,097	9,097	-	24	
10	**Total**	**70,820,819**	**71,203,716**	**74,149,478**	**195,079**	**77,722,504**	**74,979,979**	**191,878,846**	**183,553,820**	**11,129,233**	**10,651,254**	**3,255**	**5,245,457**	
11	**Test Year Unit Cost**	**$ 4.51**	**$ 4.37**	**$ 0.68**	**$ 295.84**	**$ 0.11**	**$ 0.58**	**$ 0.22**	**$ 0.24**	**$ 0.7026**	**$ -**	**$ 1,156.75**	**$ 7.32**	

Houston Combined Utility System

Wastewater System Customer Allocation - FYE 2026 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Cat. Y Wholesale	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
	Allocation of Unit Costs to Customer Types													
12	Single Family Residential	$ 101,530,155	$ 98,523,132	$ 15,283,855	$ 18,255,639	$ 1,990,423	$ 10,604,005	$ 12,310,275	$ 13,148,819	$ 2,249,191	$ -	$ -	$ 33,954,662	$ 307,850,156
13	Multifamily Residential	114,306,702	110,921,276	17,207,174	20,552,927	2,474,485	13,182,848	15,304,075	16,346,549	2,796,184	-	-	1,176,288	314,268,509
14	Commercial	93,484,772	90,716,030	14,072,742	16,809,038	1,774,132	9,451,708	10,972,564	11,719,986	2,004,780	-	-	3,146,524	254,152,276
15	Industrial Surcharge	9,704,830	9,417,401	1,460,918	1,744,978	1,842,084	9,813,727	1,667,759	1,781,363	383,798	-	3,765,479	23,818	41,606,156
16	Sewer Only	216,205	209,802	32,546	38,875	4,839	25,777	29,925	31,964	5,468	-	-	77,376	672,777
17	Capital without Collection System	-	-	1,998,920	-	297,171	-	1,837,930	-	335,805	-	-	1,247	4,471,074
18	No Capital with Collection System	-	1,429,658	221,782	264,905	32,971	175,656	203,920	217,811	37,258	-	-	979	2,584,941
19	Connections-based Billing	-	245,230	38,042	45,439	5,656	30,130	34,979	37,361	6,391	-	-	178	443,406
20	**Total**	**$ 319,242,664**	**$ 311,462,528**	**$ 50,315,981**	**$ 57,711,802**	**$ 8,421,761**	**$ 43,283,852**	**$ 42,361,427**	**$ 43,283,852**	**$ 7,818,875**	**$ -**	**$ 3,765,479**	**$ 38,381,073**	**$ 926,049,294**

Houston Combined Utility System

Wastewater Cost of Service Comparison

FYE 2026 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	$307,850,156
2	Multifamily Residential	314,268,509
3	Commercial	254,152,276
4	Industrial Surcharge	41,606,156
5	Sewer Only	672,777
6	Capital without Collection System	4,471,074
7	No Capital with Collection System	2,584,941
8	Connection-based	443,406
9	**Total**	**$926,049,294**

Appendix I

WATER RATE DESIGN

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2022	
				September 2021	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2022**	
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)				
2	Total Bills	Inside City Customer Growth	5,570,468	5,603,958	
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	662,069	
4	Total MEUs - Fire	Inside City Customer Growth	658,113	662,069	
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,032,444	
6	**Fixed Revenue to Recover**				
7	Customer (Billing & Collecting)			$ 14,752,823	
8	Capacity (Meter & Supply)			16,723,038	
9	Fire Flow			11,098,070	
10	TCEQ Fees			2,550,642	
11	**Total Fixed Charge Revenue to Recover**			**$ 45,124,574**	
12	**Per Bill**			**$ 2.633**	
13	**Per MEU per month - Capacity**			**$ 2.105**	
14	**Per MEU per month - Fire**			**$ 1.397**	**Proposed**
		Total Fixed Charge (5/8")		$ 6.14	$ 6.25
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**	

16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	$ *5.82*	$ 6.14	$ 6.25
18	3/4"	1.00	$ *5.82*	6.14	6.25
19	1"	1.70	$ *7.21*	8.59	8.79
20	1 1/2"	2.70	$ *10.92*	12.09	12.40
21	2"	3.30	$ *12.86*	14.19	14.58
22	3"	8.30	$ *12.86*	31.70	32.66
23	4"	16.70		61.12	63.05
24	6"	40.00		142.71	147.33
25	8"	50.00		177.73	183.51
26	10"	66.70		236.21	243.92
27	12"	93.30		329.35	340.14

28	Account Projection	Escalation	FYE 2019	FYE 2022
29	5/8"	Inside City Customer Growth	360,398	362,565
30	3/4"	Inside City Customer Growth	8,626	8,678
31	1"	Inside City Customer Growth	91,354	91,903
32	1 1/2"	Inside City Customer Growth	19,176	19,291
33	2"	Inside City Customer Growth	4,638	4,666
34	3"	Inside City Customer Growth	1,380	1,388
35	4"	Inside City Customer Growth	1,041	1,047
36	6"	Inside City Customer Growth	941	947
37	8"	Inside City Customer Growth	218	219
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2022	
		September 2021	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 26,713,768	$ 27,192,354
42	3/4"	639,385	650,839
43	1"	9,473,384	9,693,952
44	1 1/2"	2,798,780	2,870,543
45	2"	794,507	816,343
46	3"	528,108	544,101
47	4"	768,101	792,356
48	6"	1,621,170	1,673,652
49	8"	467,737	482,948
50	10"	51,328	53,003
51	12"	-	-
52	TCEQ Fee	2,601,759	2,601,759
53	**Total MEU Revenue**	**$ 46,458,026**	**$ 47,371,851**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,340,203
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,947,559
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	410,045
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 34,199,907
8	TCEQ Fee			1,013,013
9	Base			90,849,551
10	Max Day			25,620,410
11	Max Hour			28,099,771
12	**Total SFR Costs to Recover**			**$ 179,782,653**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 6.20
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,767,090
18	Tier 2	6	58%	13,572,521
19	Tier 3	12	15%	3,581,481
20	Tier 4	20	5%	1,217,721
21	Tier 5		5%	1,201,390
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			September 2021
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates** / **FYE 2022 Rates**
25	Tier 1 - Monthly usage less than	3	$ 0.16 / $ 1.00
26	Tier 2	6	$ 7.65 / $ 5.50
27	Tier 3	12	$ 0.45 / $ 8.00
28	Tier 4	20	$ 12.56 / $ 11.00
29	Tier 5		$ 5.29 / $ 15.00
30	Tier 6		$ 5.29 / $ 15.00
31	Tier 7		$ 5.74 / $ 15.00
32	Tier 8		$ 9.46 / $ 15.00
33	**SFR Revenue Check**		
34	Monthly Fixed Charge		$ 33,815,478
35	TCEQ Fee		1,033,315
36	Tier 1 - Monthly usage less than	3	3,767,090
37	Tier 2	6	74,648,863
38	Tier 3	12	28,651,850
39	Tier 4	20	13,394,931
40	Tier 5		18,020,857
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	**Total SFR Revenue**		**$ 173,332,383**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth	25,661,033	25,815,307
4	MFR Customer Bills Forecast	Inside City Customer Growth	160,443	161,408
5	MFR Customer Connections Forecast	Inside City Customer Growth	570,538	573,968
6	**MFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 2,249,370
8	TCEQ Fee			1,417,982
9	Base			100,483,663
10	Max Day			20,845,415
11	Max Hour			28,402,635
12	**Total MFR Costs to Recover**			**$ 153,399,065**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)			$ 5.81
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65	$ 5.45
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 2,187,108
18	TCEQ Fee			1,446,400
19	Variable Rate - All Usage			140,693,425
20	**Total MFR Revenue**			**$ 144,326,932**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2022**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,090,759
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	424,443
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	47,945
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 5,334,905
9	TCEQ Fee			118,446
10	Base			101,555,835
11	Max Day			41,150,151
12	Max Hour			35,881,398
13	**Total Commercial/Industrial Costs to Recover**			**$ 184,040,735**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 6.85
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 5.55**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 5,232,871
19	TCEQ Fee			120,820
20	All Usage			144,803,715
21	**Total Commercial/Industrial Revenue**			**$ 150,157,407**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Transient**			
2	**Transient Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275	384,573
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662	7,708
5	**Transient Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 140,769
7	TCEQ Fees			1,588
8	Base			1,496,915
9	Max Day			2,448,574
10	Max Hour			1,187,069
11	**Total Transient Costs to Recover**			**$ 5,274,915**
12	**Transient Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Transient Fixed Charge (1-inch meter)**		*$ 20.17*	**$ 95.00**
14	**Transient Fixed Charge (2-inch meter)**		*$ 26.90*	**$ 185.00**
15	**Transient Fixed Charge (3-inch meter)**		*$ 33.62*	**$ 460.00**
16	**Calculated Transient Variable Rate (per 1,000 gal)**			$ 10.04
17	**Proposed Transient Variable Rate (per 1,000 gal)**		*$ 5.35*	**$ 10.00**
18	**Transient Revenue Check**			
19	Transient Monthly Fixed Charge			$ 1,414,005
20	All Usage			3,845,732
21	**Total Transient Revenue**			**$ 5,259,738**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,409,002
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,384
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	469
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 760,142
8	TCEQ Fees			1,158
9	Base			9,376,816
10	Max Day			5,582,734
11	Max Hour			3,950,178
12	**Total Irrigation Costs to Recover**			**$ 19,671,027**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 7.85
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 10.00**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 755,286
18	TCEQ Fee			1,181
19	All Usage			24,090,024
20	**Total Irrigation Revenue**			**$ 24,846,491**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Resale**			
2	**Resale Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745	8,798
4	Resale Customer Bills Forecast	Inside City Customer Growth	12	12
5	**Resale Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 738
7	TCEQ Fees			5
8	Base			34,244
9	Max Day			23,751
10	Max Hour			15,628
11	**Total Resale Costs to Recover**			**$ 74,365**

	Resale Volume Rates (per 1,000 gal)	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**	*$ 22.83*	**$ 24.05**
14	**Resale Fixed Charge (1-inch meter)**	*$ 26.47*	**$ 39.00**
15	**Resale Fixed Charge (1 1/2-inch meter)**	*$ 65.31*	**$ 60.40**
16	**Resale Fixed Charge (2-inch meter)**	*$ 99.60*	**$ 73.25**
17	**Resale Fixed Charge (3-inch meter)**	*$ 215.61*	**$ 180.00**
18	**Resale Fixed Charge (4-inch meter)**	*$ 363.21*	**$ 360.00**
19	**Resale Fixed Charge (6-inch meter)**	*$ 744.47*	**$ 859.00**
20	**Resale Fixed Charge (8-inch meter)**	*$ 1,078.45*	**$ 1,075.00**
21	**Calculated Resale Variable Rate (per 1,000 gal)**		$ 7.96
22	**Proposed Resale Variable Rate (per 1,000 gal)**	*$ 5.73*	**$ 10.00**

23	**Resale Revenue Check**		
24	Resale Monthly Fixed Charge		$ 4,346
25	All Usage		87,976
26	**Total Resale Revenue**		**$ 92,322**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Emergency Backup**			
2	**Emergency Backup Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth	11,836	11,907
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth	164	165
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth	17	17
6	**Emergency Backup Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 29,608
8	TCEQ Fees			42
9	Base			46,347
10	Max Day			533,379
11	Max Hour			200,249
12	**Total Emergency Backup Costs to Recover**			**$ 809,626**
13	**EBS Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**			$ 68.00
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**		*$ 8.85*	**$ 10.00**
16	**Emergency Backup Revenue Check**			
17	Monthly Fixed Charge			$ 29,698
18	TCEQ Fee			43
19	All Usage			119,072
20	**Total Emergency Backup Revenue**			**$ 148,813**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	216,735
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,161
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 9,273,812
7	**Total Unmetered Fire Line Costs to Recover**			**$ 9,273,812**
8	**Unmetered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 15.83*	**$ 6.70**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**		*$ 15.83*	**$ 9.55**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 63.05*	**$ 13.60**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**		*$ 93.00*	**$ 16.05**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**		*$ 93.00*	**$ 36.00**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**		*$ 93.00*	**$ 70.00**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**		*$ 103.59*	**$ 165.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**		*$ 176.82*	**$ 205.00**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**		*$ 238.53*	**$ 275.00**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**		*$ 238.53*	**$ 380.00**
19	**Unmetered Fire Line Revenue Check**			
20	All Accounts			$ 10,708,160
21	**Total Unmetered Fire Line Revenue**			**$ 10,708,160**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	12,976
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,368
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 510,910
7	TCEQ Fees			80
8	Base			50,506
9	Max Day			383,181
10	Max Hour			147,448
11	**Total Metered Fire Line Costs to Recover**			**$ 581,135**
12	**Metered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 6.24*	**$ 4.70**
14	**Metered Fire Line Fixed Charge (1-inch meter)**		*$ 7.50*	**$ 6.15**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 11.35*	**$ 8.20**
16	**Metered Fire Line Fixed Charge (2-inch meter)**		*$ 13.36*	**$ 9.45**
17	**Metered Fire Line Fixed Charge (3-inch meter)**		*$ 35.35*	**$ 20.00**
18	**Metered Fire Line Fixed Charge (4-inch meter)**		*$ 48.19*	**$ 37.00**
19	**Metered Fire Line Fixed Charge (6-inch meter)**		*$ 82.59*	**$ 85.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**		*$ 215.64*	**$ 105.00**
21	**Metered Fire Line Fixed Charge (10-inch meter)**		*$ 215.64*	**$ 140.00**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**			$ 21.43
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 10.00**
24	**Metered Fire Line Revenue Check**			
25	Metered Fire Line Monthly Fixed Charge			$ 303,099
26	All Usage			129,755
27	**Total Metered Fire Line Revenue**			**$ 432,854**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		September 2021
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2022**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,470,163
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,779,928
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	2,505,460 / 2,520,523
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 7,246
9	TCEQ Fee	780
10	Base	31,602,488
11	Max Day	13,797,839
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 45,408,353**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2022 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 3.50
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.70
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 2.80
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 1.05
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	*$ 3.31* / **$ 3.35**
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	*$ 0.82* / **$ 0.85**
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	*$ 2.65* / **$ 2.68**
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	*$ 0.99* / **$ 1.01**
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,470,163 / $ 35,075,044
25	Contract Treated with Airgap Excess Usage	1,779,928 / 1,512,938
26	GRP Areas 1 & 2 Usage	36,687 / 98,322
27	GRP Area 3 Usage	8,303,911 / 8,345,430
28	**Total Contract Treated with Airgap Revenue**	**$ 45,031,735**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Contract Treated without Airgap**			
2	**Contract Treated without Airgap Units of Service**	**FYE 2019**		**FYE 2022**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935		1,351,009
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28%		378,282
5	**Contract Treated without Airgap Costs to Recover**			
6	Customer		$	1,735
7	TCEQ Fee			94
8	Base			3,286,604
9	Max Day			802,867
10	Max Hour			335,256
11	**Total Contract Treated without Airgap Costs to Recover**		**$**	**4,426,556**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**		**FYE 2022 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**		$	3.28
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**		$	0.70
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	*$ 4.04*	**$**	**4.05**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0**	*$ 0.82*	**$**	**0.85**
17	**Contract Treated without Airgap Revenue Check**			
18	Contract Treated without Airgap Usage		$	5,471,585
19	Contract Treated without Airgap Excess			321,540
20	**Total Contract Treated without Airgap Revenue**		**$**	**5,793,125**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			September 2021
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2022**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	78,971,731
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 21,633,337
6	**Total Contract Untreated Costs to Recover**		**$ 21,633,337**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2740
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,125,972
12	**Total Contract Untreated Revenue**		**$ 67,125,972**

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2022	
				April 2022	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2022**	
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)				
2	Total Bills	Inside City Customer Growth	5,570,468	5,603,958	
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	662,069	
4	Total MEUs - Fire	Inside City Customer Growth	658,113	662,069	
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,032,444	
6	**Fixed Revenue to Recover**				
7	Customer (Billing & Collecting)			$ 15,793,014	
8	Capacity (Meter & Supply)			17,982,066	
9	Fire Flow			11,976,999	
10	TCEQ Fees			2,550,642	
11	**Total Fixed Charge Revenue to Recover**			**$ 48,302,721**	
12	**Per Bill**			**$ 2.818**	
13	**Per MEU per month - Capacity**			**$ 2.263**	
14	**Per MEU per month - Fire**			**$ 1.508**	**Proposed**
		Total Fixed Charge (5/8")		$ 6.59	$ 6.57
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**	

16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	$ *5.82*	$ 6.59	$ 6.57
18	3/4"	1.00	$ *5.82*	6.59	6.57
19	1"	1.70	$ *7.21*	9.23	9.20
20	1 1/2"	2.70	$ *10.92*	13.00	12.95
21	2"	3.30	$ *12.86*	15.27	15.20
22	3"	8.30	$ *12.86*	34.12	33.96
23	4"	16.70		65.80	65.48
24	6"	40.00		153.66	152.90
25	8"	50.00		191.37	190.41
26	10"	66.70		254.34	253.07
27	12"	93.30		354.65	352.87

28	Account Projection	Escalation	FYE 2019	FYE 2022
29	5/8"	Inside City Customer Growth	360,398	362,565
30	3/4"	Inside City Customer Growth	8,626	8,678
31	1"	Inside City Customer Growth	91,354	91,903
32	1 1/2"	Inside City Customer Growth	19,176	19,291
33	2"	Inside City Customer Growth	4,638	4,666
34	3"	Inside City Customer Growth	1,380	1,388
35	4"	Inside City Customer Growth	1,041	1,047
36	6"	Inside City Customer Growth	941	947
37	8"	Inside City Customer Growth	218	219
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2022	
		April 2022	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 28,671,618	$ 28,584,602
42	3/4"	686,245	684,162
43	1"	10,179,201	10,146,116
44	1 1/2"	3,009,441	2,997,866
45	2"	854,977	851,057
46	3"	568,424	565,759
47	4"	826,915	822,894
48	6"	1,745,560	1,736,927
49	8"	503,634	501,107
50	10"	55,268	54,992
51	12"	-	-
52	TCEQ Fee	2,601,759	2,601,759
53	**Total MEU Revenue**	**$ 49,703,041**	**$ 49,547,240**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,340,203
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,947,559
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	410,045
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 36,745,493
8	TCEQ Fee			1,013,013
9	Base			98,169,463
10	Max Day			27,689,927
11	Max Hour			30,375,519
12	**Total SFR Costs to Recover**			**$ 193,993,415**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 6.70
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,767,090
18	Tier 2	6	58%	13,572,521
19	Tier 3	12	15%	3,581,481
20	Tier 4	20	5%	1,217,721
21	Tier 5		5%	1,201,390
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
25	Tier 1 - Monthly usage less than	3	$ 0.16	**$ 1.20**
26	Tier 2	6	$ 7.65	**$ 6.10**
27	Tier 3	12	$ 0.45	**$ 8.65**
28	Tier 4	20	$ 12.56	**$ 11.65**
29	Tier 5		$ 5.29	**$ 15.65**
30	Tier 6		$ 5.29	**$ 15.65**
31	Tier 7		$ 5.74	**$ 15.65**
32	Tier 8		$ 9.46	**$ 15.65**
33	**SFR Revenue Check**			
34	Monthly Fixed Charge			$ 35,502,038
35	TCEQ Fee			1,033,315
36	Tier 1 - Monthly usage less than	3		4,520,507
37	Tier 2	6		82,792,376
38	Tier 3	12		30,979,813
39	Tier 4	20		14,186,450
40	Tier 5			18,801,761
41	Tier 6			-
42	Tier 7			-
43	Tier 8			-
44	**Total SFR Revenue**			**$ 187,816,259**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth	25,661,033	25,815,307
4	MFR Customer Bills Forecast	Inside City Customer Growth	160,443	161,408
5	MFR Customer Connections Forecast	Inside City Customer Growth	570,538	573,968
6	**MFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 2,419,533
8	TCEQ Fee			1,417,982
9	Base			108,579,812
10	Max Day			22,529,225
11	Max Hour			30,702,912
12	**Total MFR Costs to Recover**			**$ 165,649,465**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)			$ 6.27
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65	**$ 5.94**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 2,282,526
18	TCEQ Fee			1,446,400
19	Variable Rate - All Usage			153,342,926
20	**Total MFR Revenue**			**$ 157,071,851**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2022**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,090,759
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	424,443
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	47,945
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 5,737,792
9	TCEQ Fee			118,446
10	Base			109,738,371
11	Max Day			44,474,098
12	Max Hour			38,787,366
13	**Total Commercial/Industrial Costs to Recover**			**$ 198,856,073**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 7.40
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 6.15**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 5,464,398
19	TCEQ Fee			120,820
20	All Usage			160,458,171
21	**Total Commercial/Industrial Revenue**			**$ 166,043,389**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description				Test Year FYE 2022
					April 2022
1	**Transient**				
2	**Transient Units of Service**	**Escalation**		**FYE 2019**	**FYE 2022**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth		382,275	384,573
4	Transient Customer Bills Forecast	Inside City Customer Growth		7,662	7,708
5	**Transient Costs to Recover**				
6	Customer / Capacity / Fire Flow				$ 151,458
7	TCEQ Fees				1,588
8	Base				1,617,524
9	Max Day				2,646,360
10	Max Hour				1,283,208
11	**Total Transient Costs to Recover**				**$ 5,700,138**
12	**Transient Volume Rates (per 1,000 gal)**			**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Transient Fixed Charge (1-inch meter)**			*$ 20.17*	**$ 106.96**
14	**Transient Fixed Charge (2-inch meter)**			*$ 26.90*	**$ 205.00**
15	**Transient Fixed Charge (3-inch meter)**			*$ 33.62*	**$ 511.36**
16	**Calculated Transient Variable Rate (per 1,000 gal)**				$ 10.75
17	**Proposed Transient Variable Rate (per 1,000 gal)**			*$ 5.35*	**$ 10.45**
18	**Transient Revenue Check**				
19	Transient Monthly Fixed Charge				$ 1,569,262
20	All Usage				4,018,790
21	**Total Transient Revenue**				**$ 5,588,052**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,409,002
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,384
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	469
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 817,381
8	TCEQ Fees			1,158
9	Base			10,132,323
10	Max Day			6,033,685
11	Max Hour			4,270,095
12	**Total Irrigation Costs to Recover**			**$ 21,254,643**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 8.49
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 10.45**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 789,229
18	TCEQ Fee			1,181
19	All Usage			25,174,075
20	**Total Irrigation Revenue**			**$ 25,964,485**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Resale**			
2	**Resale Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745	8,798
4	Resale Customer Bills Forecast	Inside City Customer Growth	12	12
5	**Resale Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 794
7	TCEQ Fees			5
8	Base			37,003
9	Max Day			25,670
10	Max Hour			16,893
11	**Total Resale Costs to Recover**			**$ 80,365**

	Resale Volume Rates (per 1,000 gal)	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**	*$ 22.83*	**$ 24.25**
14	**Resale Fixed Charge (1-inch meter)**	*$ 26.47*	**$ 39.27**
15	**Resale Fixed Charge (1 1/2-inch meter)**	*$ 65.31*	**$ 60.71**
16	**Resale Fixed Charge (2-inch meter)**	*$ 99.60*	**$ 73.58**
17	**Resale Fixed Charge (3-inch meter)**	*$ 215.61*	**$ 180.83**
18	**Resale Fixed Charge (4-inch meter)**	*$ 363.21*	**$ 361.00**
19	**Resale Fixed Charge (6-inch meter)**	*$ 744.47*	**$ 860.76**
20	**Resale Fixed Charge (8-inch meter)**	*$ 1,078.45*	**$ 1,075.25**
21	**Calculated Resale Variable Rate (per 1,000 gal)**		$ 8.64
22	**Proposed Resale Variable Rate (per 1,000 gal)**	*$ 5.73*	**$ 10.45**

23	**Resale Revenue Check**		
24	Resale Monthly Fixed Charge		$ 4,358
25	All Usage		91,935
26	**Total Resale Revenue**		**$ 96,293**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Emergency Backup**			
2	**Emergency Backup Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth	11,836	11,907
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth	164	165
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth	17	17
6	**Emergency Backup Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 31,880
8	TCEQ Fees			42
9	Base			50,082
10	Max Day			576,464
11	Max Hour			216,467
12	**Total Emergency Backup Costs to Recover**			**$ 874,935**
13	**EBS Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**			$ 73.48
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**		*$ 8.85*	**$ 10.45**
16	**Emergency Backup Revenue Check**			
17	Monthly Fixed Charge			$ 30,816
18	TCEQ Fee			43
19	All Usage			124,430
20	**Total Emergency Backup Revenue**			**$ 155,289**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	216,735
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,161
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 9,985,418
7	**Total Unmetered Fire Line Costs to Recover**			**$ 9,985,418**
8	**Unmetered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 15.83*	**$ 6.91**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**		*$ 15.83*	**$ 9.78**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 63.05*	**$ 13.89**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**		*$ 93.00*	**$ 16.35**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**		*$ 93.00*	**$ 36.87**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**		*$ 93.00*	**$ 71.35**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**		*$ 103.59*	**$ 167.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**		*$ 176.82*	**$ 208.05**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**		*$ 238.53*	**$ 276.60**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**		*$ 238.53*	**$ 385.79**
19	**Unmetered Fire Line Revenue Check**			
20	All Accounts			$ 10,853,217
21	**Total Unmetered Fire Line Revenue**			**$ 10,853,217**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	12,976
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,368
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 550,115
7	TCEQ Fees			80
8	Base			54,575
9	Max Day			414,132
10	Max Hour			159,390
11	**Total Metered Fire Line Costs to Recover**			**$ 628,098**
12	**Metered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 6.24*	**$ 4.93**
14	**Metered Fire Line Fixed Charge (1-inch meter)**		*$ 7.50*	**$ 6.42**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 11.35*	**$ 8.55**
16	**Metered Fire Line Fixed Charge (2-inch meter)**		*$ 13.36*	**$ 9.83**
17	**Metered Fire Line Fixed Charge (3-inch meter)**		*$ 35.35*	**$ 20.48**
18	**Metered Fire Line Fixed Charge (4-inch meter)**		*$ 48.19*	**$ 38.37**
19	**Metered Fire Line Fixed Charge (6-inch meter)**		*$ 82.59*	**$ 88.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**		*$ 215.64*	**$ 109.30**
21	**Metered Fire Line Fixed Charge (10-inch meter)**		*$ 215.64*	**$ 144.87**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**			$ 24.15
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 10.45**
24	**Metered Fire Line Revenue Check**			
25	Metered Fire Line Monthly Fixed Charge			$ 314,804
26	All Usage			135,594
27	**Total Metered Fire Line Revenue**			**$ 450,398**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		April 2022
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2022**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,470,163
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,779,928
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	2,505,460 / 2,520,523
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 7,771
9	TCEQ Fee	780
10	Base	34,137,294
11	Max Day	14,908,378
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 49,054,223**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2022 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 3.78
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.76
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 3.03
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 1.14
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	$ *3.31* / **$ 3.70**
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	$ *0.82* / **$ 0.90**
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ *2.65* / **$ 2.96**
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	$ *0.99* / **$ 1.11**
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,470,163 / $ 38,739,601
25	Contract Treated with Airgap Excess Usage	1,779,928 / 1,601,935
26	GRP Areas 1 & 2 Usage	36,687 / 108,594
27	GRP Area 3 Usage	8,303,911 / 9,217,341
28	**Total Contract Treated with Airgap Revenue**	**$ 49,667,471**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Contract Treated without Airgap**			
2	**Contract Treated without Airgap Units of Service**	**FYE 2019**		**FYE 2022**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935		1,351,009
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28%		378,282
5	**Contract Treated without Airgap Costs to Recover**			
6	Customer		$	1,863
7	TCEQ Fee			94
8	Base			3,550,219
9	Max Day			867,487
10	Max Hour			362,171
11	**Total Contract Treated without Airgap Costs to Recover**		**$**	**4,781,835**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**		**FYE 2022 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**		$	3.54
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**		$	0.76
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	*$ 4.04*	**$**	**4.20**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0**	*$ 0.82*	**$**	**0.90**
17	**Contract Treated without Airgap Revenue Check**			
18	Contract Treated without Airgap Usage		$	5,674,237
19	Contract Treated without Airgap Excess			340,454
20	**Total Contract Treated without Airgap Revenue**		**$**	**6,014,691**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			April 2022
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2022**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	78,971,731
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 23,157,545
6	**Total Contract Untreated Costs to Recover**		**$ 23,157,545**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2933
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,125,972
12	**Total Contract Untreated Revenue**		**$ 67,125,972**

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description		Test Year FYE 2023	
			April 2023	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2023**
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)			
2	Total Bills	Inside City Customer Growth	5,570,468	5,615,166
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	663,393
4	Total MEUs - Fire	Inside City Customer Growth	658,113	663,393
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,034,509
6	**Fixed Revenue to Recover**			
7	Customer (Billing & Collecting)			$ 15,890,303
8	Capacity (Meter & Supply)			18,594,018
9	Fire Flow			12,655,185
10	TCEQ Fees			2,550,642
11	**Total Fixed Charge Revenue to Recover**			**$ 49,690,148**
12	**Per Bill**			**$ 2.830**
13	**Per MEU per month - Capacity**			**$ 2.336**
14	**Per MEU per month - Fire**			**$ 1.590**
		Total Fixed Charge (5/8")		$ 6.76
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**

16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	$ 5.82	$ 6.76	$ 6.76
18	3/4"	1.00	$ 5.82	6.76	6.76
19	1"	1.70	$ 7.21	9.51	9.52
20	1 1/2"	2.70	$ 10.92	13.43	13.45
21	2"	3.30	$ 12.86	15.79	15.80
22	3"	8.30	$ 12.86	35.42	35.45
23	4"	16.70		68.39	68.47
24	6"	40.00		159.85	160.04
25	8"	50.00		199.11	199.34
26	10"	66.70		264.66	264.97
27	12"	93.30		369.08	369.51

28	Account Projection	Escalation	FYE 2019	FYE 2023
29	5/8"	Inside City Customer Growth	360,398	363,290
30	3/4"	Inside City Customer Growth	8,626	8,695
31	1"	Inside City Customer Growth	91,354	92,087
32	1 1/2"	Inside City Customer Growth	19,176	19,330
33	2"	Inside City Customer Growth	4,638	4,675
34	3"	Inside City Customer Growth	1,380	1,391
35	4"	Inside City Customer Growth	1,041	1,049
36	6"	Inside City Customer Growth	941	949
37	8"	Inside City Customer Growth	218	220
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2023	
		April 2023	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 29,470,072	$ 29,470,072
42	3/4"	705,356	705,356
43	1"	10,508,972	10,520,022
44	1 1/2"	3,115,202	3,119,841
45	2"	885,860	886,421
46	3"	591,262	591,763
47	4"	861,183	862,190
48	6"	1,819,510	1,821,672
49	8"	525,051	525,658
50	10"	57,625	57,693
51	12"	-	-
52	TCEQ Fee	2,606,962	2,606,962
53	**Total MEU Revenue**	**$ 51,147,055**	**$ 51,167,650**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,386,883
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,957,454
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	410,866
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 37,813,332
8	TCEQ Fee			1,013,013
9	Base			102,704,313
10	Max Day			29,483,983
11	Max Hour			32,408,662
12	**Total SFR Costs to Recover**			**$ 203,423,304**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 7.04
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,774,624
18	Tier 2	6	58%	13,599,666
19	Tier 3	12	15%	3,588,644
20	Tier 4	20	5%	1,220,156
21	Tier 5		5%	1,203,793
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates** / **FYE 2023 Rates**
25	Tier 1 - Monthly usage less than	3	$ 0.16 / $ 1.30
26	Tier 2	6	$ 7.65 / $ 6.50
27	Tier 3	12	$ 0.45 / $ 9.10
28	Tier 4	20	$ 12.56 / $ 12.00
29	Tier 5		$ 5.29 / $ 16.00
30	Tier 6		$ 5.29 / $ 16.00
31	Tier 7		$ 5.74 / $ 16.00
32	Tier 8		$ 9.46 / $ 16.00
33	**SFR Revenue Check**		
34	Monthly Fixed Charge		$ 37,642,579
35	TCEQ Fee		1,035,381
36	Tier 1 - Monthly usage less than	3	4,907,011
37	Tier 2	6	88,397,827
38	Tier 3	12	32,656,662
39	Tier 4	20	14,641,878
40	Tier 5		19,260,692
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	**Total SFR Revenue**		**$ 198,542,029**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description				Test Year FYE 2023
					April 2023
1	**Multifamily Residential**				
2	**MFR Units of Service**	**Escalation**		**FYE 2019**	**FYE 2023**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth		25,661,033	25,866,938
4	MFR Customer Bills Forecast	Inside City Customer Growth		160,443	161,730
5	MFR Customer Connections Forecast	Inside City Customer Growth		570,538	575,116
6	**MFR Costs to Recover**				
7	Customer / Capacity / Fire				$ 2,506,939
8	TCEQ Fee				1,417,982
9	Base				113,595,560
10	Max Day				23,988,915
11	Max Hour				32,757,969
12	**Total MFR Costs to Recover**				**$ 174,267,365**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**		**FYE 2023 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)				$ 6.59
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65		$ **6.30**
16	**MFR Revenue Check**				
17	Monthly Fixed Charge				$ 2,459,473
18	TCEQ Fee				1,449,292
19	Variable Rate - All Usage				162,961,709
20	**Total MFR Revenue**				**$ 166,870,475**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2023**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,142,941
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	425,291
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	48,040
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 5,940,738
9	TCEQ Fee			118,446
10	Base			114,807,637
11	Max Day			47,355,617
12	Max Hour			41,383,545
13	**Total Commercial/Industrial Costs to Recover**			**$ 209,605,983**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 7.79
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 6.55**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 5,878,636
19	TCEQ Fee			121,062
20	All Usage			171,236,263
21	**Total Commercial/Industrial Revenue**			**$ 177,235,962**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Transient**			
2	**Transient Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275	385,342
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662	7,723
5	**Transient Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 157,179
7	TCEQ Fees			1,588
8	Base			1,692,245
9	Max Day			2,817,820
10	Max Hour			1,369,097
11	**Total Transient Costs to Recover**			**$ 6,037,929**
12	**Transient Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
13	**Transient Fixed Charge (1-inch meter)**		*$ 20.17*	**$ 114.71**
14	**Transient Fixed Charge (2-inch meter)**		*$ 26.90*	**$ 220.00**
15	**Transient Fixed Charge (3-inch meter)**		*$ 33.62*	**$ 549.05**
16	**Calculated Transient Variable Rate (per 1,000 gal)**			$ 11.29
17	**Proposed Transient Variable Rate (per 1,000 gal)**		*$ 5.35*	**$ 10.72**
18	**Transient Revenue Check**			
19	Transient Monthly Fixed Charge			$ 1,687,457
20	All Usage			4,130,870
21	**Total Transient Revenue**			**$ 5,818,327**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,413,820
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,524
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	470
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 845,261
8	TCEQ Fees			1,158
9	Base			10,600,376
10	Max Day			6,424,613
11	Max Hour			4,555,908
12	**Total Irrigation Costs to Recover**			**$ 22,427,317**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 8.95
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 10.72**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 846,986
18	TCEQ Fee			1,184
19	All Usage			25,876,155
20	**Total Irrigation Revenue**			**$ 26,724,325**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Resale**			
2	**Resale Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745	8,815
4	Resale Customer Bills Forecast	Inside City Customer Growth	12	12
5	**Resale Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 827
7	TCEQ Fees			5
8	Base			38,712
9	Max Day			27,333
10	Max Hour			18,024
11	**Total Resale Costs to Recover**			**$ 84,901**
12	**Resale Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**		*$ 22.83*	**$ 24.34**
14	**Resale Fixed Charge (1-inch meter)**		*$ 26.47*	**$ 39.39**
15	**Resale Fixed Charge (1 1/2-inch meter)**		*$ 65.31*	**$ 60.90**
16	**Resale Fixed Charge (2-inch meter)**		*$ 99.60*	**$ 73.80**
17	**Resale Fixed Charge (3-inch meter)**		*$ 215.61*	**$ 181.34**
18	**Resale Fixed Charge (4-inch meter)**		*$ 363.21*	**$ 362.00**
19	**Resale Fixed Charge (6-inch meter)**		*$ 744.47*	**$ 863.10**
20	**Resale Fixed Charge (8-inch meter)**		*$ 1,078.45*	**$ 1,078.19**
21	**Calculated Resale Variable Rate (per 1,000 gal)**			$ 9.14
22	**Proposed Resale Variable Rate (per 1,000 gal)**		*$ 5.73*	**$ 10.72**
23	**Resale Revenue Check**			
24	Resale Monthly Fixed Charge			$ 4,379
25	All Usage			94,499
26	**Total Resale Revenue**			**$ 98,877**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description				Test Year FYE 2023
					April 2023
1	**Emergency Backup**				
2	**Emergency Backup Units of Service**	**Escalation**		**FYE 2019**	**FYE 2023**
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth		11,836	11,931
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth		164	165
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth		17	17
6	**Emergency Backup Costs to Recover**				
7	Customer / Capacity / Fire Flow				$ 33,236
8	TCEQ Fees				42
9	Base				52,395
10	Max Day				613,813
11	Max Hour				230,956
12	**Total Emergency Backup Costs to Recover**				**$ 930,443**
13	**EBS Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**		**FYE 2023 Rates**
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**				$ 77.99
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**		*$*	*8.85*	**$ 10.72**
16	**Emergency Backup Revenue Check**				
17	Monthly Fixed Charge				$ 33,703
18	TCEQ Fee				43
19	All Usage				127,900
20	**Total Emergency Backup Revenue**				**$ 161,646**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	217,169
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,288
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 10,408,855
7	**Total Unmetered Fire Line Costs to Recover**			**$ 10,408,855**
8	**Unmetered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 15.83*	**$ 6.96**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**		*$ 15.83*	**$ 9.85**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 63.05*	**$ 13.98**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**		*$ 93.00*	**$ 16.46**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**		*$ 93.00*	**$ 37.10**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**		*$ 93.00*	**$ 71.79**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**		*$ 103.59*	**$ 168.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**		*$ 176.82*	**$ 209.29**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**		*$ 238.53*	**$ 278.25**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**		*$ 238.53*	**$ 388.09**
19	**Unmetered Fire Line Revenue Check**			
20	All Accounts			$ 10,940,036
21	**Total Unmetered Fire Line Revenue**			**$ 10,940,036**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	13,001
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,375
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 573,455
7	TCEQ Fees			80
8	Base			57,097
9	Max Day			440,964
10	Max Hour			170,058
11	**Total Metered Fire Line Costs to Recover**			**$ 668,119**

	Metered Fire Volume Rates (per 1,000 gal)	**FYE 2021 Rates**	**FYE 2023 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**	*$ 6.24*	**$ 5.01**
14	**Metered Fire Line Fixed Charge (1-inch meter)**	*$ 7.50*	**$ 6.53**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**	*$ 11.35*	**$ 8.71**
16	**Metered Fire Line Fixed Charge (2-inch meter)**	*$ 13.36*	**$ 10.02**
17	**Metered Fire Line Fixed Charge (3-inch meter)**	*$ 35.35*	**$ 20.92**
18	**Metered Fire Line Fixed Charge (4-inch meter)**	*$ 48.19*	**$ 39.22**
19	**Metered Fire Line Fixed Charge (6-inch meter)**	*$ 82.59*	**$ 90.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**	*$ 215.64*	**$ 111.79**
21	**Metered Fire Line Fixed Charge (10-inch meter)**	*$ 215.64*	**$ 148.19**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**		$ 26.58
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**	*$ 4.77*	**$ 10.72**

24	**Metered Fire Line Revenue Check**		
25	Metered Fire Line Monthly Fixed Charge		$ 322,610
26	All Usage		139,376
27	**Total Metered Fire Line Revenue**		**$ 461,986**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023
		April 2023
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2023**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,491,103
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,783,487
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	4,981,746 / 5,021,720
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 7,909
9	TCEQ Fee	780
10	Base	42,029,880
11	Max Day	15,839,504
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 57,878,074**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2023 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 3.74
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.75
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 3.00
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 2.25
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	$ *3.31* / **$ 3.72**
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	$ *0.82* / **$ 0.92**
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ *2.65* / **$ 2.98**
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	$ *0.99* / **$ 2.23**
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,491,103 / $ 39,026,903
25	Contract Treated with Airgap Excess Usage	1,783,487 / 1,640,808
26	GRP Areas 1 & 2 Usage	36,761 / 109,547
27	GRP Area 3 Usage	8,320,519 / 18,554,757
28	**Total Contract Treated with Airgap Revenue**	**$ 59,332,014**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023
		April 2023
1	**Contract Treated without Airgap**	
2	**Contract Treated without Airgap Units of Service**	**FYE 2019** / **FYE 2023**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935 / 1,353,711
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28% / 379,039
5	**Contract Treated without Airgap Costs to Recover**	
6	Customer	$ 1,912
7	TCEQ Fee	94
8	Base	3,667,695
9	Max Day	921,668
10	Max Hour	384,946
11	**Total Contract Treated without Airgap Costs to Recover**	**$ 4,976,315**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2023 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**	$ 3.68
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**	$ 0.75
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	$ 4.04 / **$ 4.22**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0(**	$ 0.82 / **$ 0.92**
17	**Contract Treated without Airgap Revenue Check**	
18	Contract Treated without Airgap Usage	$ 5,712,659
19	Contract Treated without Airgap Excess	348,716
20	**Total Contract Treated without Airgap Revenue**	**$ 6,061,375**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2023**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,129,675
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 23,273,107
6	**Total Contract Untreated Costs to Recover**		**$ 23,273,107**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2023 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2942
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,260,224
12	**Total Contract Untreated Revenue**		**$ 67,260,224**

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2024	
				April 2024	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2024**	
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)				
2	Total Bills	Inside City Customer Growth	5,570,468	5,626,396	
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	664,720	
4	Total MEUs - Fire	Inside City Customer Growth	658,113	664,720	
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,036,578	
6	**Fixed Revenue to Recover**				
7	Customer (Billing & Collecting)			$ 15,932,837	
8	Capacity (Meter & Supply)			19,252,539	
9	Fire Flow			13,423,833	
10	TCEQ Fees			2,550,642	
11	**Total Fixed Charge Revenue to Recover**			**$ 51,159,851**	
12	**Per Bill**			**$ 2.832**	
13	**Per MEU per month - Capacity**			**$ 2.414**	
14	**Per MEU per month - Fire**			**$ 1.683**	**Proposed**
		Total Fixed Charge (5/8")		$ 6.93	$ 6.93
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**	

16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	$ 5.82	$ 6.93	$ 6.93
18	3/4"	1.00	$ 5.82	6.93	6.93
19	1"	1.70	$ 7.21	9.80	9.80
20	1 1/2"	2.70	$ 10.92	13.90	13.90
21	2"	3.30	$ 12.86	16.36	16.36
22	3"	8.30	$ 12.86	36.84	36.85
23	4"	16.70		71.25	71.28
24	6"	40.00		166.70	166.76
25	8"	50.00		207.66	207.75
26	10"	66.70		276.07	276.19
27	12"	93.30		385.04	385.20

28	Account Projection	Escalation	FYE 2019	FYE 2024
29	5/8"	Inside City Customer Growth	360,398	364,016
30	3/4"	Inside City Customer Growth	8,626	8,713
31	1"	Inside City Customer Growth	91,354	92,271
32	1 1/2"	Inside City Customer Growth	19,176	19,369
33	2"	Inside City Customer Growth	4,638	4,685
34	3"	Inside City Customer Growth	1,380	1,394
35	4"	Inside City Customer Growth	1,041	1,051
36	6"	Inside City Customer Growth	941	950
37	8"	Inside City Customer Growth	218	220
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2024	
		April 2024	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 30,271,606	$ 30,271,606
42	3/4"	724,540	724,540
43	1"	10,851,093	10,851,093
44	1 1/2"	3,230,671	3,230,671
45	2"	919,674	919,674
46	3"	616,196	616,363
47	4"	898,991	899,370
48	6"	1,901,276	1,901,960
49	8"	548,693	548,931
50	10"	60,230	60,256
51	12"	-	-
52	TCEQ Fee	2,612,176	2,612,176
53	**Total MEU Revenue**	**$ 52,635,145**	**$ 52,636,639**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,433,657
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,967,369
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	411,687
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 38,937,125
8	TCEQ Fee			1,013,013
9	Base			109,899,464
10	Max Day			31,585,536
11	Max Hour			34,739,280
12	**Total SFR Costs to Recover**			**$ 216,174,419**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 7.53
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,782,173
18	Tier 2	6	58%	13,626,865
19	Tier 3	12	15%	3,595,822
20	Tier 4	20	5%	1,222,597
21	Tier 5		5%	1,206,201
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates** / **FYE 2024 Rates**
25	Tier 1 - Monthly usage less than	3	*$ 0.16* / **$ 1.50**
26	Tier 2	6	*$ 7.65* / **$ 7.00**
27	Tier 3	12	*$ 0.45* / **$ 9.75**
28	Tier 4	20	*$ 12.56* / **$ 12.80**
29	Tier 5		*$ 5.29* / **$ 16.65**
30	Tier 6		*$ 5.29* / **$ 16.65**
31	Tier 7		*$ 5.74* / **$ 16.65**
32	Tier 8		*$ 9.46* / **$ 16.65**
33	**SFR Revenue Check**		
34	Monthly Fixed Charge		$ 37,707,666
35	TCEQ Fee		1,037,452
36	Tier 1 - Monthly usage less than	3	5,673,259
37	Tier 2	6	95,388,055
38	Tier 3	12	35,059,260
39	Tier 4	20	15,649,239
40	Tier 5		20,083,244
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	**Total SFR Revenue**		**$ 210,598,174**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth	25,661,033	25,918,672
4	MFR Customer Bills Forecast	Inside City Customer Growth	160,443	162,054
5	MFR Customer Connections Forecast	Inside City Customer Growth	570,538	576,266
6	**MFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 2,601,755
8	TCEQ Fee			1,417,982
9	Base			121,553,718
10	Max Day			25,698,792
11	Max Hour			35,113,707
12	**Total MFR Costs to Recover**			**$ 186,385,954**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)			$ 7.04
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65	$ 6.75
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 2,463,304
18	TCEQ Fee			1,452,191
19	Variable Rate - All Usage			174,951,035
20	**Total MFR Revenue**			**$ 178,866,529**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2024**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,195,227
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	426,142
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	48,136
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 6,160,311
9	TCEQ Fee			118,446
10	Base			122,850,709
11	Max Day			50,731,021
12	Max Hour			44,359,577
13	**Total Commercial/Industrial Costs to Recover**			**$ 224,220,065**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 8.32
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 7.15**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 5,887,650
19	TCEQ Fee			121,304
20	All Usage			187,295,872
21	**Total Commercial/Industrial Revenue**			**$ 193,304,826**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description				Test Year FYE 2024
					April 2024
1	**Transient**				
2	**Transient Units of Service**	**Escalation**		**FYE 2019**	**FYE 2024**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth		382,275	386,113
4	Transient Customer Bills Forecast	Inside City Customer Growth		7,662	7,739
5	**Transient Costs to Recover**				
6	Customer / Capacity / Fire Flow				$ 163,417
7	TCEQ Fees				1,588
8	Base				1,810,798
9	Max Day				3,018,668
10	Max Hour				1,467,554
11	**Total Transient Costs to Recover**				**$ 6,462,026**
12	**Transient Volume Rates (per 1,000 gal)**			**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Transient Fixed Charge (1-inch meter)**			*$ 20.17*	**$ 127.59**
14	**Transient Fixed Charge (2-inch meter)**			*$ 26.90*	**$ 245.00**
15	**Transient Fixed Charge (3-inch meter)**			*$ 33.62*	**$ 611.91**
16	**Calculated Transient Variable Rate (per 1,000 gal)**				$ 11.86
17	**Proposed Transient Variable Rate (per 1,000 gal)**			*$ 5.35*	**$ 11.17**
18	**Transient Revenue Check**				
19	Transient Monthly Fixed Charge				$ 1,882,949
20	All Usage				4,312,883
21	**Total Transient Revenue**				**$ 6,195,832**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,418,648
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,665
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	471
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 875,284
8	TCEQ Fees			1,158
9	Base			11,343,006
10	Max Day			6,882,546
11	Max Hour			4,883,539
12	**Total Irrigation Costs to Recover**			**$ 23,985,533**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 9.56
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 11.17**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 848,145
18	TCEQ Fee			1,186
19	All Usage			27,016,299
20	**Total Irrigation Revenue**			**$ 27,865,630**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Resale**			
2	**Resale Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745	8,833
4	Resale Customer Bills Forecast	Inside City Customer Growth	12	12
5	**Resale Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 864
7	TCEQ Fees			5
8	Base			41,424
9	Max Day			29,281
10	Max Hour			19,320
11	**Total Resale Costs to Recover**			**$ 90,894**
12	**Resale Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**		*$ 22.83*	**$ 24.40**
14	**Resale Fixed Charge (1-inch meter)**		*$ 26.47*	**$ 39.50**
15	**Resale Fixed Charge (1 1/2-inch meter)**		*$ 65.31*	**$ 61.06**
16	**Resale Fixed Charge (2-inch meter)**		*$ 99.60*	**$ 74.00**
17	**Resale Fixed Charge (3-inch meter)**		*$ 215.61*	**$ 181.84**
18	**Resale Fixed Charge (4-inch meter)**		*$ 363.21*	**$ 363.00**
19	**Resale Fixed Charge (6-inch meter)**		*$ 744.47*	**$ 865.50**
20	**Resale Fixed Charge (8-inch meter)**		*$ 1,078.45*	**$ 1,081.16**
21	**Calculated Resale Variable Rate (per 1,000 gal)**			$ 9.80
22	**Proposed Resale Variable Rate (per 1,000 gal)**		*$ 5.73*	**$ 11.17**
23	**Resale Revenue Check**			
24	Resale Monthly Fixed Charge			$ 4,400
25	All Usage			98,662
26	**Total Resale Revenue**			**$ 103,062**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
		April 2024
1	**Emergency Backup**	

	Emergency Backup Units of Service	Escalation	FYE 2019	FYE 2024
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth	11,836	11,955
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth	164	166
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth	17	17

	Emergency Backup Costs to Recover		
7	Customer / Capacity / Fire Flow	$	34,734
8	TCEQ Fees		42
9	Base		56,066
10	Max Day		657,564
11	Max Hour		247,565
12	**Total Emergency Backup Costs to Recover**	**$**	**995,971**

	EBS Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2024 Rates
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**		$ 83.32
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**	*$ 8.85*	**$ 11.17**

	Emergency Backup Revenue Check		
17	Monthly Fixed Charge	$	33,755
18	TCEQ Fee		43
19	All Usage		133,536
20	**Total Emergency Backup Revenue**	**$**	**167,334**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	217,603
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,414
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 10,876,533
7	**Total Unmetered Fire Line Costs to Recover**			**$ 10,876,533**
8	**Unmetered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 15.83*	**$ 7.01**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**		*$ 15.83*	**$ 9.94**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 63.05*	**$ 14.12**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**		*$ 93.00*	**$ 16.62**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**		*$ 93.00*	**$ 37.52**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**		*$ 93.00*	**$ 72.62**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**		*$ 103.59*	**$ 170.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**		*$ 176.82*	**$ 211.79**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**		*$ 238.53*	**$ 281.58**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**		*$ 238.53*	**$ 392.75**
19	**Unmetered Fire Line Revenue Check**			
20	All Accounts			$ 11,092,474
21	**Total Unmetered Fire Line Revenue**			**$ 11,092,474**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	13,027
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,382
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 599,234
7	TCEQ Fees			80
8	Base			61,097
9	Max Day			472,395
10	Max Hour			182,288
11	**Total Metered Fire Line Costs to Recover**			**$ 715,780**
12	**Metered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 6.24*	**$ 5.06**
14	**Metered Fire Line Fixed Charge (1-inch meter)**		*$ 7.50*	**$ 6.62**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 11.35*	**$ 8.85**
16	**Metered Fire Line Fixed Charge (2-inch meter)**		*$ 13.36*	**$ 10.19**
17	**Metered Fire Line Fixed Charge (3-inch meter)**		*$ 35.35*	**$ 21.33**
18	**Metered Fire Line Fixed Charge (4-inch meter)**		*$ 48.19*	**$ 40.06**
19	**Metered Fire Line Fixed Charge (6-inch meter)**		*$ 82.59*	**$ 92.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**		*$ 215.64*	**$ 114.29**
21	**Metered Fire Line Fixed Charge (10-inch meter)**		*$ 215.64*	**$ 151.52**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**			$ 29.58
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 11.17**
24	**Metered Fire Line Revenue Check**			
25	Metered Fire Line Monthly Fixed Charge			$ 330,451
26	All Usage			145,517
27	**Total Metered Fire Line Revenue**			**$ 475,969**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
		April 2024
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2024**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,512,085
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,787,054
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	4,981,746 / 5,031,763
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 8,040
9	TCEQ Fee	780
10	Base	44,895,682
11	Max Day	16,947,816
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 61,852,319**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2024 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 3.98
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.80
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 3.19
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 2.39
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	$ 3.31 / $ **3.83**
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	$ 0.82 / $ **1.00**
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 2.65 / $ **3.06**
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	$ 0.99 / $ **2.30**
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,512,085 / $ 40,261,286
25	Contract Treated with Airgap Excess Usage	1,787,054 / 1,787,054
26	GRP Areas 1 & 2 Usage	36,834 / 112,712
27	GRP Area 3 Usage	8,337,160 / 19,175,467
28	**Total Contract Treated with Airgap Revenue**	**$ 61,336,520**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
1	**Contract Treated without Airgap**		
2	**Contract Treated without Airgap Units of Service**	**FYE 2019**	**FYE 2024**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935	1,356,418
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28%	379,797
5	**Contract Treated without Airgap Costs to Recover**		
6	Customer		$ 1,963
7	TCEQ Fee		94
8	Base		3,917,776
9	Max Day		986,158
10	Max Hour		410,948
11	**Total Contract Treated without Airgap Costs to Recover**		**$ 5,316,940**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**		$ 3.92
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**		$ 0.80
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	*$ 4.04*	**$ 4.25**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0**	*$ 0.82*	**$ 1.00**
17	**Contract Treated without Airgap Revenue Check**		
18	Contract Treated without Airgap Usage		$ 5,764,777
19	Contract Treated without Airgap Excess		379,797
20	**Total Contract Treated without Airgap Revenue**		**$ 6,144,574**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2024**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,287,934
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 23,341,035
6	**Total Contract Untreated Costs to Recover**		**$ 23,341,035**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2024 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2944
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,394,744
12	**Total Contract Untreated Revenue**		**$ 67,394,744**

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2025	
				April 2025	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2025**	
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)				
2	Total Bills	Inside City Customer Growth	5,570,468	5,637,649	
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	666,049	
4	Total MEUs - Fire	Inside City Customer Growth	658,113	666,049	
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,038,651	
6	**Fixed Revenue to Recover**				
7	Customer (Billing & Collecting)			$ 15,827,326	
8	Capacity (Meter & Supply)			19,822,294	
9	Fire Flow			14,175,792	
10	TCEQ Fees			2,550,642	
11	**Total Fixed Charge Revenue to Recover**			**$ 52,376,054**	
12	**Per Bill**			**$ 2.807**	
13	**Per MEU per month - Capacity**			**$ 2.480**	
14	**Per MEU per month - Fire**			**$ 1.774**	**Proposed**
		Total Fixed Charge (5/8")		$ 7.07	$ 7.07
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**	

16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	$ 5.82	$ 7.07	$ 7.07
18	3/4"	1.00	$ 5.82	7.07	7.07
19	1"	1.70	$ 7.21	10.04	10.06
20	1 1/2"	2.70	$ 10.92	14.30	14.32
21	2"	3.30	$ 12.86	16.85	16.88
22	3"	8.30	$ 12.86	38.12	38.19
23	4"	16.70		73.85	74.00
24	6"	40.00		172.96	173.32
25	8"	50.00		215.50	215.94
26	10"	66.70		286.53	287.13
27	12"	93.30		399.68	400.51

28	Account Projection	Escalation	FYE 2019	FYE 2025
29	5/8"	Inside City Customer Growth	360,398	364,744
30	3/4"	Inside City Customer Growth	8,626	8,730
31	1"	Inside City Customer Growth	91,354	92,456
32	1 1/2"	Inside City Customer Growth	19,176	19,407
33	2"	Inside City Customer Growth	4,638	4,694
34	3"	Inside City Customer Growth	1,380	1,397
35	4"	Inside City Customer Growth	1,041	1,054
36	6"	Inside City Customer Growth	941	952
37	8"	Inside City Customer Growth	218	221
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2025	
		April 2025	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 30,944,920	$ 30,944,920
42	3/4"	740,656	740,656
43	1"	11,139,068	11,161,257
44	1 1/2"	3,330,287	3,334,945
45	2"	949,114	950,803
46	3"	638,880	640,054
47	4"	933,660	935,557
48	6"	1,976,619	1,980,733
49	8"	570,547	571,712
50	10"	62,637	62,768
51	12"	-	-
52	TCEQ Fee	2,617,401	2,617,401
53	**Total MEU Revenue**	**$ 53,903,788**	**$ 53,940,804**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,480,524
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,977,304
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	412,511
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 39,849,951
8	TCEQ Fee			1,013,013
9	Base			116,896,357
10	Max Day			33,631,860
11	Max Hour			37,077,443
12	**Total SFR Costs to Recover**			**$ 228,468,625**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 7.99
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,789,737
18	Tier 2	6	58%	13,654,119
19	Tier 3	12	15%	3,603,013
20	Tier 4	20	5%	1,225,042
21	Tier 5		5%	1,208,613
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates** / **FYE 2025 Rates**
25	Tier 1 - Monthly usage less than	3	$ 0.16 / $ 1.65
26	Tier 2	6	$ 7.65 / $ 7.50
27	Tier 3	12	$ 0.45 / $ 10.30
28	Tier 4	20	$ 12.56 / $ 13.30
29	Tier 5		$ 5.29 / $ 17.00
30	Tier 6		$ 5.29 / $ 17.00
31	Tier 7		$ 5.74 / $ 17.00
32	Tier 8		$ 9.46 / $ 17.00
33	**SFR Revenue Check**		
34	Monthly Fixed Charge		$ 38,616,545
35	TCEQ Fee		1,039,527
36	Tier 1 - Monthly usage less than	3	6,253,067
37	Tier 2	6	102,405,890
38	Tier 3	12	37,111,036
39	Tier 4	20	16,293,058
40	Tier 5		20,546,425
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	**Total SFR Revenue**		**$ 222,265,547**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth	25,661,033	25,970,509
4	MFR Customer Bills Forecast	Inside City Customer Growth	160,443	162,378
5	MFR Customer Connections Forecast	Inside City Customer Growth	570,538	577,419
6	**MFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 2,685,392
8	TCEQ Fee			1,417,982
9	Base			129,292,594
10	Max Day			27,363,733
11	Max Hour			37,477,071
12	**Total MFR Costs to Recover**			**$ 198,236,772**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)			$ 7.48
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65	$ 7.22
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 2,544,924
18	TCEQ Fee			1,455,095
19	Variable Rate - All Usage			187,507,076
20	**Total MFR Revenue**			**$ 191,507,096**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2025**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,247,617
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	426,994
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	48,233
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 6,352,684
9	TCEQ Fee			118,446
10	Base			130,672,160
11	Max Day			54,017,718
12	Max Hour			47,345,244
13	**Total Commercial/Industrial Costs to Recover**			**$ 238,506,254**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 8.85
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 7.72**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 6,077,543
19	TCEQ Fee			121,547
20	All Usage			202,631,606
21	**Total Commercial/Industrial Revenue**			**$ 208,830,695**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Transient**			
2	**Transient Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275	386,885
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662	7,754
5	**Transient Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 168,996
7	TCEQ Fees			1,588
8	Base			1,926,085
9	Max Day			3,214,238
10	Max Hour			1,566,329
11	**Total Transient Costs to Recover**			**$ 6,877,236**
12	**Transient Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Transient Fixed Charge (1-inch meter)**		*$ 20.17*	**$ 135.30**
14	**Transient Fixed Charge (2-inch meter)**		*$ 26.90*	**$ 260.00**
15	**Transient Fixed Charge (3-inch meter)**		*$ 33.62*	**$ 649.69**
16	**Calculated Transient Variable Rate (per 1,000 gal)**			$ 12.61
17	**Proposed Transient Variable Rate (per 1,000 gal)**		*$ 5.35*	**$ 11.61**
18	**Transient Revenue Check**			
19	Transient Monthly Fixed Charge			$ 2,002,216
20	All Usage			4,491,738
21	**Total Transient Revenue**			**$ 6,493,955**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,423,485
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,807
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	472
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 901,268
8	TCEQ Fees			1,158
9	Base			12,065,174
10	Max Day			7,328,443
11	Max Hour			5,212,231
12	**Total Irrigation Costs to Recover**			**$ 25,508,274**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 10.16
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 11.61**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 874,307
18	TCEQ Fee			1,188
19	All Usage			28,136,665
20	**Total Irrigation Revenue**			**$ 29,012,161**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Resale**			
2	**Resale Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745	8,850
4	Resale Customer Bills Forecast	Inside City Customer Growth	12	12
5	**Resale Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 897
7	TCEQ Fees			5
8	Base			44,062
9	Max Day			31,178
10	Max Hour			20,620
11	**Total Resale Costs to Recover**			**$ 96,762**
12	**Resale Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**		*$ 22.83*	**$ 24.43**
14	**Resale Fixed Charge (1-inch meter)**		*$ 26.47*	**$ 39.57**
15	**Resale Fixed Charge (1 1/2-inch meter)**		*$ 65.31*	**$ 61.19**
16	**Resale Fixed Charge (2-inch meter)**		*$ 99.60*	**$ 74.17**
17	**Resale Fixed Charge (3-inch meter)**		*$ 215.61*	**$ 182.32**
18	**Resale Fixed Charge (4-inch meter)**		*$ 363.21*	**$ 364.00**
19	**Resale Fixed Charge (6-inch meter)**		*$ 744.47*	**$ 867.95**
20	**Resale Fixed Charge (8-inch meter)**		*$ 1,078.45*	**$ 1,084.24**
21	**Calculated Resale Variable Rate (per 1,000 gal)**			$ 10.44
22	**Proposed Resale Variable Rate (per 1,000 gal)**		*$ 5.73*	**$ 11.61**
23	**Resale Revenue Check**			
24	Resale Monthly Fixed Charge			$ 4,421
25	All Usage			102,754
26	**Total Resale Revenue**			**$ 107,175**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Emergency Backup**			
2	**Emergency Backup Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth	11,836	11,979
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth	164	166
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth	17	17
6	**Emergency Backup Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 36,117
8	TCEQ Fees			42
9	Base			59,635
10	Max Day			700,166
11	Max Hour			264,227
12	**Total Emergency Backup Costs to Recover**			**$ 1,060,187**
13	**EBS Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**			$ 88.51
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**		*$ 8.85*	**$ 11.61**
16	**Emergency Backup Revenue Check**			
17	Monthly Fixed Charge			$ 35,156
18	TCEQ Fee			43
19	All Usage			139,073
20	**Total Emergency Backup Revenue**			**$ 174,273**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	218,038
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,541
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 11,308,021
7	**Total Unmetered Fire Line Costs to Recover**			**$ 11,308,021**

	Unmetered Fire Volume Rates (per 1,000 gal)	**FYE 2021 Rates**	**FYE 2025 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**	*$ 15.83*	**$ 7.05**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**	*$ 15.83*	**$ 10.03**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**	*$ 63.05*	**$ 14.29**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**	*$ 93.00*	**$ 16.84**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**	*$ 93.00*	**$ 38.11**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**	*$ 93.00*	**$ 73.86**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**	*$ 103.59*	**$ 173.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**	*$ 176.82*	**$ 215.55**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**	*$ 238.53*	**$ 286.61**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**	*$ 238.53*	**$ 399.80**

19	**Unmetered Fire Line Revenue Check**		
20	All Accounts		$ 11,310,961
21	**Total Unmetered Fire Line Revenue**		**$ 11,310,961**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	13,054
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,388
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 623,022
7	TCEQ Fees			80
8	Base			64,986
9	Max Day			503,000
10	Max Hour			194,557
11	**Total Metered Fire Line Costs to Recover**			**$ 762,543**
12	**Metered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 6.24*	**$ 5.15**
14	**Metered Fire Line Fixed Charge (1-inch meter)**		*$ 7.50*	**$ 6.80**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 11.35*	**$ 9.16**
16	**Metered Fire Line Fixed Charge (2-inch meter)**		*$ 13.36*	**$ 10.57**
17	**Metered Fire Line Fixed Charge (3-inch meter)**		*$ 35.35*	**$ 22.34**
18	**Metered Fire Line Fixed Charge (4-inch meter)**		*$ 48.19*	**$ 42.13**
19	**Metered Fire Line Fixed Charge (6-inch meter)**		*$ 82.59*	**$ 97.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**		*$ 215.64*	**$ 120.55**
21	**Metered Fire Line Fixed Charge (10-inch meter)**		*$ 215.64*	**$ 159.88**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**			$ 31.67
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 11.61**
24	**Metered Fire Line Revenue Check**			
25	Metered Fire Line Monthly Fixed Charge			$ 349,148
26	All Usage			151,552
27	**Total Metered Fire Line Revenue**			**$ 500,700**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025
		April 2025
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2025**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,533,109
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,790,629
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	4,981,746 / 5,041,827
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 8,113
9	TCEQ Fee	780
10	Base	47,619,704
11	Max Day	18,000,317
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 65,628,914**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2025 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 4.22
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.85
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 3.38
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 2.54
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	$ 3.31 / $ 4.00
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	$ 0.82 / $ 1.05
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 2.65 / $ 3.20
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	$ 0.99 / $ 2.40
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,533,109 / $ 42,132,437
25	Contract Treated with Airgap Excess Usage	1,790,629 / 1,880,160
26	GRP Areas 1 & 2 Usage	36,908 / 118,105
27	GRP Area 3 Usage	8,353,834 / 20,049,202
28	**Total Contract Treated with Airgap Revenue**	**$ 64,179,904**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
1	**Contract Treated without Airgap**		
2	**Contract Treated without Airgap Units of Service**	**FYE 2019**	**FYE 2025**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935	1,359,131
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28%	380,557
5	**Contract Treated without Airgap Costs to Recover**		
6	Customer		$ 2,002
7	TCEQ Fee		94
8	Base		4,155,485
9	Max Day		1,047,401
10	Max Hour		436,807
11	**Total Contract Treated without Airgap Costs to Recover**		**$ 5,641,790**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**		$ 4.16
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**		$ 0.85
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	*$ 4.04*	**$ 4.45**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0**	*$ 0.82*	**$ 1.05**
17	**Contract Treated without Airgap Revenue Check**		
18	Contract Treated without Airgap Usage		$ 6,048,133
19	Contract Treated without Airgap Excess		399,585
20	**Total Contract Treated without Airgap Revenue**		**$ 6,447,718**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2025**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,446,510
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 23,185,945
6	**Total Contract Untreated Costs to Recover**		**$ 23,185,945**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2025 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2919
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,529,534
12	**Total Contract Untreated Revenue**		**$ 67,529,534**

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2026	
				April 2026	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2026**	
	(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)				
2	Total Bills	Inside City Customer Growth	5,570,468	5,648,924	
3	Total MEUs - Capacity	Inside City Customer Growth	658,113	667,382	
4	Total MEUs - Fire	Inside City Customer Growth	658,113	667,382	
5	Total Connections - TCEQ Fee	Inside City Customer Growth	1,026,274	1,040,728	
6	**Fixed Revenue to Recover**				
7	Customer (Billing & Collecting)			$ 15,922,729	
8	Capacity (Meter & Supply)			20,412,474	
9	Fire Flow			14,830,185	
10	TCEQ Fees			2,550,642	
11	**Total Fixed Charge Revenue to Recover**			**$ 53,716,030**	
12	**Per Bill**			**$ 2.819**	
13	**Per MEU per month - Capacity**			**$ 2.549**	
14	**Per MEU per month - Fire**			**$ 1.852**	**Proposed**
		Total Fixed Charge (5/8")		$ 7.22	$ 7.10
15	**Per Connection per month - TCEQ Fees**			**$ 0.21**	

	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
16					
17	5/8"	1.00	$ *5.82*	$ 7.22	$ 7.10
18	3/4"	1.00	$ *5.82*	7.22	7.10
19	1"	1.70	$ *7.21*	10.30	10.10
20	1 1/2"	2.70	$ *10.92*	14.71	14.38
21	2"	3.30	$ *12.86*	17.35	16.95
22	3"	8.30	$ *12.86*	39.35	38.36
23	4"	16.70		76.31	74.32
24	6"	40.00		178.85	174.07
25	8"	50.00		222.85	216.89
26	10"	66.70		296.34	288.39
27	12"	93.30		413.40	402.27

	Account Projection	Escalation	FYE 2019	FYE 2026
28				
29	5/8"	Inside City Customer Growth	360,398	365,474
30	3/4"	Inside City Customer Growth	8,626	8,747
31	1"	Inside City Customer Growth	91,354	92,641
32	1 1/2"	Inside City Customer Growth	19,176	19,446
33	2"	Inside City Customer Growth	4,638	4,703
34	3"	Inside City Customer Growth	1,380	1,399
35	4"	Inside City Customer Growth	1,041	1,056
36	6"	Inside City Customer Growth	941	954
37	8"	Inside City Customer Growth	218	221
38	10"	Inside City Customer Growth	18	18
39	12"	Inside City Customer Growth	-	-

Houston Combined Utility System

Water Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2026	
		April 2026	
40	**MEU Revenue**	**Calculated**	**Proposed**
41	5/8"	$ 31,664,663	$ 31,138,380
42	3/4"	757,883	745,286
43	1"	11,450,385	11,228,047
44	1 1/2"	3,432,622	3,355,616
45	2"	979,232	956,656
46	3"	660,814	644,189
47	4"	966,691	941,481
48	6"	2,048,018	1,993,282
49	8"	591,186	575,375
50	10"	64,911	63,170
51	12"	-	-
52	TCEQ Fee	2,622,635	2,622,635
53	**Total MEU Revenue**	**$ 55,239,040**	**$ 54,264,118**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	SFR Customer Usage (kgal) Forecast	Inside City Customer Growth	23,200,720	23,527,485
4	SFR Customer Bills Forecast	Inside City Customer Growth	4,917,992	4,987,258
5	SFR Customer Connections Forecast	Inside City Customer Growth	407,595	413,336
6	**SFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 40,881,444
8	TCEQ Fee			1,013,013
9	Base			123,326,016
10	Max Day			35,512,086
11	Max Hour			39,037,968
12	**Total SFR Costs to Recover**			**$ 239,770,527**
13	**Calculated SFR Uniform Variable Rate (per 1,000 gal)**			$ 8.42
14	**Conservation Credit?**	Yes		
15	**SFR Tier Allocation**			
16	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
17	Tier 1 - Conservation Credit	3	16%	3,797,317
18	Tier 2	6	58%	13,681,427
19	Tier 3	12	15%	3,610,219
20	Tier 4	20	5%	1,227,492
21	Tier 5		5%	1,211,030
22	Tier 4		0%	-
23	Tier 5		0%	-
			0%	-

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
24	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates** / **FYE 2026 Rates**
25	Tier 1 - Monthly usage less than	3	$ 0.16 / $ 1.75
26	Tier 2	6	$ 7.65 / $ 8.00
27	Tier 3	12	$ 0.45 / $ 11.00
28	Tier 4	20	$ 12.56 / $ 14.00
29	Tier 5		$ 5.29 / $ 17.50
30	Tier 6		$ 5.29 / $ 17.50
31	Tier 7		$ 5.74 / $ 17.50
32	Tier 8		$ 9.46 / $ 17.50
33	**SFR Revenue Check**		
34	Monthly Fixed Charge		$ 38,855,352
35	TCEQ Fee		1,041,606
36	Tier 1 - Monthly usage less than	3	6,645,304
37	Tier 2	6	109,451,416
38	Tier 3	12	39,712,411
39	Tier 4	20	17,184,889
40	Tier 5		21,193,033
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	**Total SFR Revenue**		**$ 234,084,011**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	MFR Customer Usage (kgal) Forecast	Inside City Customer Growth	25,661,033	26,022,450
4	MFR Customer Bills Forecast	Inside City Customer Growth	160,443	162,703
5	MFR Customer Connections Forecast	Inside City Customer Growth	570,538	578,574
6	**MFR Costs to Recover**			
7	Customer / Capacity / Fire			$ 2,769,756
8	TCEQ Fee			1,417,982
9	Base			136,404,084
10	Max Day			28,893,532
11	Max Hour			39,458,727
12	**Total MFR Costs to Recover**			**$ 208,944,081**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
14	Calculated MFR Variable Rate (per 1,000 gal)			$ 7.87
15	Proposed MFR Variable Rate (per 1,000 gal)		$ 4.65	$ 7.64
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 2,560,894
18	TCEQ Fee			1,458,006
19	Variable Rate - All Usage			198,811,519
20	**Total MFR Revenue**			**$ 202,830,419**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Commercial/Industrial**			
2	*(includes Government, Extra Container)*			
3	**Commercial/Industrial Units of Servic**	**Escalation**	**FYE 2019**	**FYE 2026**
4	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839	26,300,113
5	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906	427,848
6	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658	48,329
7	**Commercial/Industrial Costs to Recover**			
8	Customer / Capacity / Fire			$ 6,548,581
9	TCEQ Fee			118,446
10	Base			137,859,530
11	Max Day			57,037,638
12	Max Hour			49,848,694
13	**Total Commercial/Industrial Costs to Recover**			**$ 251,412,889**
14	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
15	**Calculated Com/Ind Variable Rate (per 1,000 gal)**			$ 9.31
16	**Proposed Com/Ind Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 8.24**
17	**Commercial/Industrial Revenue Check**			
18	Monthly Fixed Charge			$ 6,115,515
19	TCEQ Fee			121,790
20	All Usage			216,712,927
21	**Total Commercial/Industrial Revenue**			**$ 222,950,232**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Transient**			
2	**Transient Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275	387,659
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662	7,770
5	**Transient Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 174,517
7	TCEQ Fees			1,588
8	Base			2,032,025
9	Max Day			3,393,933
10	Max Hour			1,649,151
11	**Total Transient Costs to Recover**			**$ 7,251,214**
12	**Transient Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
13	**Transient Fixed Charge (1-inch meter)**		*$ 20.17*	**$ 148.14**
14	**Transient Fixed Charge (2-inch meter)**		*$ 26.90*	**$ 285.00**
15	**Transient Fixed Charge (3-inch meter)**		*$ 33.62*	**$ 712.68**
16	**Calculated Transient Variable Rate (per 1,000 gal)**			$ 13.04
17	**Proposed Transient Variable Rate (per 1,000 gal)**		*$ 5.35*	**$ 12.00**
18	**Transient Revenue Check**			
19	Transient Monthly Fixed Charge			$ 2,199,104
20	All Usage			4,651,909
21	**Total Transient Revenue**			**$ 6,851,013**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Irrigation**			
2	**Irrigation Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606	2,428,332
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963	70,948
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466	473
6	**Irrigation Costs to Recover**			
7	Customer / Capacity / Fire Flow			$ 928,182
8	TCEQ Fees			1,158
9	Base			12,728,795
10	Max Day			7,738,148
11	Max Hour			5,487,835
12	**Total Irrigation Costs to Recover**			**$ 26,884,119**
13	**Irrigation Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
14	**Calculated Irrigation Variable Rate (per 1,000 gal)**			$ 10.69
15	**Proposed Irrigation Variable Rate (per 1,000 gal)**		*$ 8.06*	**$ 12.00**
16	**Irrigation Revenue Check**			
17	Monthly Fixed Charge			$ 879,676
18	TCEQ Fee			1,191
19	All Usage			29,139,988
20	**Total Irrigation Revenue**			**$ 30,020,854**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
		April 2026
1	**Resale**	
2	**Resale Units of Service**	**Escalation** / **FYE 2019** / **FYE 2026**
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth: 8,745 → 8,868
4	Resale Customer Bills Forecast	Inside City Customer Growth: 12 → 12
5	**Resale Costs to Recover**	
6	Customer / Capacity / Fire Flow	$ 929
7	TCEQ Fees	5
8	Base	46,485
9	Max Day	32,921
10	Max Hour	21,711
11	**Total Resale Costs to Recover**	**$ 102,050**

Line No.	Resale Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2026 Rates
12			
13	**Resale Fixed Charge (5/8- or 3/4-inch meter)**	*$ 22.83*	**$ 24.43**
14	**Resale Fixed Charge (1-inch meter)**	*$ 26.47*	**$ 39.61**
15	**Resale Fixed Charge (1 1/2-inch meter)**	*$ 65.31*	**$ 61.30**
16	**Resale Fixed Charge (2-inch meter)**	*$ 99.60*	**$ 74.32**
17	**Resale Fixed Charge (3-inch meter)**	*$ 215.61*	**$ 182.78**
18	**Resale Fixed Charge (4-inch meter)**	*$ 363.21*	**$ 365.00**
19	**Resale Fixed Charge (6-inch meter)**	*$ 744.47*	**$ 870.44**
20	**Resale Fixed Charge (8-inch meter)**	*$ 1,078.45*	**$ 1,087.37**
21	**Calculated Resale Variable Rate (per 1,000 gal)**		$ 11.01
22	**Proposed Resale Variable Rate (per 1,000 gal)**	*$ 5.73*	**$ 12.00**

Line No.	Resale Revenue Check	
23		
24	Resale Monthly Fixed Charge	$ 4,442
25	All Usage	106,418
26	**Total Resale Revenue**	**$ 110,860**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
		April 2026
1	**Emergency Backup**	

	Emergency Backup Units of Service	Escalation	FYE 2019	FYE 2026
3	Emergency Backup Customer Usage (kgal) Forecast	Inside City Customer Growth	11,836	12,003
4	Emergency Backup Customer Bills Forecast	Inside City Customer Growth	164	166
5	Emergency Backup Customer Connections Forecast	Inside City Customer Growth	17	17

	Emergency Backup Costs to Recover		
7	Customer / Capacity / Fire Flow	$	37,424
8	TCEQ Fees		42
9	Base		62,916
10	Max Day		739,309
11	Max Hour		278,199
12	**Total Emergency Backup Costs to Recover**	**$**	**1,117,890**

	EBS Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2026 Rates
14	**Calculated Emergency Backup Variable Rate (per 1,000 gal)**		$ 93.14
15	**Proposed Emergency Backup Variable Rate (per 1,000 gal)**	*$ 8.85*	**$ 12.00**

	Emergency Backup Revenue Check		
17	Monthly Fixed Charge	$	35,381
18	TCEQ Fee		43
19	All Usage		144,032
20	**Total Emergency Backup Revenue**	**$**	**179,456**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Unmetered Fire Line**			
2	**Unmetered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440	218,474
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784	63,668
5	**Unmetered Fire Line Costs to Recover**			
6	Customer			$ 11,716,521
7	**Total Unmetered Fire Line Costs to Recover**			**$ 11,716,521**
8	**Unmetered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
9	**Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 15.83*	**$ 7.05**
10	**Unmetered Fire Line Fixed Charge (1-inch meter)**		*$ 15.83*	**$ 10.05**
11	**Unmetered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 63.05*	**$ 14.36**
12	**Unmetered Fire Line Fixed Charge (2-inch meter)**		*$ 93.00*	**$ 16.94**
13	**Unmetered Fire Line Fixed Charge (3-inch meter)**		*$ 93.00*	**$ 38.48**
14	**Unmetered Fire Line Fixed Charge (4-inch meter)**		*$ 93.00*	**$ 74.65**
15	**Unmetered Fire Line Fixed Charge (6-inch meter)**		*$ 103.59*	**$ 175.00**
16	**Unmetered Fire Line Fixed Charge (8-inch meter)**		*$ 176.82*	**$ 218.07**
17	**Unmetered Fire Line Fixed Charge (10-inch meter)**		*$ 238.53*	**$ 289.99**
18	**Unmetered Fire Line Fixed Charge (12-inch meter)**		*$ 238.53*	**$ 404.55**
19	**Unmetered Fire Line Revenue Check**			
20	All Accounts			$ 11,464,832
21	**Total Unmetered Fire Line Revenue**			**$ 11,464,832**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Metered Fire Line**			
2	**Metered Fire Line Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Metered Fire Line Customer Usage (kgal) Forecast	Inside City Customer Growth	12,898	13,080
4	Metered Fire Line Customer Bills Forecast	Inside City Customer Growth	3,348	3,395
5	**Metered Fire Line Costs to Recover**			
6	Customer / Capacity / Fire Flow			$ 645,538
7	TCEQ Fees			80
8	Base			68,561
9	Max Day			531,121
10	Max Hour			204,844
11	**Total Metered Fire Line Costs to Recover**			**$ 804,526**
12	**Metered Fire Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
13	**Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)**		*$ 6.24*	**$ 5.16**
14	**Metered Fire Line Fixed Charge (1-inch meter)**		*$ 7.50*	**$ 6.87**
15	**Metered Fire Line Fixed Charge (1 1/2-inch meter)**		*$ 11.35*	**$ 9.30**
16	**Metered Fire Line Fixed Charge (2-inch meter)**		*$ 13.36*	**$ 10.76**
17	**Metered Fire Line Fixed Charge (3-inch meter)**		*$ 35.35*	**$ 22.92**
18	**Metered Fire Line Fixed Charge (4-inch meter)**		*$ 48.19*	**$ 43.34**
19	**Metered Fire Line Fixed Charge (6-inch meter)**		*$ 82.59*	**$ 100.00**
20	**Metered Fire Line Fixed Charge (8-inch meter)**		*$ 215.64*	**$ 124.32**
21	**Metered Fire Line Fixed Charge (10-inch meter)**		*$ 215.64*	**$ 164.93**
22	**Calculated Metered Fire Line Variable Rate (per 1,000 gal)**			$ 33.94
23	**Proposed Metered Fire Line Variable Rate (per 1,000 gal)**		*$ 4.77*	**$ 12.00**
24	**Metered Fire Line Revenue Check**			
25	Metered Fire Line Monthly Fixed Charge			$ 360,706
26	All Usage			156,956
27	**Total Metered Fire Line Revenue**			**$ 517,662**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
		April 2026
1	**Contract Treated with Airgap**	
2	*(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)*	
3	**Contract Treated with Airgap Units of Service**	**FYE 2019** / **FYE 2026**
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592 / 10,554,175
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	17% / 1,794,210
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	4,981,746 / 5,051,910
7	**Contract Treated with Airgap Costs to Recover**	
8	Customer	$ 8,247
9	TCEQ Fee	780
10	Base	50,282,212
11	Max Day	19,037,709
12	Max Hour	-
13	**Total Contract Treated with Airgap Costs to Recover**	**$ 69,328,947**
14	**Contract Treated - Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates** / **FYE 2026 Rates**
15	**Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)**	$ 4.45
16	**Calculated Contract Treated with Airgap Excess Rate (per 1,000 gal)**	$ 0.89
17	**Calculated GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 3.56
18	**Calculated GRP Area 3 Variable Rate (per 1,000 gal)**	$ 2.67
19	**Proposed Contract Treated with Airgap Variable Rate (per 1,000**	$ 3.31 / $ 4.10
20	**Proposed Contract Treated with Airgap Excess Rate (per 1,000 g**	$ 0.82 / $ 1.10
21	**Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)**	$ 2.65 / $ 3.28
22	**Proposed GRP Area 3 Variable Rate (per 1,000 gal)**	$ 0.99 / $ 2.46
23	**Contract Treated with Airgap Revenue Check**	
24	Contract Treated with Airgap Usage	10,554,175 / $ 43,272,119
25	Contract Treated with Airgap Excess Usage	1,794,210 / 1,973,631
26	GRP Areas 1 & 2 Usage	36,982 / 121,300
27	GRP Area 3 Usage	8,370,542 / 20,591,533
28	**Total Contract Treated with Airgap Revenue**	**$ 65,958,582**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
1	**Contract Treated without Airgap**		
2	**Contract Treated without Airgap Units of Service**	**FYE 2019**	**FYE 2026**
3	Contract Treated without Airgap Customer Usage (kgal) Forecast	1,342,935	1,361,849
4	Contract Treated without Airgap Excess Usage (kgal) Forecast	28%	381,318
5	**Contract Treated without Airgap Costs to Recover**		
6	Customer		$ 2,050
7	TCEQ Fee		94
8	Base		4,387,826
9	Max Day		1,107,764
10	Max Hour		458,773
11	**Total Contract Treated without Airgap Costs to Recover**		**$ 5,956,508**
12	**Contract Treated without Airgap Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2026 Rates**
13	**Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)**		$ 4.38
14	**Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)**		$ 0.89
15	**Proposed Contract Treated without Airgap Variable Rate (per 1,**	$ 4.04	**$ 4.60**
16	**Proposed Contract Treated without Airgap Excess Rate (per 1,0**	$ 0.82	**$ 1.10**
17	**Contract Treated without Airgap Revenue Check**		
18	Contract Treated without Airgap Usage		$ 6,264,507
19	Contract Treated without Airgap Excess		419,450
20	**Total Contract Treated without Airgap Revenue**		**$ 6,683,956**

Houston Combined Utility System

Water Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
1	**Contract Untreated**		
2	**Contract Untreated Units of Service**	**FYE 2019**	**FYE 2026**
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,605,403
4	**Contract Untreated Costs to Recover**		
5	Raw Water		$ 23,338,979
6	**Total Contract Untreated Costs to Recover**		**$ 23,338,979**
7	**Contract Untreated Volume Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2026 Rates**
8	**Calculated Contract Untreated Variable Rate (per 1,000 gal)**		$ 0.2932
9	**Proposed Contract Untreated Variable Rate (per 1,000 gal)**	*$ 0.7573*	**$ 0.8500**
10	**Contract Untreated Revenue Check**		
11	All Usage		$ 67,664,593
12	**Total Contract Untreated Revenue**		**$ 67,664,593**

Appendix J

WASTEWATER RATE DESIGN

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2022 September 2021	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2022**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,192,886	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	640,778	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 33,577,485	
6	Capacity (Meter & Supply)			34,366,640	
7	**Total Fixed Charge Revenue to Recover**			**$ 67,944,125**	
8	**Per Bill**			**$ 6.466**	
9	**Per MEU per month - Capacity**			**$ 4.469**	
		Total Fixed Charge (5/8")		$ 10.94	$ 10.00

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	*$ 12.37*	$ 10.94	$ 10.00
12	3/4"	1.00	*$ 12.37*	10.94	10.00
13	1"	1.70	*$ 13.00*	14.07	12.45
14	1 1/2"	2.70	*$ 15.06*	18.54	15.93
15	2"	3.30	*$ 15.69*	21.22	18.03
16	3"	8.30	*$ 28.11*	43.57	35.46
17	4"	16.70		81.11	64.76
18	6"	40.00		185.25	146.02
19	8"	50.00		229.94	180.90
20	10"	66.70		304.58	239.14
21	12"	93.30		423.47	331.92
22	16"	229.20		1,030.86	805.89

23	Account Projection	Escalation	FYE 2019	FYE 2022
24	5/8"	Inside City Customer Growth	315,229	317,124
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	85,726
27	1 1/2"	Inside City Customer Growth	11,890	11,961
28	2"	Inside City Customer Growth	13,884	13,968
29	3"	Inside City Customer Growth	1,162	1,168
30	4"	Inside City Customer Growth	1,266	1,274
31	6"	Inside City Customer Growth	831	836
32	8"	Inside City Customer Growth	627	630
33	10"	Inside City Customer Growth	49	49
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2022 September 2021	
36	**MEU Revenue**	**Calculated**	**Proposed**
37	5/8"	$ 41,632,060	$ 38,054,899
38	3/4"	264	241
39	1"	14,473,973	12,807,460
40	1 1/2"	2,661,116	2,286,493
41	2"	3,556,698	3,022,020
42	3"	610,930	497,213
43	4"	1,239,876	989,944
44	6"	1,857,674	1,464,278
45	8"	1,739,082	1,368,183
46	10"	180,476	141,700
47	12"	5,112	4,007
48	16"	12,445	9,729
49	**Total MEU Revenue**	**$ 67,969,705**	**$ 60,646,168**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,344,168
4	SFR Bills	Growth	4,576,059	4,603,570
5	**SFR Costs to Recover**			
6	Flow			$ 143,194,537
7	BOD			8,097,935
8	TSS			18,669,662
9	Ammonia			1,971,797
10	Capacity			10,937,181
11	Customer Billing			29,766,937
12	**Total SFR Costs to Recover**			**$ 212,638,050**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 7.70
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	10,949,713
17	Tier 2		51%	11,394,455
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
23	Tier 1	3	*$ 0.20*	**$ 4.00**
24	Tier 2		*$ 0.41*	**$ 10.50**
25	Tier 3		*$ 0.33*	**$ 10.50**
26	Tier 4		*$ 17.20*	**$ 10.50**
27	Tier 5		*$ 6.22*	**$ 10.50**
28	Tier 6		*$ 9.05*	**$ 10.50**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022 September 2021
29	**SFR Revenue Check**		
30	Monthly Fixed Charge		$ 50,578,683
31	Tier 1	3	43,798,851
32	Tier 2		119,641,774
33	Tier 3		-
34	Tier 4		-
35	Tier 5		-
36	Tier 6		-
37	**Total SFR Revenue**		**$ 214,019,309**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,155,956
4	MFR Bills	Growth	158,528	159,481
5	**MFR Costs to Recover**			
6	Flow			$ 161,214,128
7	BOD			10,067,314
8	TSS			23,210,035
9	Ammonia			2,451,329
10	Capacity			12,313,516
11	Customer Billing			1,031,213
12	**Total MFR Costs to Recover**			**$ 210,287,534**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 7.83
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 7.40**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 13,823,029
18	Variable Rate - All flow			186,154,074
19	**Total MFR Revenue**			**$ 199,977,104**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,573,586
4	Comm/Ind Bills	Growth	424,056	426,605
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 131,847,614
7	BOD			7,217,963
8	TSS			16,640,900
9	Ammonia			1,757,529
10	Capacity			10,070,505
11	Customer Billing			2,758,454
12	**Total Comm/Ind Costs to Recover**			**$ 170,292,966**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 7.66
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 7.40**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 30,267,597
18	Variable Rate - All flow			152,244,539
19	**Total Commercial/Industrial Revenue**			**$ 182,512,136**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,135,783
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,229
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	16,864,851
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,494,091
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	541,942
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 13,687,348
10	BOD			7,494,425
11	TSS			2,529,310
12	Ammonia			336,464
13	Capacity			1,045,438
14	Customer Billing			20,881
15	Industrial Pretreatment Program			3,301,080
16	**Total Industrial Surcharge Costs to Recover**			**$ 28,414,947**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,022.23
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	**$ 100.00**
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 6.4086
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	**$ 8.0000**
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	**$ 0.4437**
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	**$ 0.3384**
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	**$ 0.6253**
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 578,827
27	Monthly Industrial Program Charge			322,930
28	Variable Rate - All flow			17,086,261
29	Variable Rate - Loadings			10,357,811
30	**Total Industrial Surcharge Revenue**			**$ 28,345,829**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,632
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,159
6	Sewer Only - Commercial Bills Forecast	Growth	684	688
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 304,928
10	BOD			19,685
11	TSS			45,384
12	Ammonia			4,793
13	Capacity			23,290
14	Customer Billing			67,833
15	**Total Sewer Only Costs to Recover**			**$ 465,915**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2022 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 41.64
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 83.28
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 41.64
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 83.28
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 83.28
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 36.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 72.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 36.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 72.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 72.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 402,872
29	**Total Sewer Only Revenue**			**$ 402,872**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			September 2021
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,922,313
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 1,752,392
6	BOD		260,521
7	TSS		1,611,257
8	Ammonia		294,390
9	Capacity		-
10	Customer Billing		1,093
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 3,919,654**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.3413
14	**Proposed Contract Sewer - Contributed Capital without Collection Sys**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,821,816
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,821,816**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			September 2021
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		70,636,923
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,244,951
6	Collection System		84,344,443
7	**Total Collection System Costs**	**$**	**116,589,394**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 2.9919
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.0000**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			September 2021
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	324,234
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,138,160
6	BOD		134,143
7	TSS		309,264
8	Ammonia		32,663
9	Capacity		158,708
10	Customer Billing		859
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 1,773,797**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 5.4708
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sys**	*$ 6.25*	**$ 6.2500**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,026,460
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,026,460**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				September 2021
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	195,229
6	BOD			23,010
7	TSS			53,048
8	Ammonia			5,603
9	Capacity			27,223
10	Customer Billing			156
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**304,269**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2022 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	22.81
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**25.00**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	333,600
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**333,600**

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2022 April 2022	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2022**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,192,886	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	640,778	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 36,784,347	
6	Capacity (Meter & Supply)			38,437,694	
7	**Total Fixed Charge Revenue to Recover**			**$ 75,222,041**	
8	**Per Bill**			**$ 7.084**	
9	**Per MEU per month - Capacity**			**$ 4.999**	
		Total Fixed Charge (5/8")		$ 12.09	$ 11.50

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	*$ 12.37*	$ 12.09	$ 11.50
12	3/4"	1.00	*$ 12.37*	12.09	11.50
13	1"	1.70	*$ 13.00*	15.59	14.24
14	1 1/2"	2.70	*$ 15.06*	20.59	18.16
15	2"	3.30	*$ 15.69*	23.58	20.50
16	3"	8.30	*$ 28.11*	48.58	40.06
17	4"	16.70		90.57	72.92
18	6"	40.00		207.04	164.07
19	8"	50.00		257.03	203.19
20	10"	66.70		340.51	268.52
21	12"	93.30		473.48	372.57
22	16"	229.20		1,152.82	904.20

23	Account Projection	Escalation	FYE 2019	FYE 2022
24	5/8"	Inside City Customer Growth	315,229	317,124
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	85,726
27	1 1/2"	Inside City Customer Growth	11,890	11,961
28	2"	Inside City Customer Growth	13,884	13,968
29	3"	Inside City Customer Growth	1,162	1,168
30	4"	Inside City Customer Growth	1,266	1,274
31	6"	Inside City Customer Growth	831	836
32	8"	Inside City Customer Growth	627	630
33	10"	Inside City Customer Growth	49	49
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2022 April 2022 Calculated	Proposed
36	**MEU Revenue**		
37	5/8"	$ 46,008,373	$ 43,763,134
38	3/4"	292	278
39	1"	16,037,615	14,648,854
40	1 1/2"	2,955,360	2,606,573
41	2"	3,952,259	3,436,018
42	3"	681,179	561,713
43	4"	1,384,485	1,114,681
44	6"	2,076,182	1,645,282
45	8"	1,943,969	1,536,766
46	10"	201,766	159,109
47	12"	5,716	4,498
48	16"	13,917	10,916
49	**Total MEU Revenue**	**$ 75,261,113**	**$ 69,487,822**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,344,168
4	SFR Bills	Growth	4,576,059	4,603,570
5	**SFR Costs to Recover**			
6	Flow			$ 159,129,014
7	BOD			9,017,160
8	TSS			20,633,547
9	Ammonia			2,160,116
10	Capacity			12,232,794
11	Customer Billing			32,609,868
12	**Total SFR Costs to Recover**			**$ 235,782,499**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 8.55
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	10,949,713
17	Tier 2		51%	11,394,455
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
23	Tier 1	3	*$ 0.20*	**$ 4.50**
24	Tier 2		*$ 0.41*	**$ 11.25**
25	Tier 3		*$ 0.33*	**$ 11.25**
26	Tier 4		*$ 17.20*	**$ 11.25**
27	Tier 5		*$ 6.22*	**$ 11.25**
28	Tier 6		*$ 9.05*	**$ 11.25**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			April 2022
29	**SFR Revenue Check**		
30	Monthly Fixed Charge		$ 64,505,924
31	Tier 1	3	49,273,708
32	Tier 2		128,187,616
33	Tier 3		-
34	Tier 4		-
35	Tier 5		-
36	Tier 6		-
37	**Total SFR Revenue**		**$ 241,967,247**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,155,956
4	MFR Bills	Growth	158,528	159,481
5	**MFR Costs to Recover**			
6	Flow			$ 179,153,798
7	BOD			11,210,090
8	TSS			25,651,528
9	Ammonia			2,685,446
10	Capacity			13,772,168
11	Customer Billing			1,129,701
12	**Total MFR Costs to Recover**			**$ 233,602,731**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 8.70
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 8.06**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 20,734,731
18	Variable Rate - All flow			202,757,005
19	**Total MFR Revenue**			**$ 223,491,736**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,573,586
4	Comm/Ind Bills	Growth	424,056	426,605
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 146,519,423
7	BOD			8,037,299
8	TSS			18,391,378
9	Ammonia			1,925,384
10	Capacity			11,263,451
11	Customer Billing			3,021,904
12	**Total Comm/Ind Costs to Recover**			**$ 189,158,839**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 8.50
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 8.06**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 45,183,042
18	Variable Rate - All flow			165,823,106
19	**Total Commercial/Industrial Revenue**			**$ 211,006,149**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,135,783
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,229
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	16,864,851
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,494,091
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	541,942
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 15,210,456
10	BOD			8,345,144
11	TSS			2,795,371
12	Ammonia			368,598
13	Capacity			1,169,280
14	Customer Billing			22,875
15	Industrial Pretreatment Program			3,616,354
16	**Total Industrial Surcharge Costs to Recover**			**$ 31,528,079**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2022 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,119.86
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	**$ 300.00**
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 7.1218
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	**$ 8.6000**
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	**$ 0.4949**
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	**$ 0.3731**
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	**$ 0.6802**
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 878,009
27	Monthly Industrial Program Charge			968,790
28	Variable Rate - All flow			18,367,730
29	Variable Rate - Loadings			11,511,089
30	**Total Industrial Surcharge Revenue**			**$ 31,725,618**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2022**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,632
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,159
6	Sewer Only - Commercial Bills Forecast	Growth	684	688
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 338,860
10	BOD			21,920
11	TSS			50,158
12	Ammonia			5,251
13	Capacity			26,049
14	Customer Billing			74,312
15	**Total Sewer Only Costs to Recover**			**$ 516,550**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2022 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 46.16
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 92.32
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 46.16
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 92.32
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 92.32
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 41.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 82.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 41.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 82.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 82.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 458,826
29	**Total Sewer Only Revenue**			**$ 458,826**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			April 2022
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,922,313
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 1,919,756
6	BOD		285,402
7	TSS		1,765,142
8	Ammonia		322,506
9	Capacity		-
10	Customer Billing		1,197
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 4,294,005**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.4694
14	**Proposed Contract Sewer - Contributed Capital without Collection Sys**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,821,816
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,821,816**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			April 2022
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		70,636,923
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,244,951
6	Collection System		84,344,443
7	**Total Collection System Costs**	**$**	**116,589,394**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 3.1200
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.1200**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2022
			April 2022
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	324,234
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,262,201
6	BOD		149,370
7	TSS		341,796
8	Ammonia		35,782
9	Capacity		177,509
10	Customer Billing		941
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 1,967,598**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2022 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 6.0685
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sy**	*$ 6.25*	**$ 6.2500**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,026,460
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,026,460**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2022
				April 2022
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	216,506
6	BOD			25,621
7	TSS			58,628
8	Ammonia			6,138
9	Capacity			30,448
10	Customer Billing			171
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**337,513**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2022 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	25.30
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**25.30**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	337,603
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**337,603**

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2023 April 2023	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2023**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,203,272	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	642,060	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 36,176,336	
6	Capacity (Meter & Supply)			42,425,630	
7	**Total Fixed Charge Revenue to Recover**			**$ 78,601,967**	
8	**Per Bill**			**$ 6.953**	
9	**Per MEU per month - Capacity**			**$ 5.506**	
		Total Fixed Charge (5/8")		$ 12.46	$ 12.50

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	*$ 12.37*	$ 12.46	$ 12.50
12	3/4"	1.00	*$ 12.37*	12.46	12.50
13	1"	1.70	*$ 13.00*	16.32	16.39
14	1 1/2"	2.70	*$ 15.06*	21.83	21.94
15	2"	3.30	*$ 15.69*	25.13	25.26
16	3"	8.30	*$ 28.11*	52.66	52.66
17	4"	16.70		98.92	98.29
18	6"	40.00		227.22	224.87
19	8"	50.00		282.28	279.20
20	10"	66.70		374.24	369.92
21	12"	93.30		520.71	514.42
22	16"	229.20		1,269.04	1,252.69

23	Account Projection	Escalation	FYE 2019	FYE 2023
24	5/8"	Inside City Customer Growth	315,229	317,758
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	85,897
27	1 1/2"	Inside City Customer Growth	11,890	11,985
28	2"	Inside City Customer Growth	13,884	13,995
29	3"	Inside City Customer Growth	1,162	1,171
30	4"	Inside City Customer Growth	1,266	1,276
31	6"	Inside City Customer Growth	831	837
32	8"	Inside City Customer Growth	627	632
33	10"	Inside City Customer Growth	49	49
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2023 April 2023 Calculated	Proposed
36	**MEU Revenue**		
37	5/8"	$ 47,511,237	$ 47,663,761
38	3/4"	301	302
39	1"	16,822,151	16,894,305
40	1 1/2"	3,139,609	3,155,429
41	2"	4,220,480	4,242,313
42	3"	739,865	739,865
43	4"	1,515,150	1,505,501
44	6"	2,283,103	2,259,490
45	8"	2,139,209	2,115,868
46	10"	222,196	219,631
47	12"	6,299	6,223
48	16"	15,351	15,153
49	**Total MEU Revenue**	**$ 78,614,951**	**$ 78,817,841**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,388,856
4	SFR Bills	Growth	4,576,059	4,612,777
5	**SFR Costs to Recover**			
6	Flow			$ 169,735,762
7	BOD			9,722,769
8	TSS			21,352,248
9	Ammonia			2,124,410
10	Capacity			13,501,955
11	Customer Billing			32,070,857
12	**Total SFR Costs to Recover**			**$ 248,508,001**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 9.07
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	10,971,612
17	Tier 2		51%	11,417,244
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
23	Tier 1	3	*$ 0.20*	**$ 4.80**
24	Tier 2		*$ 0.41*	**$ 11.50**
25	Tier 3		*$ 0.33*	**$ 11.50**
26	Tier 4		*$ 17.20*	**$ 11.50**
27	Tier 5		*$ 6.22*	**$ 11.50**
28	Tier 6		*$ 9.05*	**$ 11.50**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
29	**SFR Revenue Check**		
30	Monthly Fixed Charge		$ 64,802,033
31	Tier 1	3	52,663,739
32	Tier 2		131,298,302
33	Tier 3		-
34	Tier 4		-
35	Tier 5		-
36	Tier 6		-
37	**Total SFR Revenue**		**$ 248,764,074**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,206,268
4	MFR Bills	Growth	158,528	159,800
5	**MFR Costs to Recover**			
6	Flow			$ 191,095,298
7	BOD			12,087,300
8	TSS			26,545,014
9	Ammonia			2,641,056
10	Capacity			15,201,040
11	Customer Billing			1,111,028
12	**Total MFR Costs to Recover**			**$ 248,680,736**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 9.22
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 8.35**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 21,230,542
18	Variable Rate - All flow			210,472,337
19	**Total MFR Revenue**			**$ 231,702,879**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,614,734
4	Comm/Ind Bills	Growth	424,056	427,459
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 156,285,677
7	BOD			8,666,232
8	TSS			19,031,980
9	Ammonia			1,893,558
10	Capacity			12,432,042
11	Customer Billing			2,971,955
12	**Total Comm/Ind Costs to Recover**			**$ 201,281,446**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 9.02
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 8.35**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 46,239,682
18	Variable Rate - All flow			172,133,025
19	**Total Commercial/Industrial Revenue**			**$ 218,372,707**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,140,054
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,236
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	16,898,581
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,509,079
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	543,026
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 16,224,309
10	BOD			8,998,167
11	TSS			2,892,739
12	Ammonia			362,506
13	Capacity			1,290,594
14	Customer Billing			22,497
15	Industrial Pretreatment Program			3,556,577
16	**Total Industrial Surcharge Costs to Recover**			**$ 33,347,388**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2023 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,099.15
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	**$ 500.00**
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 7.5813
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	**$ 8.7000**
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	**$ 0.5325**
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	**$ 0.3853**
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	**$ 0.6676**
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 900,068
27	Monthly Industrial Program Charge			1,617,879
28	Variable Rate - All flow			18,618,471
29	Variable Rate - Loadings			12,254,267
30	**Total Industrial Surcharge Revenue**			**$ 33,390,685**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2023**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,649
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,161
6	Sewer Only - Commercial Bills Forecast	Growth	684	689
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 361,446
10	BOD			23,635
11	TSS			51,905
12	Ammonia			5,164
13	Capacity			28,752
14	Customer Billing			73,084
15	**Total Sewer Only Costs to Recover**			**$ 543,987**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2023 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 48.52
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 97.04
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 48.52
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 97.04
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 97.04
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 45.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 90.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 45.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 90.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 90.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 504,597
29	**Total Sewer Only Revenue**			**$ 504,597**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,928,158
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 1,888,024
6	BOD		280,685
7	TSS		1,735,965
8	Ammonia		317,176
9	Capacity		-
10	Customer Billing		1,177
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 4,223,026**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2023 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.4423
14	**Proposed Contract Sewer - Contributed Capital without Collection Sys**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,831,460
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,831,460**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		70,778,197
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,245,854
6	Collection System		84,346,805
7	**Total Collection System Costs**	**$**	**116,592,658**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2023 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 3.0896
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.1200**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2023
			April 2023
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	324,882
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,331,242
6	BOD		161,058
7	TSS		353,701
8	Ammonia		35,191
9	Capacity		195,925
10	Customer Billing		925
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 2,078,043**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2023 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 6.3963
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sy**	*$ 6.25*	**$ 6.4000**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,079,246
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,079,246**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2023
				April 2023
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	228,348
6	BOD			27,626
7	TSS			60,670
8	Ammonia			6,036
9	Capacity			33,607
10	Customer Billing			168
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**356,457**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2023 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	26.72
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**26.72**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	356,552
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**356,552**

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2024 April 2024	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2024**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,213,678	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	643,344	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 38,156,372	
6	Capacity (Meter & Supply)			48,286,838	
7	**Total Fixed Charge Revenue to Recover**			**$ 86,443,210**	
8	**Per Bill**			**$ 7.319**	
9	**Per MEU per month - Capacity**			**$ 6.255**	
		Total Fixed Charge (5/8")		$ 13.58	**$ 13.60**

	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
10					
11	5/8"	1.00	*$ 12.37*	$ 13.58	$ 13.60
12	3/4"	1.00	*$ 12.37*	13.58	13.60
13	1"	1.70	*$ 13.00*	17.96	18.00
14	1 1/2"	2.70	*$ 15.06*	24.21	24.19
15	2"	3.30	*$ 15.69*	27.96	27.88
16	3"	8.30	*$ 28.11*	59.24	58.58
17	4"	16.70		111.78	110.16
18	6"	40.00		257.51	253.23
19	8"	50.00		320.06	314.63
20	10"	66.70		424.51	417.18
21	12"	93.30		590.88	580.51
22	16"	229.20		1,440.89	1,414.99

	Account Projection	Escalation	FYE 2019	FYE 2024
23				
24	5/8"	Inside City Customer Growth	315,229	318,394
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	86,069
27	1 1/2"	Inside City Customer Growth	11,890	12,009
28	2"	Inside City Customer Growth	13,884	14,023
29	3"	Inside City Customer Growth	1,162	1,173
30	4"	Inside City Customer Growth	1,266	1,279
31	6"	Inside City Customer Growth	831	839
32	8"	Inside City Customer Growth	627	633
33	10"	Inside City Customer Growth	49	50
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2024 April 2024	
36	**MEU Revenue**	**Calculated**	**Proposed**
37	5/8"	$ 51,885,474	$ 51,961,888
38	3/4"	329	330
39	1"	18,549,638	18,590,951
40	1 1/2"	3,488,866	3,485,984
41	2"	4,705,158	4,691,696
42	3"	833,977	824,686
43	4"	1,715,550	1,690,687
44	6"	2,592,631	2,549,540
45	8"	2,430,370	2,389,137
46	10"	252,547	248,186
47	12"	7,162	7,036
48	16"	17,464	17,150
49	**Total MEU Revenue**	**$ 86,479,166**	**$ 86,457,271**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,433,634
4	SFR Bills	Growth	4,576,059	4,622,003
5	**SFR Costs to Recover**			
6	Flow			$ 189,158,840
7	BOD			10,909,164
8	TSS			23,332,161
9	Ammonia			2,240,684
10	Capacity			15,367,284
11	Customer Billing			33,826,188
12	**Total SFR Costs to Recover**			**$ 274,834,320**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 10.06
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	10,993,555
17	Tier 2		51%	11,440,078
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
23	Tier 1	3	*$ 0.20*	**$ 5.80**
24	Tier 2		*$ 0.41*	**$ 12.25**
25	Tier 3		*$ 0.33*	**$ 12.25**
26	Tier 4		*$ 17.20*	**$ 12.25**
27	Tier 5		*$ 6.22*	**$ 12.25**
28	Tier 6		*$ 9.05*	**$ 12.25**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
29	**SFR Revenue Check**			
30	Monthly Fixed Charge		$	70,935,047
31	Tier 1	3		63,762,622
32	Tier 2			140,140,957
33	Tier 3			-
34	Tier 4			-
35	Tier 5			-
36	Tier 6			-
37	**Total SFR Revenue**		**$**	**274,838,626**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,256,680
4	MFR Bills	Growth	158,528	160,120
5	**MFR Costs to Recover**			
6	Flow			$ 212,962,575
7	BOD			13,562,221
8	TSS			29,006,431
9	Ammonia			2,785,607
10	Capacity			17,301,102
11	Customer Billing			1,171,838
12	**Total MFR Costs to Recover**			**$ 276,789,774**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 10.23
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 9.25**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 23,530,470
18	Variable Rate - All flow			233,624,294
19	**Total MFR Revenue**			**$ 257,154,764**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,655,963
4	Comm/Ind Bills	Growth	424,056	428,314
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 174,169,645
7	BOD			9,723,706
8	TSS			20,796,743
9	Ammonia			1,997,197
10	Capacity			14,149,560
11	Customer Billing			3,134,618
12	**Total Comm/Ind Costs to Recover**			**$ 223,971,470**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 10.01
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 9.25**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 51,239,907
18	Variable Rate - All flow			191,067,658
19	**Total Commercial/Industrial Revenue**			**$ 242,307,565**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,144,334
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,242
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	16,932,378
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,524,098
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	544,112
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 18,080,878
10	BOD			10,096,144
11	TSS			3,160,971
12	Ammonia			382,346
13	Capacity			1,468,892
14	Customer Billing			23,728
15	Industrial Pretreatment Program			3,751,236
16	**Total Industrial Surcharge Costs to Recover**			**$ 36,964,196**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2024 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,157.00
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	**$ 700.00**
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 8.4320
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	**$ 9.3500**
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	**$ 0.5963**
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	**$ 0.4202**
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	**$ 0.7027**
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 997,983
27	Monthly Industrial Program Charge			2,269,560
28	Variable Rate - All flow			20,049,526
29	Variable Rate - Loadings			13,640,750
30	**Total Industrial Surcharge Revenue**			**$ 36,957,819**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2024**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,666
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,164
6	Sewer Only - Commercial Bills Forecast	Growth	684	691
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 402,807
10	BOD			26,519
11	TSS			56,718
12	Ammonia			5,447
13	Capacity			32,724
14	Customer Billing			77,084
15	**Total Sewer Only Costs to Recover**			**$ 601,300**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2024 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 53.52
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 107.04
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 53.52
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 107.04
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 107.04
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 50.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 100.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 50.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 100.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 100.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 561,784
29	**Total Sewer Only Revenue**			**$ 561,784**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,934,014
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 1,991,359
6	BOD		296,047
7	TSS		1,830,979
8	Ammonia		334,535
9	Capacity		-
10	Customer Billing		1,242
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 4,454,162**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.5182
14	**Proposed Contract Sewer - Contributed Capital without Collection Sys**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,841,123
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,841,123**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		70,919,753
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,246,830
6	Collection System		84,349,358
7	**Total Collection System Costs**	**$**	**116,596,188**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2024 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 3.1623
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.1700**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2024
			April 2024
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	325,532
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,472,926
6	BOD		180,711
7	TSS		386,498
8	Ammonia		37,117
9	Capacity		222,993
10	Customer Billing		976
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 2,301,221**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2024 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 7.0692
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sy**	*$ 6.25*	**$ 7.0700**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,301,510
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,301,510**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2024
				April 2024
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	252,652
6	BOD			30,997
7	TSS			66,296
8	Ammonia			6,367
9	Capacity			38,250
10	Customer Billing			177
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**394,739**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2024 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	29.59
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**29.59**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	394,849
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**394,849**

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2025 April 2025	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2025**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,224,106	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	644,630	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 38,660,802	
6	Capacity (Meter & Supply)			52,250,352	
7	**Total Fixed Charge Revenue to Recover**			**$ 90,911,154**	
8	**Per Bill**			**$ 7.400**	
9	**Per MEU per month - Capacity**			**$ 6.755**	
		Total Fixed Charge (5/8")		$ 14.16	**$ 14.20**

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	*$ 12.37*	$ 14.16	$ 14.20
12	3/4"	1.00	*$ 12.37*	14.16	14.20
13	1"	1.70	*$ 13.00*	18.89	18.96
14	1 1/2"	2.70	*$ 15.06*	25.64	25.76
15	2"	3.30	*$ 15.69*	29.70	29.84
16	3"	8.30	*$ 28.11*	63.47	63.21
17	4"	16.70		120.21	119.25
18	6"	40.00		277.59	274.70
19	8"	50.00		345.13	341.42
20	10"	66.70		457.93	452.84
21	12"	93.30		637.61	630.30
22	16"	229.20		1,555.55	1,536.99

23	Account Projection	Escalation	FYE 2019	FYE 2025
24	5/8"	Inside City Customer Growth	315,229	319,031
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	86,241
27	1 1/2"	Inside City Customer Growth	11,890	12,033
28	2"	Inside City Customer Growth	13,884	14,052
29	3"	Inside City Customer Growth	1,162	1,176
30	4"	Inside City Customer Growth	1,266	1,282
31	6"	Inside City Customer Growth	831	841
32	8"	Inside City Customer Growth	627	634
33	10"	Inside City Customer Growth	49	50
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2025 April 2025 Calculated	Proposed
36	**MEU Revenue**		
37	5/8"	$ 54,209,699	$ 54,362,833
38	3/4"	344	345
39	1"	19,549,191	19,621,634
40	1 1/2"	3,702,331	3,719,659
41	2"	5,007,964	5,031,571
42	3"	895,314	891,646
43	4"	1,848,620	1,833,857
44	6"	2,800,388	2,771,233
45	8"	2,625,980	2,597,752
46	10"	272,974	269,939
47	12"	7,744	7,655
48	16"	18,892	18,666
49	**Total MEU Revenue**	**$ 90,939,439**	**$ 91,126,790**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,478,501
4	SFR Bills	Growth	4,576,059	4,631,247
5	**SFR Costs to Recover**			
6	Flow			$ 201,179,855
7	BOD			11,668,069
8	TSS			24,402,809
9	Ammonia			2,270,304
10	Capacity			16,628,672
11	Customer Billing			34,273,372
12	**Total SFR Costs to Recover**			**$ 290,423,082**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 10.66
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	11,015,543
17	Tier 2		51%	11,462,958
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
23	Tier 1	3	*$ 0.20*	**$ 6.55**
24	Tier 2		*$ 0.41*	**$ 12.55**
25	Tier 3		*$ 0.33*	**$ 12.55**
26	Tier 4		*$ 17.20*	**$ 12.55**
27	Tier 5		*$ 6.22*	**$ 12.55**
28	Tier 6		*$ 9.05*	**$ 12.55**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025 April 2025
29	**SFR Revenue Check**		
30	Monthly Fixed Charge		$ 74,540,658
31	Tier 1	3	72,151,804
32	Tier 2		143,860,126
33	Tier 3		-
34	Tier 4		-
35	Tier 5		-
36	Tier 6		-
37	**Total SFR Revenue**		**$ 290,552,589**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,307,194
4	MFR Bills	Growth	158,528	160,440
5	**MFR Costs to Recover**			
6	Flow			$ 226,496,314
7	BOD			14,505,688
8	TSS			30,337,456
9	Ammonia			2,822,432
10	Capacity			18,721,223
11	Customer Billing			1,187,329
12	**Total MFR Costs to Recover**			**$ 294,070,442**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 10.84
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 9.78**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 25,543,136
18	Variable Rate - All flow			247,504,355
19	**Total MFR Revenue**			**$ 273,047,491**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,697,275
4	Comm/Ind Bills	Growth	424,056	429,170
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 185,238,100
7	BOD			10,400,144
8	TSS			21,751,048
9	Ammonia			2,023,599
10	Capacity			15,310,994
11	Customer Billing			3,176,058
12	**Total Comm/Ind Costs to Recover**			**$ 237,899,943**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 10.61
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 9.78**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 55,579,178
18	Variable Rate - All flow			202,419,349
19	**Total Commercial/Industrial Revenue**			**$ 257,998,527**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,148,623
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,249
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	16,966,242
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,539,146
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	545,200
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 19,229,915
10	BOD			10,798,491
11	TSS			3,306,020
12	Ammonia			387,401
13	Capacity			1,589,463
14	Customer Billing			24,042
15	Industrial Pretreatment Program			3,800,826
16	**Total Industrial Surcharge Costs to Recover**			**$ 39,136,156**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2025 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,169.95
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	$ 900.00
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 8.9499
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	$ 9.6000
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	$ 0.6365
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	$ 0.4386
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	$ 0.7106
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 1,085,059
27	Monthly Industrial Program Charge			2,923,842
28	Variable Rate - All flow			20,626,780
29	Variable Rate - Loadings			14,493,102
30	**Total Industrial Surcharge Revenue**			**$ 39,128,783**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2025**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,683
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,166
6	Sewer Only - Commercial Bills Forecast	Growth	684	692
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 428,406
10	BOD			28,364
11	TSS			59,321
12	Ammonia			5,519
13	Capacity			35,410
14	Customer Billing			78,103
15	**Total Sewer Only Costs to Recover**			**$ 635,123**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2025 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 56.42
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 112.84
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 56.42
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 112.84
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 112.84
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 55.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 110.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 55.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 110.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 110.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 619,199
29	**Total Sewer Only Revenue**			**$ 619,199**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,939,882
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 2,017,684
6	BOD		299,961
7	TSS		1,855,183
8	Ammonia		338,958
9	Capacity		-
10	Customer Billing		1,258
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 4,513,044**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.5352
14	**Proposed Contract Sewer - Contributed Capital without Collection Sy**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,850,805
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,850,805**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		71,061,593
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,247,858
6	Collection System		84,352,047
7	**Total Collection System Costs**	**$**	**116,599,905**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2025 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 3.1761
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.1800**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2025
			April 2025
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	326,183
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,557,059
6	BOD		193,282
7	TSS		404,234
8	Ammonia		37,608
9	Capacity		241,297
10	Customer Billing		989
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 2,434,468**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2025 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 7.4636
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sy**	*$ 6.25*	**$ 7.4700**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,436,587
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,436,587**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2025
				April 2025
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	267,083
6	BOD			33,154
7	TSS			69,338
8	Ammonia			6,451
9	Capacity			41,390
10	Customer Billing			180
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**417,595**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2025 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	31.30
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**31.30**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	417,667
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**417,667**

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description			Test Year FYE 2026 April 2026	
1	**Retail Customer Classes**	**Escalation**	**FYE 2019**	**FYE 2026**	
	(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)				
2	Total Bills	Inside City Customer Growth	5,161,853	5,234,554	
3	Total MEUs - Capacity	Inside City Customer Growth	636,949	645,920	
4	**Fixed Revenue to Recover**				
5	Customer (Billing & Collecting)			$ 38,301,292	
6	Capacity (Meter & Supply)			57,362,583	
7	**Total Fixed Charge Revenue to Recover**			**$ 95,663,875**	
8	**Per Bill**			**$ 7.317**	
9	**Per MEU per month - Capacity**			**$ 7.401**	
		Total Fixed Charge (5/8")		$ 14.72	**$ 14.80**

	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
10					
11	5/8"	1.00	*$ 12.37*	$ 14.72	$ 14.80
12	3/4"	1.00	*$ 12.37*	14.72	14.80
13	1"	1.70	*$ 13.00*	19.90	20.04
14	1 1/2"	2.70	*$ 15.06*	27.30	27.25
15	2"	3.30	*$ 15.69*	31.74	31.54
16	3"	8.30	*$ 28.11*	68.75	67.24
17	4"	16.70		130.91	127.22
18	6"	40.00		303.35	293.59
19	8"	50.00		377.35	365.00
20	10"	66.70		500.94	484.24
21	12"	93.30		697.80	674.17
22	16"	229.20		1,703.55	1,644.55

	Account Projection	Escalation	FYE 2019	FYE 2026
23				
24	5/8"	Inside City Customer Growth	315,229	319,669
25	3/4"	Inside City Customer Growth	2	2
26	1"	Inside City Customer Growth	85,214	86,414
27	1 1/2"	Inside City Customer Growth	11,890	12,057
28	2"	Inside City Customer Growth	13,884	14,080
29	3"	Inside City Customer Growth	1,162	1,178
30	4"	Inside City Customer Growth	1,266	1,284
31	6"	Inside City Customer Growth	831	842
32	8"	Inside City Customer Growth	627	635
33	10"	Inside City Customer Growth	49	50
34	12"	Inside City Customer Growth	1	1
35	16"	Inside City Customer Growth	1	1

Houston Combined Utility System

Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2026 April 2026 Calculated	Proposed
36	**MEU Revenue**		
37	5/8"	$ 56,466,292	$ 56,773,174
38	3/4"	358	360
39	1"	20,635,625	20,780,800
40	1 1/2"	3,949,914	3,942,680
41	2"	5,362,650	5,328,859
42	3"	971,734	950,391
43	4"	2,017,194	1,960,334
44	6"	3,066,381	2,967,723
45	8"	2,876,873	2,782,718
46	10"	299,209	289,234
47	12"	8,492	8,204
48	16"	20,731	20,013
49	**Total MEU Revenue**	**$ 95,675,451**	**$ 95,804,490**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Single Family Residential**			
2	**SFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	SFR Customer Flow (kgal) Forecast	Growth	22,210,637	22,523,458
4	SFR Bills	Growth	4,576,059	4,640,509
5	**SFR Costs to Recover**			
6	Flow			$ 215,337,142
7	BOD			12,594,428
8	TSS			25,459,093
9	Ammonia			2,249,191
10	Capacity			18,255,639
11	Customer Billing			33,954,662
12	**Total SFR Costs to Recover**			**$ 307,850,156**
13	**Calculated SFR Uniform Rate (per 1,000 gal)**			$ 11.35
14	**SFR Tier Allocation**			
15	**SFR Tier Demand**	**Tier breakpoint**	Tier % of kGal	
16	Tier 1	3	49%	11,037,574
17	Tier 2		51%	11,485,884
18	Tier 3		0%	-
19	Tier 4		0%	-
20	Tier 5		0%	-
21	Tier 6		0%	-
22	**SFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
23	Tier 1	3	*$ 0.20*	**$ 6.95**
24	Tier 2		*$ 0.41*	**$ 13.25**
25	Tier 3		*$ 0.33*	**$ 13.25**
26	Tier 4		*$ 17.20*	**$ 13.25**
27	Tier 5		*$ 6.22*	**$ 13.25**
28	Tier 6		*$ 9.05*	**$ 13.25**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
29	**SFR Revenue Check**		
30	Monthly Fixed Charge		$ 78,301,028
31	Tier 1	3	76,711,137
32	Tier 2		152,187,965
33	Tier 3		-
34	Tier 4		-
35	Tier 5		-
36	Tier 6		-
37	**Total SFR Revenue**		**$ 307,200,131**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Multifamily Residential**			
2	**MFR Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622	25,357,808
4	MFR Bills	Growth	158,528	160,761
5	**MFR Costs to Recover**			
6	Flow			$ 242,435,153
7	BOD			15,657,333
8	TSS			31,650,623
9	Ammonia			2,796,184
10	Capacity			20,552,927
11	Customer Billing			1,176,288
12	**Total MFR Costs to Recover**			**$ 314,268,509**
13	**MFR Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
14	**Calculated MFR Variable Rate (per 1,000 gal)**			$ 11.54
15	**Proposed MFR Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 10.38**
16	**MFR Revenue Check**			
17	Monthly Fixed Charge			$ 27,328,761
18	Variable Rate - All flow			263,214,049
19	**Total MFR Revenue**			**$ 290,542,810**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Commercial/Industrial**			
2	**Commercial/Industrial Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637	20,738,670
4	Comm/Ind Bills	Growth	424,056	430,029
5	**Commercial/Industrial Costs to Recover**			
6	Flow			$ 198,273,544
7	BOD			11,225,839
8	TSS			22,692,550
9	Ammonia			2,004,780
10	Capacity			16,809,038
11	Customer Billing			3,146,524
12	**Total Comm/Ind Costs to Recover**			**$ 254,152,276**
13	**Commercial/Industrial Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
14	**Calculated Comm/Ind Variable Rate (per 1,000 gal)**			$ 11.30
15	**Proposed Comm/Ind Variable Rate (per 1,000 gal)**		*$ 6.76*	**$ 10.38**
16	**Commercial/Industrial Revenue Check**			
17	Fixed Charge			$ 59,439,815
18	Variable Rate - All flow			215,267,390
19	**Total Commercial/Industrial Revenue**			**$ 274,707,204**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Industrial Sewer Surcharge**			
2	**Industrial Surcharge Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019	2,152,920
4	Industrial Surcharge Bills Forecast	Growth	3,210	3,255
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065	17,000,175
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306	7,554,224
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703	546,291
8	**Industrial Surcharge Costs to Recover**			
9	Flow			$ 20,583,149
10	BOD			11,655,811
11	TSS			3,449,122
12	Ammonia			383,798
13	Capacity			1,744,978
14	Customer Billing			23,818
15	Industrial Pretreatment Program			3,765,479
16	**Total Industrial Surcharge Costs to Recover**			**$ 41,606,156**
17	**Industrial Surcharge Volume Rates (per 1,000 gal)**		**FYE 2021 Rates**	**FYE 2026 Rates**
18	**Calculated Monthly Industrial Program Charge (per bill)**			$ 1,156.76
19	**Proposed Monthly Industrial Program Charge (per bill)**		$ -	**$ 1,150.00**
20	**Calculated Industrial Surcharge Flow Rate (per 1,000 gal)**			$ 9.5606
21	**Proposed Industrial Surcharge Flow Rate (per 1,000 gal)**		$ 4.9010	**$ 9.8500**
22	**Calculated Industrial Surcharge BOD Rate (per lb)**		$ 0.8440	**$ 0.6751**
23	**Calculated Industrial Surcharge TSS Rate (per lb)**		$ 0.3331	**$ 0.4566**
24	**Calculated Industrial Surcharge Ammonia Rate (per lb)**		$ -	**$ 0.7026**
25	**Industrial Surcharge Revenue Check**			
26	Monthly Fixed Charge			$ 1,162,296
27	Monthly Industrial Program Charge			3,743,492
28	Variable Rate - All flow			21,206,264
29	Variable Rate - Loadings			15,309,901
30	**Total Industrial Surcharge Revenue**			**$ 41,421,953**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Sewer Only (Unmetered)**			
2	**Sewer Only Units of Service**	**Escalation**	**FYE 2019**	**FYE 2026**
3	Sewer Only - SFR Bills Forecast	Growth	8,580	8,701
4	Sewer Only - Duplex Bills Forecast	Growth	12	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152	1,168
6	Sewer Only - Commercial Bills Forecast	Growth	684	694
7	Sewer Only - Industrial Bills Forecast	Growth	-	-
8	**Sewer Only Costs to Recover**			
9	Flow			$ 458,553
10	BOD			30,616
11	TSS			61,889
12	Ammonia			5,468
13	Capacity			38,875
14	Customer Billing			77,376
15	**Total Sewer Only Costs to Recover**			**$ 672,777**
16	**Sewer Only (Unmetered) Rates**		**FYE 2021 Rates**	**FYE 2026 Rates**
17	**Calculated Sewer Only - SFR Fixed Charge (per month)**		1.0 SFEs	$ 59.64
18	**Calculated Sewer Only - Duplex Fixed Charge (per month)**		2.0 SFEs	$ 119.28
19	**Calculated Sewer Only - MFR Fixed Charge (per month)**		1.0 SFEs	$ 59.64
20	**Calculated Sewer Only - Commercial Fixed Charge (per month)**		2.0 SFEs	$ 119.28
21	**Calculated Sewer Only - Industrial Fixed Charge (per month)**		2.0 SFEs	$ 119.28
22	**Proposed Sewer Only - SFR Fixed Charge (per month)**		*$ 30.51*	**$ 60.00**
23	**Proposed Sewer Only - Duplex Fixed Charge (per month)**		*$ 64.71*	**$ 120.00**
24	**Proposed Sewer Only - MFR Fixed Charge (per month)**		*$ 37.85*	**$ 60.00**
25	**Proposed Sewer Only - Commercial Fixed Charge (per month)**		*$ 71.41*	**$ 120.00**
26	**Proposed Sewer Only - Industrial Fixed Charge (per month)**		*$ 71.39*	**$ 120.00**
27	**Sewer Only Revenue Check**			
28	Monthly Charge - all connections			$ 676,840
29	**Total Sewer Only Revenue**			**$ 676,840**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
1	**Contract Sewer - Contributed Capital without Collection System**		
2	**Contract Sewer - Contributed Capital without Collection System Units of Service**		
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849	2,945,762
4	**Contract Sewer - Capital w/o Coll. Sys. Costs to Recover**		
5	Flow		$ 1,998,920
6	BOD		297,171
7	TSS		1,837,930
8	Ammonia		335,805
9	Capacity		-
10	Customer Billing		1,247
11	**Total Contract Sewer - Contributed Capital without Collection System Costs to Recover**		**$ 4,471,074**
12	**Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2026 Rates**
13	**Calculated Contract Sewer - Contributed Capital without Collection System Variable Ra**		$ 1.5178
14	**Proposed Contract Sewer - Contributed Capital without Collection Sy:**	*$ 1.64*	**$ 1.6500**
15	**Contract Sewer - Contributed Capital without Collection System Revenue Check**		
16	Variable Rate - All flow		$ 4,860,507
17	**Total Contract Sewer - Contributed Capital without Collection System Revenue**		**$ 4,860,507**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
1	**Contract Sewer - Contributed Capital with Collection System**		
2	**Contract Sewer - Contributed Capital with Collection System Units of Service**		
3	Collection System Flow		71,203,716
4	**Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover**		
5	Lift Station	$	32,248,845
6	Collection System		84,354,629
7	**Total Collection System Costs**	**$**	**116,603,473**
8	**Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2026 Rates**
9	**Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate**		$ 3.1555
10	**Proposed Contract Sewer - Contributed Capital with Collection Syster**	*N/A*	**$ 3.1800**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description		Test Year FYE 2026
			April 2026
1	**Contract Sewer - No Contributed Capital with Collection System**		
2	**Contract Sewer - No Contributed Capital with Collection System Units of Service**		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecas	322,296	326,835
4	**Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover**		
5	Flow		$ 1,651,440
6	BOD		208,627
7	TSS		421,731
8	Ammonia		37,258
9	Capacity		264,905
10	Customer Billing		979
11	**Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover**		**$ 2,584,941**
12	**Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)**	**FYE 2021 Rates**	**FYE 2026 Rates**
13	**Calculated Contract Sewer - No Contributed Capital with Collection System Variable Ra**		$ 7.9091
14	**Proposed Contract Sewer - No Contributed Capital with Collection Sy**	*$ 6.25*	**$ 7.9100**
15	**Contract Sewer - No Contributed Capital with Collection System Revenue Check**		
16	Variable Rate - All flow		$ 2,585,267
17	**Total Contract Sewer - No Contributed Capital with Collection System Revenue**		**$ 2,585,267**

Houston Combined Utility System

Wastewater Rate Design - Volume Rates

Line No.	Description			Test Year FYE 2026
				April 2026
1	**Contract Sewer - Connection-based Billing**			
2	**Contract Sewer - Connection-based Billing Units of Service**			
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112		1,112
4	**Contract Sewer - Connection-based Billing Costs to Recover**			
5	Flow		$	283,272
6	BOD			35,786
7	TSS			72,340
8	Ammonia			6,391
9	Capacity			45,439
10	Customer Billing			178
11	**Total Contract Sewer - Connection-based Billing Costs to Recover**		**$**	**443,406**
12	**Contract Sewer - Connection-Based Rates**	**FYE 2021 Rates**		**FYE 2026 Rates**
13	**Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection**		$	33.23
14	**Proposed Contract Sewer - Connection-based Billing Monthly Charge**	*$8.86/$24.71*	**$**	**33.23**
15	**Contract Sewer - Connection-based Billing Revenue Check**			
16	All Connections		$	443,421
17	**Total Contract Sewer - Connection-based Billing Revenue**		**$**	**443,421**