

D-1-GN-21-004638

EX PARTE,	§	IN THE DISTRICT COURT OF
CITY OF HOUSTON, TEXAS	§	
	§	TRAVIS COUNTY, TEXAS
	§	
	§	419th JUDICIAL DISTRICT

**FIRST AMENDED PETITION FOR  
EXPEDITED DECLARATORY JUDGMENT**

Pursuant to the Expedited Declaratory Judgment Act (the “EDJA”), TEX. GOV’T CODE Ch. 1205, the City of Houston, Texas (the “City”) seeks a judgment declaring legal recent increases in the City’s rates, fees, and charges for use of its combined water and wastewater utility system, revenue from which secures the system’s bonds and ensures compliance with bond covenants.

**I. RELIEF REQUESTED**

The EDJA was enacted to “stop the age-old practice allowing one disgruntled taxpayer to stop the entire bond issue simply by filing suit.” *City of Conroe v. San Jacinto River Auth.*, 602 S.W.3d 444, 451 (Tex. 2020), *reh’g denied* (June 12, 2020), *as corrected* (June 12, 2020) (internal quotations omitted).

That risk arises because issuers of public securities in Texas must obtain approval from the Office of the Texas Attorney General, TEX. GOV’T CODE § 1202.003, and as a pre-requisite must certify that there is “no-litigation

pending or threatened against the unit or governing body with respect to the issuance or approval of the bonds . . . .” TEX. ADMIN. CODE § 53.195. When there is pending litigation concerning the legality of the bonds or the revenues that secure them, Attorney General approval cannot be obtained, necessary bond issuances are delayed, and public infrastructure suffers.

To address this risk, the EDJA provides a mechanism for issuers to resolve disputes affecting their public securities on an expedited basis, with a final judgment operating as an injunction against all future attacks. TEX. GOV’T CODE § 1205.151.

Among the matters that may be resolved through an EDJA action is the “imposition of rate[s], fee[s], [and] charge[s]” that secure an issuer’s obligations on its bonds. TEX. GOV’T CODE § 1205.021(2)(E); *see also City of Conroe*, 602 S.W.3d at 455.

By this action, the City seeks a declaration that it has legally imposed increased rates, fees, and charges to be implemented effective September 1, 2021, and annually every April 1 thereafter through 2026, in order to fund the costs of the City’s combined water and wastewater utility system — including debt service on the system’s current and future bonds — and ensure compliance with applicable bond covenants.

## II. PARTIES AND SERVICE

### A. The City

The City is a municipality operating under a home-rule charter adopted pursuant to Article XI, Section 5 of the Texas Constitution, with its principal office in Harris County, Texas. As such, the City is an “issuer” under Section 1205.001 of the EDJA.

### B. Interested Parties

The interested parties to this action include all persons who reside in the City, own property located within the City’s boundaries, or are taxpayers of the City, and all others having or claiming any right, title, or interest in any property or funds to be affected by this proceeding (the “Interested Parties”). TEX. GOV’T CODE § 1205.044.

Upon receipt of this Petition, the Court must immediately issue a notice order informing all Interested Parties of their right to appear for trial at 10 o’clock, a.m., on the first Monday after the 20th day after the date of the notice order and to show cause why the relief sought in this Petition should not be granted and the City’s imposition of the new rates, fees, and charges for use of its combined water and wastewater utility system should not be validated and confirmed (the “Notice Order”). TEX. GOV’T CODE § 1205.041.

The City shall effectuate service on the Interested Parties by ensuring that a “substantial copy” of the Notice Order is published in a “newspaper of general circulation” in each of Travis, Harris, Fort Bend, and Montgomery Counties “once in each of two consecutive calendar weeks, with the date of the first publication before the 14th day before the trial date.” TEX. GOV'T CODE § 1205.043.

Publication of the Notice Order has the effect of making each Interested Party a party to the action and conferring upon the Court jurisdiction over each Interested Person as if that person were individually named and personally served.

Although not required by the EDJA, the City will also provide notice to each Interested Party by posting a copy of this Petition and the Notice Order on (i) the website of the City Secretary and (ii) the City Public Works Department website that is specifically dedicated to informing water and wastewater utility system customers about the increases in rates, fees, and charges addressed herein.

**C. The Office of the Attorney General of Texas**

In accordance with Section 1205.042 of the EDJA, the Honorable Ken Paxton, Attorney General of the State of Texas, may be served with a certified



copy of this Petition and all attached exhibits, as well as the Notice Order entered pursuant to Section 1205.041, at the following address: The Office of Attorney General of the State of Texas, Price Daniel Sr. Building, P.O. Box 12548, Capitol Station, Austin, Texas 78711-2548.

### **III. JURISDICTION AND VENUE**

This Court has jurisdiction over the subject matter of this action pursuant to Sections 1205.021 and 1205.022 of the EDJA. TEX. GOV'T CODE §§ 1205.021, 1205.022.

This Court has jurisdiction over all Interested Parties and the Attorney General pursuant to Sections 1205.044 and 1205.042 of the EDJA. TEX. GOV'T CODE §§ 1205.044, 1205.042.

Venue is proper in Travis County pursuant to Section 1205.022 of the EDJA. TEX. GOV'T CODE § 1205.022.

### **IV. FACTUAL BACKGROUND**

#### **A. The City's Combined Utility System**

As a home-rule city operating under Article XI, Section 5 of the Texas Constitution, the City possesses all powers conferred by its charter not inconsistent with the Texas Constitution or the general laws enacted by the Texas Legislature. TEX. CONST. ART. XI, § 5; *Proctor v. Andrews*, 972 S.W.2d 729, 733 (Tex. 1998).

Article II, Section 2 of the Charter of the City of Houston (the “City Charter”) grants the City broad powers of self-government co-extensive with the Texas Constitution. Article II, Section 7 of the City Charter specifically authorizes the City to “own, maintain, and operate a system of waterworks,” and Section 6 gives the City Council the “power by ordinance to fix and regulate the price of water . . . .”

On April 21, 2004, the City adopted Ordinance No. 2004-299 (the “Master Ordinance”), a certified copy of which is included as Attachment 1 to this Petition. The Master Ordinance created the City’s merged water and wastewater utility operations as a combined utility system (the “System”).

The System is the primary regional water and wastewater services provider for a population of over 2 million people in the City of Houston and neighboring communities. It serves these customers through a vast network of reservoirs, pipes, and treatment facilities.

The **water branch** of the System operates and maintains three water purification plants and 54 groundwater plants, in addition to an extensive transmission and distribution system.

The **wastewater branch** of the System operates and maintains 39 wastewater treatment plants and the collection system, including 381 lift stations and 6,200 miles of sanitary sewer lines.

## **B. The System's Costs & Revenue Sources**

The System's costs are divided into three categories:

- **Operations & Maintenance** – System employee salaries and benefits, chemicals, power, vehicles, equipment, supplies, *etc.*;
- **Capital Improvements** – design and construction of new and replacement infrastructure, including System employee labor on these projects, and fees for consultants and contractors that perform this work; and
- **Financing** – debt service payments, bond issuance costs, commercial paper fees, *etc.*

All of the System's costs are paid for through rates, fees, and charges imposed on the System's users.

Based upon its overall revenue needs, the System assigns particular rates to different types of users based upon various policy considerations, including volume of water consumed, cost-of-service, and conservation and economic factors (the "Rate Structure").

Under Section 5.9 of the Master Ordinance, revenues collected by the System can be used only for the System and for certain costs related to the

City's storm water management facilities; they are not available for any other needs of the City.

In November of 2004 - after adoption of the Master Ordinance - Houston voters adopted Article IX, Section 20 of the City Charter, which limits the City's ability to increase the System's rates without voter consent, but expressly excludes from that limitation any increases required by the City's bond covenants.

### **C. The System's Public Securities - Bonds & Commercial Paper**

Since its adoption in 2004, the Master Ordinance has governed the issuance of bonds and commercial paper to help finance the costs of the System, as authorized by state law. TEX. GOV'T CODE § 1502.051.

The System's presently outstanding bonds (the "System Bonds") and its outstanding commercial paper - all of which are secured by the System's revenues - are identified in Attachment 2 to this Petition.

### **D. The Bond Covenants**

The Master Ordinance contains a number of covenants made by the City to owners of the System Bonds.

Of particular importance, in Section 7.2 of the Master Ordinance, the City pledged that it would **impose rates sufficient to ensure its compliance**

**with all other covenants and provisions of the Master Ordinance (the “Rate Covenant”):**

The City covenants that it currently owns the System and has all necessary power and authority to own and operate the System as herein described and provided and that it possesses, and *shall exercise, all necessary power and authority to establish, fix, increase, impose and collect rates and charges for the use and services of the System in the amounts required to comply with the covenants and provisions contained herein.*

Att. 1 (Master Ordinance) at § 7.2 (emphasis added).

Among the obligations whose performance is secured by the Rate Covenant are:

- A covenant that the City will “at all times maintain the System . . . in good condition and working order” (the “**Good Working Order Covenant**”) Att. 1 (Master Ordinance) at § 7.3;
- A covenant that the City will “comply with all contractual provisions and agreements entered into by it and with all valid rules, regulations, directions or orders of any governmental, administrative or judicial body promulgating same, noncompliance with which would materially and adversely affect the operation of the System” (the “**Contracts and Government Orders Covenant**”) Att. 1 (Master Ordinance) at § 7.3;
- A covenant that the City will operate the System “in an efficient and economical manner . . . and in accordance with sound business principles” (the “**Sound Business Covenant**”) Att. 1 (Master Ordinance) at § 7.3;

- A covenant that the City will impose Rates “sufficient to produce Net Revenues<sup>1</sup> in each Fiscal Year at least equal to . . . 120% of the combined Debt Service Requirements scheduled to occur in such Fiscal Year on all Previous Ordinance Bonds<sup>2</sup> and First Lien Bonds then Outstanding”<sup>3</sup> (the “**DSCR Covenant**”) Att. 1 (Master Ordinance) at § 5.2(a); and
- A covenant that the City will at all times “maintain an operating reserve equivalent to two month’s budgeted Maintenance and Operating Expenses” (the “**Reserve Covenant**”) Att. 1 (Master Ordinance) at § 5.4.

The Rate Covenant and the other covenants made at Sections 5.2, 5.4, and 7.3 of the Master Ordinance apply to all of the System Bonds and commercial paper. Those provisions are hereinafter referred to collectively as the “Bond Covenants.”

A violation of any of the Bond Covenants would expose the City to potential legal action and liability. Section 7.10 of the Master Ordinance specifically empowers owners of the System’s bonds to compel, through court order, the City’s compliance with the Bond Covenants and other provisions of

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<sup>1</sup> Section 2.1 of the Master Ordinance defines Net Revenues to be “(i) all Gross Revenues remaining after deducting Maintenance and Operation Expenses, plus (ii) any Restricted Receipts deposited to the Revenue Fund that may be used to pay Debt Service Requirements on Obligations.” Att. 1 (Master Ordinance) at § 2.1.

<sup>2</sup> The Master Ordinance defines “Previous Ordinance Bonds” as the System’s junior lien bonds. Att. 1 (Master Ordinance) at § 2.1.

<sup>3</sup> Section 5.2(b) of the Master Ordinance alternatively requires net revenues at least equal to 110% of combined Debt Service Requirements scheduled to occur in a fiscal year on all outstanding “Previous Ordinance Bonds, First Lien Bonds, and Second Lien Bonds,” if that number is greater than the 120% requirement set forth in Section 5.2(a). Att. 1 (Master Ordinance) at § 5.2. Because the System has no outstanding Second Lien bonds, Section 5.2(b) of the Master Ordinance does not apply here.

the Master Ordinance, “including the making and collection of reasonable and sufficient rates and charges for the use and services of the System . . . .” Att. 1 (Master Ordinance) at § 7.10

Violation of any of the Bond Covenants could also cause a downgrade in the System’s credit rating, which could in turn cause an increase in the cost of future borrowing, increases in the costs of existing debt that is subject to variable interest rates, and higher costs for the System’s existing agreements for commercial paper facilities.

**E. The EPA Consent Decree**

In the late 1980s and 1990s, the Federal government began and implemented a nationwide effort under the Clean Water Act, 33 U.S.C. § 1251 *et seq.* to address sanitary sewer overflows. This initiative affected wastewater systems throughout the country.

A sanitary sewer overflow (“SSO”) is an overflow, spill, or release of wastewater stemming largely from blockages caused by fats, oils, and grease being dumped into the wastewater system from restaurants, homes, and other commercial and industrial sources; heavy rainfall events inundating the system; and illicit private storm drains connecting into the City’s wastewater

system. Aging pipes and other infrastructure that need to be replaced can also contribute to SSOs.

On September 20, 2018, the Federal government, acting through the Attorney General of the United States and at the request of the United States Environmental Protection Agency (“EPA”), and the State of Texas, on behalf of the Texas Commission on Environmental Quality (“TCEQ”), filed suit against the City of Houston in the United States District Court for the Southern District of Texas, alleging violations of the Clean Water Act and federal regulations associated with SSOs occurring within the System.<sup>4</sup>

On April 1, 2021, the federal judge presiding over the case entered a consent decree executed between the EPA, the TCEQ, and the City (the “Consent Decree”) to resolve the case. A copy of the Consent Decree is publicly available at [www.publicworks.houstontx.gov/wastewater-cd](http://www.publicworks.houstontx.gov/wastewater-cd).

In addition to the payment of a \$4.4 million civil penalty, the Consent Decree requires the City to implement work estimated to cost an additional \$2 billion over a 15-year period to improve and upgrade the System’s aging wastewater infrastructure and to achieve compliance with the Clean Water Act, with the goal of eliminating SSOs.

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<sup>4</sup> See *United States of America et al. v. City of Houston, Texas*, Civil Action No. 4:18-CV-3368; in the Southern District of Texas, Houston Division.



Addressing SSOs in one of the nation's largest and most complex wastewater systems, with over 6,200 miles of wastewater lines, 381 lift stations, three wet weather facilities, and 39 wastewater treatment plants, is no small feat. Among other things, the Consent Decree requires the City to:

- Conduct a comprehensive assessment of its sanitary sewer system to identify defective sewer pipes and lift stations and to prioritize rehabilitation efforts to prevent the occurrence of future SSOs;
- Repair or replace no less than 150 miles of sewer pipe and associated manholes and renew or replace approximately 18 lift stations annually;
- Repair nine identified locations with deficient capacity to convey increases in flow through the system during Houston's frequent excessive rainfall events;
- Develop and implement a capacity, management, operation, and maintenance program that includes comprehensive system cleaning and a grease and root control program to minimize SSOs caused by sewer blockages; and
- Install more than 3,000 real-time sensors capable of sending alerts when conditions indicate a problem in the sewer system that may lead to an SSO.

The goal of these and other requirements in the Consent Decree is to protect the environment and human health and improve the City's wastewater system for generations to come. Areas with higher numbers of SSOs and aging infrastructure, including those located in low-income communities, are among the first priorities under the Consent Decree.

Failure to complete components of the work by the deadlines prescribed in the Consent Decree would result in the accrual of significant additional monetary penalties against the City.

#### **F. The Rate Study**

The City Council last adopted new rates, fees, and charges for the System in 2010.<sup>5</sup> As is common practice in the municipal water industry, the City recently commissioned a cost-of-service study of its rate needs by Carollo Engineers, an engineering firm specializing in water infrastructure (the “Rate Study”).

The purpose of the Rate Study was two-fold. First, it sought to determine the revenues necessary to ensure sufficient funds to pay the System’s projected expenses – including the requirements of the Consent Decree – and to satisfy the Bond Covenants over the next five fiscal years. Second, the Rate Study examined how effectively the existing Rate Structure aligned each customer type with the proportion of demands they place on the System.

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<sup>5</sup> Section 5.2 of the Master Ordinance and City Ordinance No. 2010-305 together require certain automatic annual adjustments to the System’s rates based on inflationary indices described therein. The System has implemented the annual automatic adjustments annually since 2010 in accordance with the Master Ordinance and Ordinance No. 2010-305 and other applicable law. Those automatic adjustments remain required under the Master Ordinance and Ordinance 2010-305 and are not altered by the rate ordinance that is the subject of this Petition.

Utilizing cost-of-service principles, as well as industry standards set by the American Water Works Association and the Water Environment Federation, the Rate Study prepared a financial plan for each branch (water and wastewater) of the System to determine the revenue increases needed for each to support itself, while also considering key metrics of the combined System.

A detailed cost allocation was then developed for both the water and wastewater branches, based on the unique attributes of each, to determine the portion of total revenue requirements that should be recovered from each customer type.

Finally, the Rate Study considered ways 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 Rate Study concluded that projected revenues from the System's existing rates, fees, and charges would be insufficient to meet the System's projected expenses (including compliance with the Consent Decree) and satisfy the Bond Covenants, in Fiscal Year 2022<sup>6</sup> and beyond.

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<sup>6</sup> The City's fiscal year 2022 runs from July 1, 2021, to June 30, 2022.

The Rate Study also concluded that an adjustment to the Rate Structure was needed to better align each type of System user to its actual cost of service.

Based upon these determinations, the Rate Study recommended a re-design of the Rate Structure and a schedule of increases in the System's rates, fees, and charges over the next five fiscal years.

**G. Adoption of the Rate Ordinance and Rates**

On June 23, 2021, at a regularly scheduled meeting properly noticed under the Texas Open Meetings Act, TEX. GOV'T. CODE Ch. 551, the Houston City Council adopted Ordinance No. 2021-515 (the "Rate Ordinance"), a certified copy of which is included as Attachment 3 to this Petition.

Exhibit C to the Rate Ordinance set forth tables of the Rate Study's recommended new rates, fees, and charges for each customer type effective September 1, 2021, and future incremental increases to those rates effective in April of 2022, 2023, 2024, 2025, and 2026. Att. 3 (Rate Ordinance) at Ex. C.

Through the Rate Ordinance, the City Council authorized the imposition of new rates, fees, and charges consistent with the schedule and up to the amounts set forth in Exhibit C to the Rate Ordinance. Att. 3 (Rate Ordinance) at § 4.

The Rate Ordinance also authorized the Director of Houston Public Works, working with Carollo Engineers, to revise the Rate Study and to adjust the recommended rates downward as appropriate, while maintaining the implementation schedule of Exhibit C to the Rate Ordinance. Att. 3 (Rate Ordinance) at § 4.

The Rate Ordinance mandated that Houston Public Works publish a table of the final rates, fees, and charges to be implemented in accordance with the Ordinance on the City Secretary's website on September 1, 2021. Att. 3 (Rate Ordinance) at § 4.

The Rate Ordinance further provided that, upon publication, the rates, fees, and charges set forth in the table "shall be final and shall be implemented in accordance with their respective effective dates without any further action from City Council." Att. 3 (Rate Ordinance) at § 4.

Following City Council's adoption of the Rate Ordinance, and in accordance with the terms thereof, the Director of Houston Public Works requested that Carollo Engineers amend the Rate Study to adjust certain assumptions regarding FEMA funding for the System's capital improvement projects and the System's targeted debt service coverage ratio (the "Amended Rate Study").

Those adjustments resulted in recommended rates, fees, and charges that were equal to or lower than the maximums authorized by the Rate Ordinance for all types of customers, while maintaining the approved implementation schedule. For all single family customers, the combined water and wastewater rates, fees, and charges — the total amount that appears on a customer’s bill — decreased from the maximums authorized by the Rate Ordinance.

Houston Public Works accepted the Amended Rate Study and its recommended rates, fees, and charges. A set of tables reflecting these final rates, fees, and charges (collectively, the “Rate Table”) was published on the City Secretary’s website at [www.houstontx.gov/citysec/](http://www.houstontx.gov/citysec/) as of September 1, 2021, and remains posted there, along with the Amended Rate Study. A certified copy of the Rate Table is also included as Attachment 4 to this Petition.

By the express terms of the Rate Ordinance, the rates, fees, and charges set forth in the Rate Table (the “Rates”) are “final and shall be implemented in accordance with their respective effective dates . . . .”

## V. THE RATES ARE LEGALLY SOUND

The City's imposition of the Rates is legally sound because the Rates are authorized by the City Charter, comply with governing state law, and result from a valid exercise of municipal discretion.

### A. The Rates Are Authorized by the City Charter

The Rates were duly adopted by the City in accordance with the Texas Open Meetings Act, TEX. GOV'T CODE Ch. 551, and Article II, Sections 2, 6, and 7 of the City Charter. Article IX, Section 20 of the City Charter does not bar the Rates, because they are "required by bond covenants."

Specifically, the Rate Covenant requires the City to impose the Rates to ensure that the City can comply with the Good Working Order Covenant, the Contracts and Government Orders Covenant, the Sound Business Covenant, and the DSCR Covenant.

**Good Working Order Covenant** — In order to maintain the System in good and working order, as required by the Good Working Order Covenant, the City must undertake the systematic replacement of System components that have reached or soon will reach the end of their useful life.

Water and wastewater system assets generally have an expected useful life of 30 to 40 years, but many of the System's assets are far older. Indeed, 51% of the System's water lines (by mileage) are more than 30 years in age,

and nearly a third are in excess of 40 years old. On the wastewater side, over 25% of the lines (by mileage) are greater than 30 years old. And both the water and wastewater branches of the System include lines and plant facilities that are 75-100 years old.

A failure to replace the System's aging infrastructure can have dire consequences, as seen in 2020, when a break in a 96-inch water main flooded Houston's East Loop 610, stranding motorists, crippling water pressure, and forcing a boil water notice that closed schools, as well as medical and social services and restaurants. And in May of 2021, Houstonians on the east side of the City were left with low or no water pressure for days due to a break in a 36-inch water main installed in 1967.

Growth in the Houston population has also contributed to the System's growing infrastructure needs, as more treated water is necessary to meet customer demand. Indeed, one major infrastructure project that will be funded by the Rates involves expansion of the City's Northeast Water Purification plant to increase the existing plant's capacity by 320 million gallons per day by 2024.

In addition, weather disasters, which are becoming more and more common in the Houston region, create extreme stress on the System's



capabilities. Hurricane Harvey and Winter Storm Uri are just two recent examples.

In order to better withstand these types of weather-related disasters, the System must improve its resiliency by proactively responding to the needs of its aging water and wastewater infrastructure, increasing backups that support drinking water and wastewater plants, and identifying and minimizing other vulnerabilities in the entire System.

With the projected revenue from the Rates, the City will be able to fund its projected operation and maintenance expenses and facilitate the degree of infrastructure improvement and replacement necessary to keep the System in good and working order.

**Contracts and Government Orders Covenant** – Separate from the ongoing needs to replace aging infrastructure and meet additional customer demand, the Consent Decree necessitates that the System perform work on its wastewater system that will add an additional \$2 billion in estimated costs over the next 15 years. For the period covered by the Rates - Fiscal Years 2022 through 2026 - the projected additional cost associated with capital improvements required by the Consent Decree is \$966 million.

Failure to meet the requirements and deadlines set forth in the Consent Decree would subject the City to significant monetary penalties. Voluntary exposure of the City to those penalties would not comport with sound business principles.

With the projected revenue from the Rates, the System will have the funds necessary to meet the requirements of the Consent Decree during the fiscal years covered by the Rates and to mitigate future SSO risk.

**DSCR Covenant & Sound Business Covenant** — The Rates are necessary for the System to generate net revenues sufficient to avoid violation of the DSCR Covenant and to satisfy the Sound Business Covenant.

The City adopts rates and charges for the System on a forward-looking basis that necessarily rests on projections of revenues and expenses. Those projections are just that – estimates of future events.

Weather fluctuations can have significant impacts on the System's revenue stream, and unforeseen weather disasters can cause major increases in System expenses. For example, Hurricane Harvey caused an estimated \$2 billion in damages to the System.

Given these potential impacts, sound business principles require that the System impose rates sufficient to generate net revenues reasonably above

the DSCR Covenant's floor of 120% of scheduled debt service payments. It would be unsound for the City to adopt rates that resulted in projected net revenues at or very near 120% of scheduled debt service payments, as doing so would leave the System vulnerable to violating the DSCR Covenant.

Although the Master Ordinance permits the System to satisfy the DSCR Covenant by looking to reserve funds for the portion of the coverage in excess of 100% of scheduled debt service payments, that practice does not comport with sound business principles and is inconsistent with rating agencies' criteria for the System's current credit ratings. Engaging in such a practice would make the System vulnerable to a potential credit rating downgrade.

In light of the System's rising costs, including those necessitated by the Consent Decree, the System's projected net revenues without a rate increase would have fallen below 120% of scheduled debt service payments in Fiscal Year 2022 and remained below that level in the following years. The new Rates are projected to produce net revenues between 130% and 135% of the System's scheduled debt service payments in each of Fiscal Years 2022 - 2026, thereby ensuring the City's continued satisfaction of the DSCR Covenant and the Sound Business Covenant.

**Sound Business Covenant & System Credit Rating** – Operation of the System in accordance with sound business principles also requires the System to borrow as economically as possible, which compels maintaining an appropriate credit rating. The System currently maintains an AA2 credit rating on its first lien bonds from Moody’s and equivalent ratings from S&P and Fitch. A lower rating by Moody’s or any other rating agency would increase the City’s borrowing costs by as much as ten to fifteen basis points (.10-.15%) if the ratings were dropped “one notch” – *e.g.*, by Moody’s from AA2 to AA3.

The ratings agencies have consistently cited the System’s DSCR and its cash balance as significant factors contributing to the System’s current credit rating. Ratings agencies have also identified the ability of the System to fund some capital expenditures from current revenues, as opposed to financing them all with additional debt, as a factor supporting a strong credit rating.

In light of the System’s rising costs, including those necessitated by the Consent Decree, without rate increases, the System’s DSCR and its cash reserves would have dropped precipitously, falling below the DSCR Covenant in Fiscal Year 2022 and below the Reserve Covenant in 2023. And, without rate increases, the System would not be able to continue its practice of

funding approximately 20% of its needed capital improvements from current revenue.

Projected revenue from imposition of the Rates will allow the System to (i) achieve a DSCR<sup>7</sup> between 130% and 135%, (ii) maintain cash reserves of between 172 and 466 days of budgeted operating and maintenance expenses, and (iii) utilize cash funding for 20 percent of its annual capital improvement plan.

Together, those levels are necessary to mitigate the risk of a credit rating downgrade, to secure economical borrowing terms for future debt transactions, and to avoid increased fees on the System's outstanding credit facilities, all as required by the Sound Business Covenant.

Overall, the Rate Covenant requires imposition of the Rates in order to generate System revenues sufficient to (i) maintain the System in good and working order, (ii) timely comply with the Consent Decree's requirements, (iii) ensure net revenues are at all times "at least" 120% of scheduled debt service payments, and (iv) maintain an appropriate credit rating so as to borrow as economically as possible.

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<sup>7</sup> The projected DSCR is calculated in the manner prescribed by the DSCR Covenant.

Without the adoption of the Rates, the System would not have generated revenues sufficient to satisfy these requirements. As such, the Rates are required by the Bond Covenants and are permitted under Article IX, Section 20 of the City Charter.

**B. The Rates Satisfy Chapter 1502.057 of the Texas Government Code**

Section 1502.057(a) of the Texas Government Code requires that a municipality's charges for services shall be at least sufficient to pay "(1) all operating, maintenance, depreciation, replacement, improvement, and interest charges in connection with the utility system; (2) for an interest and sinking fund sufficient to pay any public securities issued or obligations incurred for any purpose described by Section 1502.002 relating to the utility system; and (3) any outstanding debt against the system." TEX. GOV'T CODE § 1502.057(a).

Section 1502.057(b) also places two additional requirements on the rates charged by utility systems: the rates must be equal and uniform across customer types and there can be no free services for anyone other than municipal public schools or buildings and institutions operated by the municipality. TEX. GOV'T CODE § 1502.057(b).

The projected revenue from the Rates will ensure the City's satisfaction of Section 1502.057(a)'s requirements in Fiscal Years 2022 through 2026. Moreover, the Rates are equal and uniform across customer types, as required by Section 1502.057(b), and they do not result in the provision of free services to any user not authorized under Section 1502.057(b).

**C. The Rates Are a Valid Exercise of Municipal Discretion**

Subject to the requirements of the City Charter, the Master Ordinance, and Section 1502.057 of the Texas Government Code, the City maintains municipal discretion in setting rates, fees, and charges for use of the System. The City's imposition of the Rates is a reasonable and proper exercise of that discretion.

The Rates are based on the recommendations of a Rate Study performed by qualified professionals in accordance with industry-accepted cost-of-service principles and with appropriate respect for the System's Bond Covenants.

Although not legally required to do so, the City hosted multiple public hearings in advance of the City Council's action on the Rate Ordinance. Following those public hearings, the City Council adopted the Rate Ordinance

at a regularly scheduled open meeting properly noticed in accordance with the Texas Open Meetings Act, TEX. GOV'T CODE Ch. 551.

Further, as authorized by the Rate Ordinance, the Director of Public Works oversaw the adjustment of certain assumptions in the Rate Study to reflect an anticipated reduction in FEMA funding for capital improvements and a refinement of the System's targeted DSCR. Those adjustments resulted in final Rates for all customer types that are equal to or *lower* than the maximums authorized by the Rate Ordinance and continue to reflect cost of service.

## **VI. REQUEST FOR EXPEDITED DECLARATORY JUDGMENT**

The City's imposition of the Rates is a "public security authorization" within the meaning of Section 1205.001 of the EDJA. *See* TEX. GOV'T CODE § 1205.021(2)(E).

The City, as an "issuer" under Section 1205.001(1) of the EDJA, is required to impose the Rates in order to ensure continued compliance with the Bond Covenants and state law.

Accordingly, the City respectfully requests that this Court enter a declaratory judgment that:



- a) The City of Houston has legally and validly imposed the Rates and may implement them according to the schedule set forth in the Rate Table; and
- b) In accordance with Section 1205.151 of the Texas Government Code, the Court's judgment in this lawsuit shall constitute a permanent injunction against the institution or prosecution by any person or entity of any action or proceeding contesting the legality and validity of the Rate Ordinance or the Rates; the implementation of the Rates; any other matter adjudicated by the Court's judgment in this action; and any matter that could have been raised in this proceeding.

### **PRAYER**

WHEREFORE, the City respectfully prays that, upon expedited trial and final hearing, the Court (i) enter a declaratory judgment as requested herein, and (ii) tax all costs of this action against any person other than the Attorney General who appears and contests or intervenes in this action, as authorized by Section 1205.066 of the EDJA. The City further requests such other and further relief, at law or in equity, to which the City may show itself entitled.

Respectfully submitted,

**HUNTON ANDREWS KURTH LLP**

*/s/ Kelly Sandill*

---

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**ATTORNEYS FOR THE CITY OF  
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### Automated Certificate of eService

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# Attachment 1

I, PAT J. DANIEL, City Secretary of the City of Houston, Texas, do hereby certify that the within and foregoing is a true and correct copy of Ordinance 2004-299 passed and adopted by the City Council of said City on the 21st day of April, 2004, as the same appears in the records in my office.

WITNESS my hand and the Seal of said City this 10th day of March, 2021.



---

Pat J. Daniel  
City Secretary

MAYOR'S OFFICE  
HOUSTON, TEXAS

April 14, 2004

To the Honorable City Council of the City of Houston, Texas  
City Hall Annex

In accordance with the provisions of Article VII, Section 7 of the Charter of the City of Houston, Texas, I submit to you the ordinance set out below with the request that it be passed finally on the date of its introduction. There exists a public emergency requiring such action, and I accordingly request that you pass the same if it meets with your approval.



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City of Houston, Texas  
Mayor

City of Houston Ordinance No. 2004- 299

**CITY OF HOUSTON ORDINANCE NO. 2004-299**

AN ORDINANCE PROVIDING FOR ISSUANCE OF CITY OF HOUSTON, TEXAS, COMBINED UTILITY SYSTEM REVENUE OBLIGATIONS, PROVIDING FOR THE PAYMENT THEREOF; MAKING OTHER PROVISIONS REGARDING SUCH OBLIGATIONS AND MATTERS INCIDENT THERETO, INCLUDING COVENANTS AND AGREEMENTS RELATING TO THE OPERATION AND MANAGEMENT OF THE COMBINED UTILITY SYSTEM, THE REVENUES DERIVED FROM ITS OPERATION AND OWNERSHIP, THE ESTABLISHMENT AND MAINTENANCE OF FUNDS AND ACCOUNTS FOR THE PAYMENT OF SUCH OBLIGATIONS, SPECIFYING THE TERMS AND CONDITIONS FOR THE ISSUANCE OF SUCH OBLIGATIONS AND OTHER MATTERS INCIDENT AND RELATED TO THEIR ISSUANCE AND SECURITY; AND DECLARING AN EMERGENCY



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**CITY OF HOUSTON ORDINANCE NO. 2004-299**

AN ORDINANCE PROVIDING FOR ISSUANCE OF CITY OF HOUSTON, TEXAS, COMBINED UTILITY SYSTEM REVENUE OBLIGATIONS, PROVIDING FOR THE PAYMENT THEREOF; MAKING OTHER PROVISIONS REGARDING SUCH OBLIGATIONS AND MATTERS INCIDENT THERETO, INCLUDING COVENANTS AND AGREEMENTS RELATING TO THE OPERATION AND MANAGEMENT OF THE COMBINED UTILITY SYSTEM, THE REVENUES DERIVED FROM ITS OPERATION AND OWNERSHIP, THE ESTABLISHMENT AND MAINTENANCE OF FUNDS AND ACCOUNTS FOR THE PAYMENT OF SUCH OBLIGATIONS, SPECIFYING THE TERMS AND CONDITIONS FOR THE ISSUANCE OF SUCH OBLIGATIONS AND OTHER MATTERS INCIDENT AND RELATED TO THEIR ISSUANCE AND SECURITY; AND DECLARING AN EMERGENCY

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF HOUSTON:**

**ARTICLE I**

**FINDINGS AND DETERMINATIONS**

Section 1.1. Findings and Determinations. It is hereby officially found and determined that:

(a) The City of Houston, Texas (the "City") is an incorporated city operating under a home-rule charter adopted pursuant to Article XI, Section 5, of the Constitution of Texas having a population according to the latest federal decennial census of 50,000 or more and having outstanding long-term indebtedness that is rated by a nationally recognized rating agency for municipal securities in one of the four highest rating categories for long-term obligations.

(b) The City is authorized by Chapter 1371, Texas Government Code, as amended, such statute's predecessors and other applicable laws to issue obligations payable from the revenues of the City's combined utility system (the "System") for the purpose of acquisition or construction of and improvements, additions, or extensions to the System.

(c) The City has determined that, except for certain bonds to be sold to the Texas Water Development Board, future financing of capital improvements to the System shall be undertaken through the issuance of obligations under a new master ordinance governing and pertaining to their issuance.

**ARTICLE II**

**DEFINITIONS AND INTERPRETATIONS**

Section 2.1. Definitions. In this Ordinance, the following terms shall have the following meanings, unless the context clearly indicates otherwise:

“Additional First Lien Bonds” shall mean the additional first lien revenue bonds permitted to be issued by the City pursuant to Section 6.1 hereof.

“Additional Second Lien Bonds” shall mean the additional second lien revenue bonds permitted to be issued by the City pursuant to Section 6.1 hereof.

“Adjustable Rate Obligations” shall mean any Bonds or other Obligations that initially bear interest at an adjustable or variable rate of interest, including Adjustable Rate Obligations which may be converted to bear a rate of interest fixed to maturity.

“Average Annual Debt Service Requirements” shall mean the average of the annual Debt Service Requirements (taking into account all mandatory principal redemption requirements) scheduled to occur in then current Fiscal Year and future Fiscal Years for the particular Obligations (First Lien Bonds, Second Lien Bonds, or otherwise) for which such calculation is made.

“Board Bonds” shall mean the Water and Sewer System Junior Lien Revenue Bonds purchased or to be purchased by the Texas Water Development Board on a parity with the Previous Ordinance Bonds Outstanding under the terms of the Previous Ordinance, as described in Exhibit A attached hereto.

“Bonds” shall mean any or all of the Obligations issued as First Lien Bonds or the Second Lien Bonds, or both, as the context may indicate.

“Business Day” shall mean a day which is not a banking holiday in New York, New York, or Houston, Texas, except as may be otherwise provided in a Supplemental Ordinance.

“City” shall mean the City of Houston, Texas, and, where appropriate, the City Council thereof and any successor to the City as owner of the System.

“Credit Agreement” shall mean any agreement between the City and a third party institution pursuant to which such third party institution issues a letter of credit, municipal bond insurance policy, line of credit, standby purchase agreement, surety policy, surety bond or other guarantee for the purpose of enhancing the creditworthiness or liquidity of any of the City’s obligations pursuant to any Bonds or Qualified Hedge Agreements and in consideration for which the City may agree to pay, but solely from Net Revenues as provided herein, (i) periodic payments for the availability of such Credit Agreement and/or (ii) reimbursements or repayments of any amounts advanced under such Credit Agreement, together with interest and other stipulated costs and charges related to such amounts advanced. Obligations of the City pursuant to a Credit Agreement shall be deemed to be, and shall be included within, the Debt Service Requirements for the series of Bonds to which the Credit Agreement relates. Further, obligations of the City to make payments under a Credit Agreement as reimbursements or repayments of amounts paid or advanced under such Credit Agreement for interest on or principal of any Bonds (including interest and other stipulated costs and charges related to such amounts advanced) shall be deemed to be payments of interest on or principal of such Bonds. Each Credit Agreement shall be deemed to be a part of the Bonds of the series to which it relates for the purpose of

securing its payment or repayment by the pledge of Net Revenues as provided in Articles Five, Six, and Seven of this Ordinance. Unless specifically provided for in a Supplemental Ordinance, issuers of Credit Agreements shall not be treated as Owners of Bonds for purposes of any voting rights to approve amendments or to direct the exercise of any remedies under this Ordinance; provided that a Supplemental Ordinance may provide that, so long as an institution that issues a municipal bond insurance policy insuring a series of Bonds is not in default of its payment obligations under such policy, such institution may, under the terms of the Ordinance, at all times be deemed to be the exclusive owner of such series of Bonds for the purpose of all approvals, consents, waivers, or exercise of any action and the direction of all remedies. For purposes of this Ordinance, Credit Agreements shall not include a Reserve Fund Surety Policy.

“Crossover Refunding Bonds” shall mean any Bonds the proceeds of which: (i) are deposited in an escrow account established for such purpose with a Paying Agent/Registrar, (ii) cannot be applied to the purpose for which such Crossover Refunding Bonds are to be issued until the Crossover Refunding Bonds Break Date, (iii) must be sufficient, together with the investment income thereon, after the payment of bond issuance costs, if any, to pay the Debt Service Requirements on such series on and prior to such Crossover Refunding Bonds Break Date, and (iv) other than paying or providing for the payment of bond issuance costs, if any, cannot be used for any purpose other than the payment of Debt Service Requirements on such Crossover Refunding Bonds on and prior to the Crossover Refunding Bonds Break Date.

“Crossover Refunding Bonds Break Date” shall mean the date specified in the Supplemental Ordinance authorizing a Series of Crossover Refunding Bonds as the date upon which the proceeds of such Crossover Refunding Bonds can be applied to the purpose of which such Crossover Refunding Bonds are to be issued upon the satisfaction of certain conditions, which conditions shall be set forth in such Supplemental Ordinance.

“Debt Service Requirements” shall mean, as of any period of time for which such calculation applies, an amount equal to the sum of the following for any such period and with respect to all or any portion of the Bonds:

A. Current interest scheduled to be paid during such period on such Bonds, except to the extent that provision for the payment of such interest has been made by (i) appropriating for such purpose amounts sufficient to provide for the full and timely payment of such interest either from proceeds of Bonds, from interest earned or to be earned thereon, from other System funds other than Net Revenues, or from any combination of such sources and (ii) depositing such amounts (except in the case of interest to be earned, which shall be deposited as received) into a fund or account for capitalized interest, the proceeds of which are required to be transferred as needed into the First Lien Bond Interest and Sinking Fund or the Second Lien Bond Interest and Sinking Fund, as the case may be, plus

B. That portion of the principal of, or compounded interest on, such Bonds scheduled to be payable during such period (either at maturity or by reason of scheduled mandatory redemptions, but after taking into account all prior optional and mandatory Bond redemptions);

provided, however, that the following rules shall apply to the computation of Debt Service Requirements on any series of Bonds that are Short Term Obligations, Adjustable Rate Obligations or Refundable Obligations:

(i) For any series of Bonds issued as Short Term Obligations under this Ordinance pursuant to a program designated by the City as a commercial paper or similar program, Debt Service Requirements shall be computed on the assumption that the principal amount shall continuously be refinanced under such program and remain outstanding until the first Fiscal Year for which interest on such Short Term Obligations has not been capitalized or otherwise funded or provided for, at which time (which shall not be beyond the term of such program) it shall be assumed that the outstanding principal amount thereof shall be refinanced with a series of Bonds of the same lien which shall be assumed to be amortized over a remaining period not to exceed 30 years from the original issue date of such Short Term Obligations and shall be assumed to be amortized in such a manner that the Debt Service Requirements in any 12-month period are substantially equal to the Debt Service Requirements for any other 12-month period, and shall be assumed to bear interest at a fixed interest rate estimated by the City's financial advisor in a written certificate delivered to the City at the time of such calculation to be the interest rate such series of Bonds would bear if issued on such terms on the date of such estimate;

(ii) For any series of Bonds issued as Adjustable Rate Obligations, it shall be assumed that such Bonds will bear interest at a rate calculated as follows: (a) with respect to compliance with Section 5.2 of this Ordinance, for any such series of Bonds then Outstanding, at the actual interest rate derived from such variable or adjustable interest rate formula or computation, or the actual interest payable on such series of Bonds during the period covered by such calculation, and (b) with respect to compliance with the Reserve Fund Requirements and compliance with Section 6.1 of this Ordinance, for any such Bonds then Outstanding or proposed to be issued, at an interest rate estimated by the City's financial advisor in a written certificate delivered to the City at the time of such calculation to be the average rate of interest such Bonds would bear if issued as long-term bonds, in the same principal amount and with the same priority of lien, bearing interest at fixed rates based on the average life of the Adjustable Rate Obligations;

(iii) For the purpose of calculating the Debt Service Requirements on any series of Bonds issued as Refundable Obligations, such Bonds shall be assumed to be amortized in substantially equal annual amounts to be paid for principal and interest over an assumed amortization period not to exceed 30 years from the original issue date of such series of Bonds at an interest rate estimated by the City's financial advisor in a written certificate delivered to the City at the time of such calculation to be the average rate of interest such series of Bonds would bear if issued as long-term bonds in the same principal amount with the same priority of lien, bearing interest at fixed rates to be amortized over 30 years;

(iv) With respect to Crossover Refunding Bonds, the aggregate Debt Service Requirements thereon until the Crossover Refunding Bonds Break Date shall be disregarded; and

(v) With respect to Bonds to be redeemed with the proceeds of Crossover Refunding Bonds, Debt Service Requirements thereon after the Crossover Refunding Bonds Break Date shall be disregarded.

Debt Service Requirements shall be calculated on the assumption that no Bonds Outstanding at the time of calculation will cease to be Outstanding except by reason of the payment of scheduled principal maturities or scheduled mandatory redemptions of such Bonds, except as provided above for Short Term Obligations.

Credit Agreements shall cause Debt Service Requirements to be increased only to the extent of scheduled payments and charges for the availability of the Credit Agreement without regard to any repayment or reimbursement obligations or interest thereon or other stipulated costs or charges related thereto.

Debt Service Requirements shall include debt service requirements on Previous Ordinance Bonds, including without limitation, Outstanding Board Bonds at the time of such calculation.

Qualified Hedge Agreements shall cause Debt Service Requirements to be (i) increased by the amount of any scheduled payments and charges for the availability of the Qualified Hedge Agreement, (ii) decreased by the amount of any scheduled interest payments on the related Bonds which the City's financial advisor certifies in a written certificate delivered to the City to be modified pursuant to the Qualified Hedge Agreement, and (iii) increased by the gross payments of the City under the Qualified Hedge Agreement (without regard to netting); provided, however, that the Debt Service Requirements for any variable or adjustable payment obligation of the City under the Qualified Hedge Agreement shall be calculated in accordance with the provisions contained in paragraph (ii) above of the definition of Debt Service Requirements, as certified by the City's financial advisor in a written certificate delivered to the City; and provided further, that any obligation of the City to make termination payments that are not payable in installments over the remaining term of that relevant transaction or to deliver collateral under a Qualified Hedge Agreement shall be paid as a Third Lien Obligation or an obligation inferior and subordinate to Third Lien Obligations.

"Designated Index" shall mean the United States Consumer Price Index for all Urban Consumers (also known as the CPI-U) for the Houston-Galveston-Brazoria, Texas Metropolitan Area (1982-1984=100), as published by the Bureau of Labor Statistics, U.S. Department of Labor (but if such is subject to adjustment later, then the later adjusted index, together with any correlation factor necessary to relate the later adjusted index to the earlier index, as published by the entity publishing the index, shall be used), or if such publication is discontinued, the Designated Index shall then refer to comparable statistics on changes in the cost of living for urban consumers as the same may be computed and published (on the most frequent basis



available) by an agency of the United States or by a responsible financial periodical of recognized authority, which agency or periodical shall be selected by the City.

“First Lien Bonds” shall mean each series of First Lien Bonds from time to time hereafter issued, but only to the extent such First Lien Bonds remain Outstanding within the meaning of this Ordinance.

“Fiscal Year” shall mean the City’s fiscal year, which currently runs from July 1 to June 30, but which may be changed from time to time by the City.

“Fourth Lien Obligations” shall mean Obligations authorized by Section 6.3 of this Ordinance.

“Gross Revenues” shall mean all revenues and income of every nature now and hereafter derived or received by the City from the operation and ownership of the components of the System; the interest income from the investment or deposit of money in the funds created pursuant to this Ordinance and the Previous Ordinance; and any other revenues hereafter pledged to the payment of Obligations issued pursuant to this Ordinance and the Previous Ordinance. Gross Revenues shall not include Restricted Receipts. Gross Revenues shall also include all payments received by the City, except for termination payments and receipts of collateral, pursuant to Qualified Hedge Agreements.

“Interest Payment Date” shall mean the dates designated in the Supplemental Ordinances.

“Maintenance and Operation Expenses” shall mean the reasonable and necessary expenses of operation and maintenance of the System, including all salaries, wages, pension fund contributions, interest, labor, materials, repairs and extensions necessary to render efficient service (but only such repairs and extensions as, in the judgment of the governing body of the City, are necessary to keep the System in operation and render adequate service to the City and the inhabitants thereof, or such as might be necessary to meet some physical accident or conditions which would otherwise impair the Bonds or other Obligations), and all payments (including payments of amounts equal to all or a part of the debt service on bonds issued by other political subdivisions and authorities of the State of Texas) under contracts which are now or hereafter defined for a system such as the System as operating expenses by the Legislature of Texas. Depreciation shall never be considered as a Maintenance and Operation Expense. Maintenance and Operation Expenses shall include, without limitation, all payments under contracts for the impoundment, conveyance or treatment of water or otherwise which are now or hereafter treated as operating expenses under the laws of the State of Texas and the treatment of such payments as Maintenance and Operation Expenses shall not be affected in any way if, subsequent to the entering into such contracts, the City acquires as a part of the System title to any properties or facilities used to impound, convey or treat water under such contracts, or if the City contracts to acquire title to such properties or facilities as a part of the System upon the final payment of debt service on the bonds issued to finance such properties or facilities.

“Master Ordinance” shall mean this Ordinance and any amendments hereto pursuant to Section 7.15.

“Maximum Annual Debt Service Requirements” shall mean the greatest combined Debt Service Requirements (taking into account all mandatory principal redemption requirements) scheduled to occur in any particular future Fiscal Year or in the then current Fiscal Year for the particular Bonds (First Lien Bonds, Second Lien Bonds, Previous Ordinance Bonds, or any combination of the foregoing) for which such calculation is made.

“Net Revenues” shall mean (i) all Gross Revenues remaining after deducting Maintenance and Operation Expenses, plus (ii) any Restricted Receipts deposited to the Revenue Fund that may be used to pay Debt Service Requirements on Obligations.

“Obligations” shall mean Previous Ordinance Bonds and obligations authorized pursuant to this Ordinance, including, without limitation, First Lien Bonds, Second Lien Bonds, Third Lien Obligations, Fourth Lien Obligations, Credit Agreements, and Qualified Hedge Agreements.

“Ordinance” shall mean the Master Ordinance and all Supplemental Ordinances.

“Outstanding,” when used with reference to the Previous Ordinance Bonds, First Lien Bonds, Second Lien Bonds, Third Lien Obligations, or Fourth Lien Obligations, as the case may be, shall mean, as of a particular date, all such Obligations theretofore delivered except: (a) any such Obligation canceled by or on behalf of the City at or before said date; (b) any such Obligation defeased pursuant to the defeasance provisions of the Previous Ordinance or the Supplemental Ordinance authorizing its issuance, or otherwise defeased as permitted by applicable law; and (c) any such Obligation in lieu of or in substitution for which another Obligation shall have been delivered pursuant to the ordinance authorizing the issuance of such Obligation.

“Owner” or “Registered Owner,” when used with respect to any Obligation, shall mean the person or entity (including any entity acting as an underwriter of Bonds) in whose name such Obligation is registered in the Register. Any reference to a particular percentage or proportion of the Owners of the Obligations of a particular class or series of Bonds shall mean the Owners at a particular time of the specified percentage or proportion in aggregate principal amount of all Bonds or the Obligations of such class or series then Outstanding.

“Paying Agent/Registrar” shall mean a bank, trust company, or other entity designated pursuant to a Supplemental Ordinance as the agent of the City to receive and disburse to Owners of the Bonds the principal and premium, if any, and interest on the Bonds. The City reserves the option to act as its own Paying Agent/Registrar.

“Previous Ordinance” shall mean, collectively, the City’s ordinances, as amended, heretofore or hereafter adopted, that authorized or shall authorize the issuance of the Previous Ordinance Bonds.

“Previous Ordinance Bonds” shall mean on any date all of the City’s Water and Sewer System Junior Lien Revenue Bonds, if any, that are Outstanding under the Previous Ordinance, including Outstanding Board Bonds.

“Qualified Hedge Agreement” shall mean, without limitation, (i) any contract known as or referred to or which performs the function of an interest rate swap agreement, currency swap agreement, forward payment conversion agreement, or futures contract; (ii) any contract providing for payments based on levels of, or changes or differences in, interest rates, currency exchange rates, or stock or other indices; (iii) any contract to exchange cash flows or payments or series of payments; (iv) any type of contract called, or designed to perform the function of, interest rate floors, collars, or caps, options, puts, or calls, to hedge or minimize any type of financial risk, including, without limitation, payment, currency, rate, or other financial risk; and (v) any other type of contract or arrangement that the City determines is to be used, or is intended to be used, to manage or reduce the cost of any Bonds, to convert any element of any Bonds from one form to another, to maximize or increase investment return, to minimize investment return risk, or to protect against any type of financial risk or uncertainty (in the case of clauses (i) through (v), whether from or initiated at the option of the City or the counterparty). A Qualified Hedge Agreement may only be entered into with an institution that has long term credit ratings, or the obligations of which are unconditionally guaranteed by a financial institution with long term credit ratings, in one of the two highest generic rating categories by at least one Rating Agency then rating the Bonds. Any obligations of the City to make scheduled payments under a Qualified Hedge Agreement shall be included within the definition of Debt Service Requirements for the series of Bonds to which the Qualified Hedge Agreement relates. Further, obligations of the City to make payments under a Qualified Hedge Agreement derived from or resulting from a fluctuation in hedged interest rates or in the value of any index of payment shall be deemed to be payments of interest on the Bonds to which the Qualified Hedge Agreement relates, and each Qualified Hedge Agreement shall be deemed to be a part of the Bonds of the series to which it relates for the purpose of securing its payment by the pledge of Net Revenues as provided in Articles Five, Six, and Seven of this Ordinance, except that any obligation of the City to make termination payments that are not payable in installments over the remaining term of the relevant transaction or to deliver collateral shall be paid as a Third Lien Obligation or an obligation inferior and subordinate to Third Lien Obligations. However, issuers of and counterparties to Qualified Hedge Agreements shall not be treated as Owners of Bonds for purposes of any voting rights to approve amendments under this Ordinance.

“Rating Agency” shall mean Fitch Ratings, Moody’s Investors Service, Standard & Poor’s, or any other nationally recognized rating agency.

“Refundable Obligations” shall mean any series of Obligations 25% or more of the original principal amount of which is due on any date; provided that, in calculating the principal amount of such Obligations due or required to be redeemed, prepaid, or otherwise paid on any date, such principal amount shall be reduced to the extent that all or any portion of such amount is required to be redeemed or amortized on any date.

“Register” shall mean the registration books maintained by a Paying Agent/Registrar for Obligations issued under a Supplemental Ordinance.

“Required Payments” shall mean any payments required to be made under the Previous Ordinance, including without limitation (i) all payments required to be made by the City as Maintenance and Operating Expenses under the Previous Ordinance, including without

limitation under outstanding contracts on the effective date of this Master Ordinance for the impoundment, conveyance, or treatment of water or otherwise which are treated as operating expenses under the laws of the State of Texas, and (ii) all payments required to be made by the City to pay debt service requirements on Previous Ordinance Bonds in accordance with the terms of the Previous Ordinance and to comply with Section 5.8 of the Previous Ordinance.

“Reserve Fund Participants” shall mean any series of Bonds for which the City elects to fund a shared Bond Reserve Fund.

“Reserve Fund Requirements” shall mean the amount required by a Supplemental Ordinance to be deposited, accumulated and reaccumulated and maintained in the First Lien Bond Reserve Fund, the Second Lien Bond Reserve Fund and any reserve funds created for Third Lien Obligations or Fourth Lien Obligations.

“Reserve Fund Surety Policy” shall mean any surety bond or any insurance policy which has liquidity features equivalent to an irrevocable and unconditional letter of credit, or any irrevocable and unconditional letter of credit, deposited in a reserve fund created pursuant to Section 5.3 of this Ordinance in lieu of or in partial substitution for monies on deposit therein, which is rated at the time of deposit of such Reserve Fund Surety Policy in the highest rating category by each Rating Agency rating the Outstanding Bonds to which the Reserve Fund Surety Policy relates at the time of deposit of such Reserve Fund Surety Policy.

“Restricted Receipts” shall mean (i) revenues related to the System received by the City that pursuant to law or contractual agreements that may not be used to pay Maintenance and Operation Expenses and (ii) any interest earnings on the revenues described in clause (i) above.

“Second Lien Bonds” shall mean each series of Second Lien Bonds from time to time hereafter issued, but only to the extent such Second Lien Bonds remain Outstanding within the meaning of this Ordinance.

“Short Term Obligations” shall mean each series of bonds, notes and other obligations issued pursuant to a commercial paper or other similar financing program under Section 6.2 of this Ordinance, the payment of principal of which is scheduled to be payable within one year from the date of issuance and is contemplated to be refinanced through the issuance of additional Obligations.

“Special Project” shall mean, to the extent permitted by law, any utility system property, improvement or facility declared by the City not to be part of the System, for which the costs of acquisition, construction, and installation are paid from proceeds of a financing transaction other than the issuance of bonds payable from ad valorem taxes or revenues of the System and for which all maintenance and operation expenses are payable from sources other than ad valorem taxes or revenues of the System, but only to the extent that and for so long as all or any part of the revenues or proceeds of which are or will be pledged to secure the payment or repayment of such costs of acquisition, construction, and installation under such financing transaction.

“Supplemental Ordinance” shall mean any ordinance supplementing this Ordinance to provide for the issuance of Bonds or other Obligations authorized by this Ordinance.

“System” shall mean all properties, facilities, improvements, equipment, interests, rights and powers constituting the combined water and sewer system of the City, and all future extensions, replacements, betterments, additions, improvements, enlargements, acquisitions, purchases and repairs to the System, including without limitation, all those heretofore or hereafter acquired as a result of the annexation and dissolution of water districts or the acquisition of the properties or assets of any other public, private or non-profit entities. The System shall not include any Special Project. The System shall include other utility systems provided for in Chapter 1502 of the Texas Government Code which the City may from time to time elect to combine with the System so long as the revenues of such other utility systems are included in Gross Revenues under this Ordinance.

“Third Lien Obligations” shall mean Obligations authorized by Section 6.3 of this Ordinance.

Section 2.2. Interpretations. All terms defined herein and all pronouns used in this Ordinance shall be deemed to apply equally to singular and plural and to all genders. The titles and headings of the articles and sections of this Ordinance and the Table of Contents of this Ordinance have been inserted for convenience of reference only and are not to be considered a part hereof and shall not in any way modify or restrict any of the terms or provisions hereof. References to any constitutional, statutory or regulatory provision means such provision as it exists on the date this Ordinance is adopted by the City and including any future amendment thereto or successor provision thereof. This Ordinance and all the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of the Bonds and the validity of the lien on and pledge of the Net Revenues to secure the payment of the Bonds.

### **ARTICLE III**

#### **TERMS OF THE BONDS**

Section 3.1. Name. The name, amount, purpose, and legal authorization for each series of Bonds shall be specified in the Supplemental Ordinance authorizing such series.

Section 3.2. Numbers; Date, and Denomination. Each series of Bonds shall be numbered and dated and shall be in principal denominations as specified in the authorizing Supplemental Ordinance.

Section 3.3. Terms. Each Series of Bonds shall bear interest from the dates and at the rates per annum and shall mature on the date or dates to be set forth in the authorizing Supplemental Ordinance. Bonds may bear interest at a fixed, variable, auction, term or commercial paper rate or any other rate provided for in the authorizing Supplemental Ordinance.

Section 3.4. Redemption Prior to Maturity. Each Series of Bonds may be subject to redemption in the manner provided in the authorizing Supplemental Ordinance.

Section 3.5. Manner of Payment, Characteristics, Execution, and Authentication. Each authorizing Supplemental Ordinance shall designate a Paying Agent/Registrar for such series of

Bonds. The Bonds shall be payable, shall have the characteristics, shall be signed and executed, shall be sealed, and shall be authenticated, all as provided and in the manner indicated in the authorizing Supplemental Ordinance. To the extent required by Texas law, Bonds initially delivered shall also have attached or affixed thereto the registration certificate of the Comptroller of Public Accounts of the State of Texas. If any officer of the City whose manual or facsimile signature shall appear on the Bonds, as provided in the authorizing Supplemental Ordinance, shall cease to be such officer before the authentication of the Bonds or before the delivery of the Bonds, such manual or facsimile signature shall nevertheless be valid and sufficient for all purposes as if such officer had remained in such office.

Any portion of the text of any Bonds may be set forth on the reverse thereof, with an appropriate reference thereto on the face of the Bond. The definitive Bonds shall be printed, lithographed, engraved, or typewritten or produced by any combination of these methods, or produced in any other manner, all as determined by the officers executing such Bonds as evidenced by their execution thereof, but the initial Bonds submitted to the Attorney General of Texas may be typewritten, photocopied, or otherwise reproduced.

The approving legal opinion of Bond Counsel for the Bonds, may be printed on the back of the Bonds over the certification of the City Secretary of the City which may be executed in facsimile. CUSIP numbers and a statement of insurance, if any, also may be printed on applicable Bonds, but errors or omissions in the printing of the opinion, the numbers, or the statement of insurance shall have no effect on the validity of the Bonds.

Section 3.6. Ownership. The City, the Paying Agent/Registrar, and any other person may treat the person in whose name any Bond is registered as the absolute owner of such Bond for the purpose of making payment of the principal and premium, if any, thereof, and for the further purpose of making payment of interest thereon, for the purpose of giving notice to the Owners of the Bonds, and for all other purposes, whether or not such Bond is overdue, and neither the City nor the Paying Agent/Registrar shall be bound by any notice or knowledge to the contrary. All payments made to the person deemed to be the Owner of any Bond in accordance with this section shall be valid and effectual and shall discharge the liability of the City and the Paying Agent/Registrar upon such Bond to the extent of the sums paid.

Section 3.7. Registration Transfer and Exchange. So long as any Bonds remain Outstanding, the Paying Agent/Registrar shall keep the Register at its principal corporate trust office, in which, subject to such reasonable regulations as it may prescribe, the Paying Agent/Registrar shall provide for the registration and transfer of the Bonds in accordance with the terms of this Ordinance.

Each Bond shall be transferable only upon presentation and surrender thereof at the principal corporate trust office of the Paying Agent/Registrar, duly endorsed for transfer, or accompanied by an assignment duly executed by the Registered Owner or his authorized representative in form satisfactory to the Paying Agent/Registrar. Upon due presentation of any Bond for transfer, the Paying Agent/Registrar shall authenticate and deliver in exchange therefor, within 72 hours after such presentation, a new Bond or Bonds, registered in the name of the transferee or transferees, in authorized denominations and of the same maturity and aggregate

principal amount or maturity amount, as the case may be, and bearing or accruing interest at the same rate as the Bond or Bonds so presented.

Each Bond shall be exchangeable upon presentation and surrender thereof at the principal corporate trust office of the Paying Agent/Registrar for a Bond or Bonds of the same maturity and bearing or accruing interest at the same rate and in any authorized denomination, in an aggregate principal amount or maturity amount, as the case may be, equal to the unpaid principal amount or maturity amount, as the case may be, of the Bond or Bonds presented for exchange. The Paying Agent/Registrar shall be and is hereby authorized to authenticate and deliver exchange Bonds in accordance with the provisions of this Section. Each exchanged or replaced Bond delivered by the Paying Agent/Registrar in accordance with this Section shall be entitled to the benefits and security of this Ordinance to the same extent as the Bond or Bonds in lieu of which such Bond is delivered.

The City or the Paying Agent/Registrar may require the Owner of any Bond to pay a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with the transfer or exchange of such Bond. Any fee or charge of the Paying Agent/Registrar for such transfer or exchange shall be paid by the City.

Section 3.8. Cancellation. All Bonds paid or redeemed in accordance with this Ordinance, and all Bonds in lieu of which exchanged Bonds or replacement Bonds are authenticated and delivered in accordance herewith, shall be canceled upon the making of proper records regarding such payment or redemption. The Paying Agent/Registrar shall retain the cancelled Bonds in accordance with its document retention policies.

Section 3.9. Replacement Bonds. Upon the presentation and surrender to the Paying Agent/Registrar of a damaged or mutilated Bond, the Paying Agent/Registrar shall authenticate and deliver in exchange therefor a replacement Bond of like maturity, interest rate, and principal amount, bearing a number not contemporaneously outstanding. The City or the Paying Agent/Registrar may require the Owner of such Bond to pay a sum sufficient to cover any tax or other governmental charge that may be imposed in connection therewith and any other expenses connected therewith, including the fees and expenses of the Paying Agent/Registrar.

If any Bond is destroyed, lost, or stolen, the City, pursuant to the applicable laws of the State of Texas and in the absence of notice or knowledge that such Bond has been acquired by a bona fide purchaser, shall execute and the Paying Agent/Registrar shall authenticate and deliver a replacement Bond of like maturity, interest rate, and principal amount, bearing a number not contemporaneously outstanding, provided that the Owner thereof shall have:

(a) Furnished to the City and the Paying Agent/Registrar satisfactory evidence of the ownership of and the circumstances of the loss, destruction or theft of such Bond;

(b) Furnished such security or indemnity as may be required by the Paying Agent/Registrar and the City to save them harmless;

(c) Paid all expenses and charges in connection therewith, including, but not limited to, printing costs, legal fees, fees of the Paying Agent/Registrar, and any tax or other governmental charge that may be imposed; and

(d) Met any other reasonable requirements of the City and the Paying Agent/Registrar.

If, after the delivery of such replacement Bond, a bona fide purchaser of the original Bond in lieu of which such replacement Bond was issued presents for payment such original Bond, the City and the Paying Agent/Registrar shall be entitled to recover such replacement Bond from the person to whom it was delivered or any person taking therefrom, except a bona fide purchaser, and shall be entitled to recover upon the security or indemnity provided therefor to the extent of any loss, damage, cost, or expense incurred by the City or the Paying Agent/Registrar in connection therewith.

If any such damaged, mutilated, destroyed, lost, or stolen Bond has become or is about to become due and payable, the City in its discretion may, instead of issuing a replacement Bond, authorize the Paying Agent/ Registrar to pay such Bond.

Each replacement Bond delivered in accordance with this section shall be entitled to the benefits and security of this Ordinance to the same extent as the Bond or Bonds in lieu of which such replacement Bond is delivered.

#### **ARTICLE IV**

##### **FORM OF BONDS**

Each series of Bonds shall be in substantially the form set out in the Supplemental Ordinance, with such omissions, insertions and variations as may be permitted or required pursuant to the terms of such ordinance for each series of the Bonds (including appropriate variations required for any Bonds issued as capital appreciation bonds).

#### **ARTICLE V**

##### **SECURITY AND SOURCE OF PAYMENT FOR ALL BONDS**

Section 5.1. Pledge Securing Bonds. The City hereby covenants and agrees that Gross Revenues of the System shall, as collected and received by the City, be deposited and paid into the special funds hereinafter established, after satisfying any requirements of the Previous Ordinance. For so long as the Previous Ordinance Bonds remain Outstanding, the City hereby covenants and agrees that gross revenues (as defined under the Previous Ordinance) shall be applied in the manner set forth in the Previous Ordinance to provide for the payment of all Required Payments, and then Gross Revenues shall be applied in the manner hereinafter set forth in order to provide for the payment of all remaining Maintenance and Operation Expenses that have not been paid as Required Payments. Net Revenues shall be applied to provide for the payment of principal of, interest on and any redemption premiums on the First Lien Bonds, any



parity Obligations under Qualified Hedge Agreements and Credit Agreements, and all expenses of paying same; to provide for the payment of principal of, interest on and any redemption premiums on the Second Lien Bonds, any parity Obligations under Qualified Hedge Agreements and Credit Agreements, and all expenses of paying same; and to provide for the disposition of the remaining Net Revenues in accordance with this Ordinance. The First Lien Bonds shall constitute special obligations of the City that shall be payable solely from and shall be equally and ratably secured by a lien on the Net Revenues as collected and received by the City from the operation and ownership of the System, which Net Revenues shall, in the manner herein provided, be set aside in the First Lien Bond Interest and Sinking Fund and the First Lien Bond Reserve Fund for and pledged to the payment of the First Lien Bonds as hereinafter provided, and the First Lien Bonds shall be, in all respects, on a parity with and of equal dignity with one another. The Second Lien Bonds shall constitute special obligations of the City that shall be payable solely from and, subject only to the senior and superior lien on Net Revenue pledged to the payment of the First Lien Bonds and other obligations payable from the First Lien Bond Interest and Sinking Fund, shall be equally and ratably secured by a lien on the Net Revenues, as collected and received by the City from the operation and ownership of the System, which Net Revenues shall, in the manner herein provided, be set aside in the Second Lien Bond Interest and Sinking Fund and the Second Lien Bond Reserve Fund for and pledged to the payment of the Second Lien Bonds as hereinafter provided, and the Second Lien Bonds shall be in all respects on a parity with and of equal dignity with one another. The Owners of the First Lien Bonds and the Second Lien Bonds shall never have the right to demand payment of either the principal of, interest on or any redemption premium on the First Lien Bonds or the Second Lien Bonds out of any funds raised or to be raised by taxation. Chapter 1208, Texas Government Code, applies to the issuance and delivery of the First Lien Bonds and the Second Lien Bonds and the pledge of the Net Revenues granted under this Ordinance, and such pledge is therefore valid, effective, and perfected.

Section 5.2. Rates and Charges. So long as any Bonds remain Outstanding, the City shall fix, charge, and collect rates and charges for the use and services of the System which are calculated to be fully sufficient to produce Net Revenues in each Fiscal Year at least equal to the greater of:

(a) 120% of the combined Debt Service Requirements scheduled to occur in such Fiscal Year on all Previous Ordinance Bonds and First Lien Bonds then Outstanding, or

(b) 110% of the combined Debt Service Requirements scheduled to occur in such Fiscal Year on all Previous Ordinance Bonds, First Lien Bonds, and Second Lien Bonds then Outstanding,

plus an amount equal to the sum of all deposits required to be made to the First Lien Bond Reserve Fund and to the Second Lien Bond Reserve Fund in such Fiscal Year; provided that in calculating the Net Revenues required by paragraphs (a) and (b) above all or any portion of such Net Revenues that exceed 100% of the combined Debt Service Requirements may be attributed to amounts on deposit in the General Purpose Fund that are available to pay Debt Service Requirements pursuant to Section 5.9(c) of this Ordinance, and provided further that in no event shall Net Revenues ever be less than the amount required to establish and maintain the First Lien

Bond Interest and Sinking Fund and the First Lien Bond Reserve Fund as hereinafter provided, to establish and maintain the Second Lien Bond Interest and Sinking Fund and the Second Lien Bond Reserve Fund as hereinafter provided and, to the extent that funds for such purpose are not otherwise available, to pay all other Outstanding Obligations payable from the Net Revenues of the System, including all amounts owed as a repayment obligation by the City pursuant to a Reserve Fund Surety Policy or a Credit Agreement, as and when the same become due.

Effective for monthly billing cycles for the System commencing on April 1, 2005 and on April 1 of each year thereafter and subject to the terms of existing contracts, the requirements of the immediately preceding paragraph of this Section 5.2, applicable Texas law and the authority of the City Council of the City to adopt other rates and charges, rates and charges for the use and services of the System shall be adjusted based on the percentage change (if any) in the Designated Index or other appropriate index for the preceding calendar year. The calculation required by this Section 5.2 shall be made annually at the time City's Annual Budget for the System is adopted and shall be included in the Annual Budget for the System.

Section 5.3. Special Funds. The following special Funds shall be established, maintained and accounted for on the books of the City as hereinafter provided so long as any of the Bonds or other Obligations remain Outstanding:

- (a) Revenue Fund;
- (b) First Lien Bond Interest and Sinking Fund;
- (c) First Lien Bond Reserve Fund;
- (d) Second Lien Bond Interest and Sinking Fund;
- (e) Second Lien Bond Reserve Fund;
- (f) Third Lien Obligation Interest and Sinking Fund;
- (g) Third Lien Obligation Reserve Fund (if and when required);
- (h) Fourth Lien Obligation Interest and Sinking Fund (if and when required);
- (i) Fourth Lien Obligation Reserve Fund (if and when required);
- (j) Interest and Sinking Funds and Reserve Funds for any additional Obligations that will be junior and subordinate to Fourth Lien Obligations (if and when required); and
- (k) General Purpose Fund.

All of such Funds shall be maintained as separate accounts on the books of the City. The First Lien Bond Interest and Sinking Fund and the First Lien Bond Reserve Fund shall constitute trust funds which shall be held in trust for the Owners of the First Lien Bonds (and parity Obligations, if any, under Qualified Hedge Agreements and Credit Agreements) and the

proceeds of which (except for interest income, which shall be transferred to the Revenue Fund) shall be pledged to the payment of the First Lien Bonds and such parity Obligations. The Second Lien Bond Interest and Sinking Fund and the Second Lien Bond Reserve Fund shall constitute trust funds which shall be held in trust for the benefit of the Owners of the Second Lien Bonds (and parity Obligations, if any, under Qualified Hedge Agreements and Credit Agreements) and the proceeds of which (except for interest income, which shall be transferred to the Revenue Fund) shall be and are hereby pledged to the payment of the Second Lien Bonds and such parity Obligations. All of the Funds named above shall be used solely as herein provided so long as any First Lien Bonds or Second Lien Bonds or such parity Obligations remain Outstanding. The City reserves the right to establish, maintain, and account for on the books of the City such additional funds and accounts as may be necessary or desirable in the efficient administration of the System and flow of funds governing all Outstanding Obligations.

Section 5.4. Flow of Funds. After making any Required Payments in accordance with the terms of the Previous Ordinance, Gross Revenues of the System shall be deposited as collected into the Revenue Fund and shall be applied (i) to pay Maintenance and Operation Expenses, to the extent not already paid, and (ii) to establish and maintain an operating reserve equal to two month's budgeted Maintenance and Operation Expenses. The remaining balance, together with Restricted Receipts, shall be applied in the following manner and in the following order of priority:

- (a) First, to make all deposits into the First Lien Bond Interest and Sinking Fund required by Section 5.5 hereof or any Supplemental Ordinance authorizing the issuance of First Lien Bonds;
- (b) Second, to make all deposits into the First Lien Bond Reserve Fund required by Section 5.6 hereof or any Supplemental Ordinance authorizing the issuance of First Lien Bonds;
- (c) Third, to make all deposits into the Second Lien Bond Interest and Sinking Fund required by Section 5.7 hereof or any Supplemental Ordinance authorizing the issuance of Second Lien Bonds;
- (d) Fourth, to make all deposits into the Second Lien Bond Reserve Fund required by Section 5.8 hereof or any Supplemental Ordinance authorizing the issuance of Second Lien Bonds;
- (e) Fifth, to make all payments and deliveries, as may be required by any Supplemental Ordinance of the City authorizing the issuance of certain Third Lien Obligations authorized by Section 6.2 hereof, in order to provide for the payment of and security for such Third Lien Obligations;
- (f) Sixth, to make all payments and deliveries, as may be required by any Supplemental Ordinance of the City authorizing the issuance of certain Fourth Lien Obligations described in Section 6.2 hereof, in order to provide for the payment of and security for such Fourth Lien Obligations; and

- (g) Seventh, to deposit any remaining Net Revenues into the General Purpose Fund.

Section 5.5. First Lien Bond Interest and Sinking Fund. On or before the last Business Day immediately preceding (i) an Interest Payment Date so long as any First Lien Bonds remain Outstanding, and (ii) any date when any payments are due and payable under a Qualified Hedge Agreement relating to First Lien Bonds, there shall be transferred into the First Lien Bond Interest and Sinking Fund from the Revenue Fund the following amounts:

- (a) Such amounts as will be sufficient to pay the amount of interest scheduled to become due on the First Lien Bonds on such Interest Payment Date; plus
- (b) Such amounts, if any, as will be sufficient to pay the amount of principal of the First Lien Bonds due on such Interest Payment Date, including the principal amounts of, and any redemption premiums on, any First Lien Bonds payable as a result of the operation or exercise of any mandatory or optional redemption provision contained in any Supplemental Ordinance authorizing the issuance of First Lien Bonds; plus
- (c) Such amounts, if any, as shall be necessary to pay fees, charges, and other amounts payable to any and all of the Paying Agent/Registrar, and any auction agent, market agent, broker/dealer, remarketing agent, Credit Agreement provider, or Qualified Hedge Agreement provider which, by the terms of their agreements with the City, are payable from the First Lien Bond Interest and Sinking Fund.

Moneys credited to the First Lien Bond Interest and Sinking Fund shall be used solely for the purpose of paying interest on, principal (at maturity or prior redemption or to purchase First Lien Bonds issued as term bonds in the open market to be credited against mandatory redemption requirements) of and redemption premiums on the First Lien Bonds, plus all fees, charges, and other amounts payable to any and all of the Paying Agent/Registrar, and any auction agent, market agent, broker/dealer, remarketing agent, Credit Agreement provider, or Qualified Hedge Agreement provider which, by the terms of their agreements with the City, are payable from the First Lien Bond Interest and Sinking Fund. On or before each date principal becomes due and/or Interest Payment Date on the First Lien Bonds, the City shall transfer from the First Lien Bond Interest and Sinking Fund to the Paying Agent/Registrar in immediately available funds an amount equal to the principal and interest payable on the First Lien Bonds on such date.

Section 5.6. First Lien Bond Reserve Fund. On or before the last Business Day of each month so long as any First Lien Bonds that are Reserve Fund Participants remain Outstanding, there shall be transferred into the First Lien Bond Reserve Fund from the Revenue Fund amounts equal to one-sixtieth (1/60th) of the Reserve Fund Requirements for the First Lien Bonds unless or until there has been accumulated in the First Lien Bond Reserve Fund money and investments in an aggregate amount at least equal to the Reserve Fund Requirements for the First Lien Bonds; provided that additional deposits into the First Lien Bond Reserve Fund sufficient to provide for the increased Reserve Fund Requirement resulting from the issuance of any

Additional First Lien Bonds that are Reserve Fund Participants shall be made by not later than 60 months from the date of issuance of such Additional First Lien Bonds. After such amount has accumulated in the First Lien Bond Reserve Fund and so long thereafter as such Fund contains such amount, no further deposits shall be required to be made into the First Lien Bond Reserve Fund, and any excess amounts in such Fund may be transferred to the Revenue Fund. But if and whenever the balance in the First Lien Bond Reserve Fund is reduced below such amount, monthly deposits into such Fund shall be resumed and continued in amounts at least equal to one-sixtieth (1/60th) of the Reserve Fund Requirements on the First Lien Bonds until the First Lien Bond Reserve Fund has been restored to such amount. The First Lien Bond Reserve Fund shall be used to pay the principal of and interest on the First Lien Bonds that are Reserve Fund Participants (and parity Obligations, if any, under Qualified Hedge Agreements and Credit Agreements) at any time when there is not sufficient money available in the First Lien Bond Interest and Sinking Fund for such purpose and it may be used finally to pay and retire the last First Lien Bonds that are Reserve Fund Participants to mature or be redeemed.

The requirements of the immediately preceding paragraph of this Section notwithstanding, the City may provide a Reserve Fund Surety Policy issued in amounts equal to all or part of the Reserve Fund Requirements on the First Lien Bonds that are Reserve Fund Participants in lieu of depositing cash into the First Lien Bond Reserve Fund. In the event a Reserve Fund Surety Policy issued to satisfy all or a part of the City's obligation with respect to the First Lien Bond Reserve Fund causes the amount then on deposit in the First Lien Bond Reserve Fund to exceed the Reserve Fund Requirements on all First Lien Bonds, the City may transfer such excess amount to any fund or funds established for the payment of or security for First Lien Bonds, the Second Lien Bonds, or any Third Lien Obligations or Fourth Lien Obligations (including any escrow established for the final payment of any such Obligations preceding an Interest Payment Date pursuant to Chapter 1207, Texas Government Code), or to the General Purpose Fund.

Section 5.7. Second Lien Bond Interest and Sinking Fund. On or before the last business day immediately preceding (i) an Interest Payment Date, so long as any Second Lien Bonds remain Outstanding, and (ii) on any date when any payment is due and payable under a Qualified Hedge Agreement relating to Second Lien Bonds, there shall be transferred into the Second Lien Bond Interest and Sinking Fund from the Revenue Fund the following amounts:

- (a) such amounts as will be sufficient to pay the amount required to pay the amount of interest scheduled to become due on the Second Lien Bonds on such Interest Payment Date; plus
- (b) such amounts, if any, as will be sufficient to pay the amount of the next maturing principal of the Second Lien Bonds due on such Interest Payment Date, including the principal amounts of, and any redemption premiums on, any Second Lien Bonds payable as a result of the operation or exercise of any mandatory or optional redemption provision contained in any Supplemental Ordinance authorizing the issuance of Additional Second Lien Bonds; plus

- (c) such amounts, if any, shall be necessary to pay fees, charges, and other amounts payable to any and all of the Paying Agent/Registrar, and any auction agent, market agent, broker/dealer, remarketing agent, Credit Agreement provider, or Qualified Hedge Agreement provider which, by the terms of their agreements with the City, are payable from the Second Lien Bond Interest and Sinking Fund.

Moneys credited to the Second Lien Bond Interest and Sinking Fund shall be used solely for the purpose of paying interest on, principal (at maturity or prior redemption or to purchase Second Lien Bonds issued as term bonds in the open market to be credited against mandatory redemption requirements) of and redemption premiums on the Second Lien Bonds, plus all fees, charges, and other amounts payable to any and all of the Paying Agent/Registrar, and any auction agent, market agent, broker/dealer, remarketing agent, Credit Agreement provider, or Qualified Hedge Agreement provider which, by the terms of their agreements with the City, are payable from the Second Lien Bond Interest and Sinking Fund. On or before each principal becomes due and/or Interest Payment Date on the Second Lien Bonds, the City shall transfer from the Second Lien Bond Interest and Sinking Fund to the Paying Agent/Registrar in immediately available funds an amount equal to the principal and interest payable on the Second Lien Bonds on such date.

The Paying Agent/Registrar shall totally destroy all paid Second Lien Bonds and shall provide the City with an appropriate certificate of destruction.

Section 5.8. Second Lien Bond Reserve Fund. On or before the last Business Day of each month so long as any Second Lien Bonds that are Reserve Fund Participants remain Outstanding, there shall be transferred into the Second Lien Bond Reserve Fund from the Revenue Fund amounts equal to at least one-sixtieth (1/60th) of the Reserve Fund Requirements for the Second Lien Bonds unless or until there has been accumulated in the Second Lien Bond Reserve Fund money and investments in an aggregate amount at least equal to the Reserve Fund Requirements for the Second Lien Bonds; provided that additional deposits into the Second Lien Bond Reserve Fund sufficient to provide for the increased Reserve Fund Requirements resulting from the issuance of any Additional Second Lien Bonds that are Reserve Fund Participants shall be made by not later than 60 months from the date of issuance of such Additional Second Lien Bonds. After such amount has accumulated in the Second Lien Bond Reserve Fund and so long thereafter as such Fund contains such amount, no further deposits shall be required to be made into the Second Lien Bond Reserve Fund, and any excess amounts in the Fund may be transferred to the Revenue Fund. But if and whenever the balance in the Second Lien Bond Reserve Fund is reduced below such amount, monthly deposits into such Fund shall be resumed and continued in amounts at least equal to one-sixtieth (1/60th) of the Reserve Fund Requirements on the Second Lien Bonds until the Second Lien Bond Reserve Fund has been restored to such amount. The Second Lien Bond Reserve Fund shall be used to pay the principal of and interest on the Second Lien Bonds that are Reserve Fund Participants (and parity Obligations, if any, under Qualified Hedge Agreements and Credit Agreements) at any time when there is not sufficient money available in the Second Lien Bond Interest and Sinking Fund for such purpose and it may be used finally to pay and retire the last Second Lien Bonds that are Reserve Fund Participants to mature or be redeemed.

The requirements of the immediately preceding paragraph of this Section notwithstanding, the City may provide a Reserve Fund Surety Policy issued in amounts equal to all or part of the Reserve Fund Requirements on the Second Lien Bonds that are Reserve Fund Participants in lieu of depositing cash into the Second Lien Bond Reserve Fund. In the event a Reserve Fund Surety Policy issued to satisfy all or a part of the City's obligation with respect to the Second Lien Bond Reserve Fund causes the amount then on deposit in the Second Lien Bond Reserve Fund to exceed the Reserve Fund Requirements on all Second Lien Bonds, the City may transfer such excess amount to any fund established for the payment of or security for First Lien Bonds, the Second Lien Bonds, or any Third Lien Obligations or Fourth Lien Obligations (including any escrow established for the final payment of any such obligations pursuant to Chapter 1207, Texas Government Code), or to the General Purpose Fund.

Section 5.9. General Purpose Fund. Subject to the payment to the provider of a Reserve Fund Surety Policy of any interest on amounts advanced and any expenses incurred under the Reserve Fund Surety Policy required to be paid pursuant to an agreement between the City and the provider of such Reserve Fund Surety Policy, and subject to the provisions of Sections 5.5, 5.6, 5.7, and 5.8 hereinabove in this Article, from any moneys remaining in the Revenue Fund, at least annually within 90 days following the end of each Fiscal Year, there shall be set aside and credited to the General Purpose Fund, the remaining revenues in the Revenue Fund. Moneys accounted for in the General Purpose Fund, subject to any limitations herein or in any other contract pertaining to such account, may be withdrawn in any priority for any one, all, or any combination of the following:

(a) Capital Costs. To pay the costs of constructing or otherwise acquiring any betterments of, enlargement of, extensions of, or any other improvements to the System, or any part thereof, and any equipment therefor, authorized by law;

(b) Major Maintenance Costs. To pay the costs of extraordinary and major repairs, renewals, replacements, or maintenance items pertaining to any properties of the System of a type not recurring annually or at shorter intervals and not paid as Maintenance and Operation Expenses;

(c) Debt Service Requirements. To pay any Bonds or other Obligations or securities pertaining to the System and payable from Net Revenues (regardless of whether such securities are secured by a lien thereon), as to Debt Service Requirements and any other appurtenant charge pertaining to such Debt Service Requirements on any Interest Payment Date, or any redemption date or redemption dates, or by purchase in the open market, or by creating an escrow to provide for the payment of or to defease such Bonds, other Obligations or securities or otherwise;

(d) Legal Obligations. To pay any obligations pertaining to the System and arising from a judgment against the City or any officer, employee, or other agent of the City acting within the scope of his official duties, rights, or privileges, or the scope of his employment, as the case may be, in any suit, action, or special proceedings in equity or at law, in any court of competent jurisdiction, or a settlement by the City of any claim to avoid or to settle such a suit, action, or special proceedings, except to the extent revenues

are otherwise available to defray such an obligation, including, without limitation, insurance proceeds, or to pay any penalties, fines, settlements or other amounts required to be paid by the City as a result of federal or state administrative proceedings relating to the System;

(e) Assumed and Other Obligations. To pay any bonds or other obligations assumed by the City which were issued or incurred by water districts annexed and dissolved by the City, which bonds or other obligations are by their own terms secured in whole or in part by a pledge of water or sewer revenues which did not terminate upon the annexation and dissolution of such water districts, and other bonds or obligations issued or assumed by the City for combined utility system purposes which are payable from ad valorem taxes or sources other than the First Lien Bond Interest and Sinking Fund, the First Lien Bond Reserve Fund, the Second Lien Bond Interest and Sinking Fund, or the Second Lien Bond Reserve Fund;

(f) Lawful System Purposes. For any other lawful purpose of the System as the City may determine; and

(g) Drainage Purposes. For planning, design, construction, regulation, improvement, repair, maintenance, and operation of facilities and programs relating to the system or network of storm water management facilities including, but not limited to, inlets, conduits, manholes, channels, ditches, drainage easements, retention and detention basin, infiltration facilities, and other components, including, without limitation, the costs of developing, implementing, and enforcing a storm water management program to reduce the discharge of pollutants from the City's storm sewer system and protect water quality, and the costs related to obtaining, renewing, or maintaining any required permits related to the operation of the storm sewer system, and also including payment of debt service on bonds, notes, or other obligations issued for the purposes listed in this paragraph (g); provided that the aggregate amount withdrawn from the General Purpose Fund pursuant to this paragraph (g) during any Fiscal Year shall not exceed 8% of the Gross Revenues of the System for the immediately preceding Fiscal Year.

Section 5.10. Application of General Purpose Fund. Moneys shall be withdrawn from the General Purpose Fund for any one, all, or other combination of such purposes designated in Section 5.9 hereof in the same manner that other claims against the System are presented and paid. Amounts in the General Purpose Fund at the beginning of a Fiscal Year which are deposited into the Revenue Fund in that Fiscal Year are Gross Revenues for the Fiscal Year in which such amounts are deposited into the Revenue Fund.

Section 5.11. Investment of Funds; Transfer of Investment Income. (a) Money in the Revenue Fund, the First Lien Bond Interest and Sinking Fund, the First Lien Bond Reserve Fund, the Second Lien Bond Interest and Sinking Fund, the Second Lien Bond Reserve Fund, and the General Purpose Fund may, at the option of the City, be invested in investments as permitted by state law, consistent with the City's investment policy; provided that all such deposits and investments shall be made in such manner that the money required to be expended from any Fund will be available at the proper time or times, and provided further that in no event shall such deposits or investments of moneys in the First Lien Bond Reserve Fund or the Second Lien Bond Reserve Fund mature later than the final maturity date of the First Lien Bonds or the Second Lien Bonds, as the case may be. All such investments shall be valued in terms of current market value no less frequently than the last Business Day of the City's Fiscal Year, except that any direct obligations of the United States of America - State and Local Government Series may be continuously valued at their par value or principal face amount. Any obligation in which money is so invested shall be kept and held in an official depository of the City, except as hereinafter provided. For purposes of maximizing investment returns, money in such funds may



be invested, together with money in other funds or with other money of the City, in common investments of the kind described above, or in a common pool of such investments which shall be kept and held at an official depository of the City, which shall not be deemed to be or constitute a commingling of such money or funds provided that safekeeping receipts or certificates of participation clearly evidencing the investment or investment pool in which such money is invested and the share thereof purchased with such money or owned by such fund are held by or on behalf of each such fund. If necessary, such investments shall be promptly sold to prevent any default.

(b) All interest and income derived from such deposits and investments shall be credited to the Revenue Fund monthly, and shall constitute Gross Revenues of the System.

Section 5.12. Security for Uninvested Funds. So long as any Bonds remain Outstanding, all uninvested moneys on deposit in, or credited to, the Revenue Fund, the First Lien Bond Interest and Sinking Fund, the First Lien Bond Reserve Fund, the Second Lien Bond Interest and Sinking Fund, the Second Lien Bond Reserve Fund, and the General Purpose Fund shall be secured by the pledge of security as provided by law for cities in the State of Texas.

Section 5.13. Reservation of Right to Issue Board Bonds on a Parity with Previous Ordinance Bonds. The City reserves the right to issue Board Bonds at any time and from time to time to the Texas Water Development Board on a parity with the Previous Ordinance Bonds, anything in this Ordinance or any Supplemental Ordinance to the contrary notwithstanding. Except for the right to issue the Board Bonds, the City hereby covenants and agrees not to issue any bonds or other obligations under the terms of the Previous Ordinance.

## ARTICLE VI

### ADDITIONAL BONDS AND OTHER OBLIGATIONS

Section 6.1. Additional First Lien Bonds and Additional Second Lien Bonds. The City reserves the right to issue, for any lawful System purpose, including the refunding of any previously issued First Lien Bonds, Second Lien Bonds, Previous Ordinance Bonds, or any other bonds or obligations of the City issued in connection with the System or payable from Net Revenues, or to pay obligations incurred under or pursuant to any Credit Agreement or Qualified Hedge Agreement, one or more series of (i) Additional First Lien Bonds on a parity with the Outstanding First Lien Bonds payable from, and secured by a first lien on, the Net Revenues of the System senior and superior to the lien securing the Second Lien Bonds; and (ii) Additional Second Lien Bonds on a parity with the Outstanding Second Lien Bonds; provided, however, that no Additional First Lien Bonds or Additional Second Lien Bonds may be issued unless:

- (a) The First Lien Bond Reserve Fund (and, for the issuance of Additional Second Lien Bonds, the Second Lien Bond Reserve Fund) each contains the amount of money then required to be on deposit therein;
- (b) For either the preceding Fiscal Year or any consecutive 12-month period out of the 18-month period immediately preceding the month in which the Supplemental

Ordinance authorizing such Additional First Lien Bonds or Additional Second Lien Bonds, as the case may be, is adopted (the "Base Period") either:

- (1) Net Revenues are certified by the City Controller of the City to have been equal to not less than the greater of (A) 120% of the combined Maximum Annual Debt Service Requirements on all First Lien Bonds and any Previous Ordinance Bonds or (B) 110% of the combined Maximum Annual Debt Service Requirements on all First Lien Bonds, Second Lien Bonds, and any Previous Ordinance Bonds, after giving effect to the issuance of the Additional First Lien Bonds or Additional Second Lien Bonds to be issued; or
- (2) Net Revenues, adjusted to give effect to any rate increase, new customers, or annexation of territory placed into effect or consummated prior to the adoption of the ordinance authorizing the Additional First Lien Bonds or Additional Second Lien Bonds, as the case may be, to the same extent as if such rate increase, new customers, or annexation had been placed into effect or consummated prior to the commencement of the Base Period, would have been equal to at least the greater of (A) or (B) in paragraph (1) above, as certified by an independent consulting engineer or independent firm of consulting engineers;

provided that all or any portion of the Net Revenues required by clauses (1) and (2) of paragraph (b) above that exceed 100% of the Maximum Annual Debt Service Requirements may be attributed to amounts on deposit in the General Purpose Fund that are available to pay Debt Service Requirements pursuant to Section 5.9(c) of this Ordinance; provided, further, that this requirement shall not apply to the issuance of any series of Additional Second Lien Bonds for the purpose of refunding Outstanding First Lien Bonds, or to the issuance of any series of Additional First Lien Bonds or Additional Second Lien Bonds for refunding purposes, that will not have the result of increasing the Average Annual Debt Service Requirements on the First Lien Bonds or the Second Lien Bonds; and

- (c) Provision is made in the Supplemental Ordinance authorizing the Additional First Lien Bonds or Additional Second Lien Bonds then proposed to be issued for (1) additional payments into the First Lien Bond Interest and Sinking Fund or Second Lien Bond Interest and Sinking Fund, as the case may be, sufficient to provide for the payment of the increased principal of and interest on the First Lien Bonds or Second Lien Bonds resulting from the issuance of such Additional First Lien Bonds or Additional Second Lien Bonds, and (2) additional payments into the First Lien Bond Reserve Fund or Second Lien Bond Reserve Fund, as the case may be, sufficient to provide for the accumulation therein of the increased Reserve Fund Requirements resulting from the issuance of such Additional First Lien Bonds or Additional Second Lien Bonds, by not later than 60 months from

the date of issuance of such Additional First Lien Bonds or Additional Second Lien Bonds.

(d) Special Provisions for Refunding Short Term Obligations. The provisions of paragraph (b) above shall not apply to the issuance of Additional First Lien Bonds for the purpose of refunding Short Term Obligations issued as First Lien Bonds or the issuance of Additional Second Lien Bonds for the purpose of refunding Short Term Obligations issued as First Lien Bonds or Second Lien Bonds.

(e) Special Provisions for Credit Agreements. The City may enter into Credit Agreements with respect to any Bonds or Qualified Hedge Agreements if:

(i) prior to entering into such Credit Agreement, the City, to the extent required by law, shall cause the proceedings authorizing the Credit Agreement and any contracts or reimbursement agreements relating thereto to be submitted to and approved by the Attorney General of Texas; and

(ii) for any Credit Agreement that obligates the City to make any future payments for the availability of such Credit Agreement, the City's financial advisor must certify in a written certificate delivered to the City that the inclusion of such payments within the Debt Service Requirements on the Bonds or Qualified Hedge Agreement to which the Credit Agreement relates will not cause such Bonds or Qualified Hedge Agreement to fail to comply with the applicable coverage requirements for their issuance or incurrence; and

The issuer of any Credit Agreement shall be entitled to be subrogated to the rights of the Owners of the Bonds or the counterparty to the Qualified Hedge Agreement secured by such Credit Agreement, and the City's reimbursement and repayment obligations to the issuer of the Credit Agreement shall be secured by Net Revenues as herein provided.

(f) Special Provisions for Qualified Hedge Agreements. The City may enter into Qualified Hedge Agreements in connection with any Bonds for any purpose authorized by law if the following requirements are satisfied:

(i) the proceedings authorizing the Qualified Hedge Agreement and any contracts or reimbursement agreements relating thereto shall, to the extent required by law, be submitted to and approved by the Attorney General of Texas; and

(ii) the City's financial advisor shall certify in a written certificate delivered to the City that the Bonds to which the Qualified Hedge Agreement relates could have been issued in satisfaction of all of the coverage requirements of this Article Six if the Debt Service Requirements with respect to such Bonds are recalculated (as provided in the definition of Debt Service Requirements) to take into account the Qualified Hedge Agreement.

Section 6.2. Short Term Obligations. The City reserves the right to issue, from time to time, one or more series of Additional First Lien Bonds and/or Additional Second Lien Bonds in accordance with Section 6.1 hereof as Short Term Obligations.

Section 6.3. Third Lien Obligations and Fourth Lien Obligations. The City reserves the right to issue, for any lawful purpose, Third Lien Obligations secured in whole or in part by liens on the Net Revenues that are junior and subordinate to the liens on Net Revenues securing payment of the First Lien Bonds and the Second Lien Bonds. The City also reserves the right to issue Fourth Lien Obligations secured in whole or in part by liens on Net Revenues that are junior and subordinate to the liens on Net Revenues securing payment of First Lien Bonds, Second Lien Bonds, and Third Lien Obligations.

Section 6.4. Supplemental Ordinance. Bonds payable from Net Revenues shall be issued only after authorization thereof by a Supplemental Ordinance stating the purpose or purposes of the issuance of such additional Bonds, directing the application of the proceeds thereof to such purpose or purposes, directing the execution and authentication thereof, and fixing and determining the date, principal amount, maturity or maturities, designation, and numbers thereof, the maximum rate or the rate or rates of interest to be borne thereby, any prior redemption privileges of the City with respect thereto, and other provisions thereof. Upon such authorization such additional Bonds may at one time or from time to time be executed by and on behalf of the City and authenticated and delivered by the City or upon its order. All additional Bonds shall bear such date, shall bear such numbers and series designation, letters, or symbols prefixed to their numbers distinguishing them from each other security, shall be payable at such place or places, may be subject to redemption prior to maturity on such terms and conditions, and shall bear interest at such rate or at such different or varying rates per annum, as may be fixed by ordinance or other document of the City. Third Lien Obligations, Fourth Lien Obligations, Qualified Hedge Agreements, and Credit Agreements shall be issued pursuant to Supplemental Ordinances or pursuant to separate ordinances that shall provide for the timing of transfer from the Revenue Fund to the debt service funds and reserve funds, if any, established for such Obligations consistent with the order of priority set forth in Section 5.4 hereof.

Section 6.5. Special Project Obligations. The City reserves the right to issue other obligations secured by liens on and pledges of revenues and proceeds derived from Special Projects.

## ARTICLE VII

### COVENANTS AND PROVISIONS RELATING TO BONDS AND OTHER OBLIGATIONS

Section 7.1. Punctual Payment of Bonds and Other Obligations. The City covenants that it will punctually pay or cause to be paid the interest on and principal of all Bonds and other Obligations according to the terms thereof and will faithfully do and perform, and at all times fully observe, any and all covenants, undertakings, stipulations and provisions contained in this Ordinance and in any Supplemental Ordinance authorizing the issuance of such Bonds and other Obligations.

Section 7.2. Power to Own and Operate System; Ratemaking Power. The City covenants that it currently owns the System and has all necessary power and authority to own and operate the System as herein described and provided and that it possesses, and shall exercise, all necessary power and authority to establish, fix, increase, impose and collect rates and charges for the use and services of the System in the amounts required to comply with the covenants and provisions contained herein.

Section 7.3. Maintenance of System. So long as any Bonds or other Obligations remain Outstanding, the City covenants that it will at all times maintain the System, or within the limits of its authority cause the same to be maintained, in good condition and working order and will operate the same, or cause the same to be operated, in an efficient and economical manner at a reasonable cost and in accordance with sound business principles. In operating and maintaining the System, the City will comply with all contractual provisions and agreements entered into by it and with all valid rules, regulations, directions or orders of any governmental, administrative or judicial body promulgating same, noncompliance with which would materially and adversely affect the operation of the System.

Section 7.4. Sale or Encumbrance of System. So long as any Bonds remain Outstanding, the City covenants that it will not sell, dispose of or, except as permitted in Article VI, further encumber the System; provided, however, that this provision shall not prevent the City from disposing of any portion of the System which is being replaced or is deemed by the City to be obsolete, worn out, surplus or no longer needed for the proper operation of the System. Net proceeds from any such disposition may be deposited in the General Purpose Fund. Any agreement pursuant to which the City contracts with a person, corporation, municipal corporation, political subdivision or other entity to operate the System or to lease and/or operate or to lease and lease back to the City all or part of the System shall not be considered as an encumbrance of the System.

Section 7.5. Insurance. The City covenants that it will keep the System insured with insurers of good standing against risks, accidents or casualties against which and to the extent customarily insured against by political subdivisions of the State of Texas operating similar properties, to the extent that such insurance is available. All net proceeds of such insurance may be applied to repair or replace the insured property that is damaged or destroyed, or may be deposited in the General Purpose Fund. The cost of all such insurance, together with any additional insurance, shall be a part of the Maintenance and Operation Expenses.

Section 7.6. Accounts, Records, and Audits. So long as any Bonds or other Obligations remain Outstanding, the City covenants that it will maintain a proper and complete system of records and accounts pertaining to the operation of the System in which full, true and proper entries will be made of all dealings, transactions, business and affairs which in any way affect or pertain to the System or the Gross Revenues or the Net Revenues thereof. The City shall after the close of each Fiscal Year prepare financial statements of the System, and have those financial statements audited by an independent certified public accountant or independent firm of certified public accountants. After the audit, the City shall furnish a copy of these audited financial statements, together with the independent certified public accountant's report thereon, without cost, to the Municipal Advisory Council of Texas, each Rating Agency then

rating the Bonds, the Texas Water Development Board, and any Owners of Bonds who shall request the same. All expenses incurred in preparing such audits shall be Maintenance and Operation Expenses.

Section 7.7. Competition. To the extent it legally may, the City covenants that it will not grant any franchise or permit for the acquisition, construction or operation of any competing facilities which might be used as a substitute for the System and will prohibit the operation of any such competing facilities to the extent that such competing facilities would impair the City's ability to pay principal of or interest on the Bonds or other Obligations.

Section 7.8. Pledge and Encumbrance of Net Revenues. The City covenants that it has the lawful power to create a lien on and to pledge the Net Revenues to secure the payment of the Obligations, and has lawfully exercised such power under the Constitution and laws of the State of Texas. The City further covenants that, other than to the payment of the Obligations, the Net Revenues are not and will not be made subject to any other lien, pledge or encumbrance to secure the payment of any debt or obligation of the City, unless such lien, pledge or encumbrance is junior and subordinate to the lien and pledge securing payment of the Obligations.

Section 7.9. Covenants with Respect to Certain Assumed Water District Bonds. So long as any Bonds or other Obligations remain Outstanding, the City covenants as follows:

- (a) To the extent it legally may, the City will impose, and strictly enforce, the requirement upon all water districts located within the City's extraterritorial jurisdiction that any bonds or obligations issued or incurred by such water districts which are secured in whole or in part by pledges of or liens on water or sewer revenues shall provide that all such pledges of and liens on water or sewer revenues shall automatically terminate upon the annexation and dissolution of the district by the City;
- (b) The City shall use its best efforts to redeem, refund, or defease all annexed water district bonds assumed by the City which by their own terms are secured in whole or in part by pledges of or liens on water or sewer revenues which do not terminate upon annexation and dissolution by the City of such water district, or otherwise to provide for the discharge of such pledges or liens on water or sewer revenues; and
- (c) Pursuant to Section 43.075, Texas Local Government Code, the City shall, unless it has theretofore made adequate provision for the payment thereof, annually levy and cause to be collected taxes upon all taxable property of the City sufficient to pay principal of and interest, as they respectively become due and payable, on all assumed bonds, warrants and other obligations that were issued by water districts that have been annexed to, and dissolved by, the City, and which are by their own terms secured in whole or in part by a lien on or pledge of water or sewer revenues which did not terminate upon the annexation and dissolution by the City of such water district.

Section 7.10. Bondholders Rights and Remedies. This Ordinance shall constitute a contract between the City and the Owners of the Bonds from time to time Outstanding and this Ordinance shall be and remain irrevocable until the Bonds and the interest thereon shall be fully paid or discharged or provision therefor shall have been made as provided herein. In the event of a default in the payment of the principal of or interest on any of the Bonds or a default in the performance of any duty or covenant provided by law or in this Ordinance, the Owner or Owners of any of the Bonds may pursue all legal remedies afforded by the Constitution and laws of the State of Texas to compel the City to remedy such default and to prevent further default or defaults. Without in any way limiting the generality of the foregoing, it is expressly provided that any Owner of any of the Bonds may at law or in equity, by suit, action, mandamus, or other proceedings, enforce and compel performance of all duties required to be performed by the City under this Ordinance, including the making and collection of reasonable and sufficient rates and charges for the use and services of the System, the deposit of the revenues thereof into the special funds herein provided, and the application of such revenues in the manner required in this Ordinance. A Supplemental Ordinance may provide that, so long as an issuer of a municipal bond insurance policy shall not have defaulted in its payment obligations under such policy with the City insuring a portion of the Bonds, such issuer shall, under the terms of this Ordinance, at all times be deemed to be the exclusive owner of such Bonds for the purpose of all approvals, consents, waivers or institutions of any action and the direction of all remedies.

Section 7.11. Defeasance. The City may defease the provisions of this Ordinance and discharge its obligation to the Owners of any or all of the Bonds or other Obligations to pay principal, interest and redemption premium, if any, thereon in any manner permitted by law, including by depositing with the Paying Agent/Registrar, or if authorized by Texas law with any national or state bank having trust powers and having combined capital and surplus of at least \$50 million or with the Comptroller of Public Accounts of the State of Texas (or any successor office) either: (a) cash in an amount equal to the principal amount and redemption premium, if any, of such Bonds or other Obligations plus interest thereon to the date of maturity or redemption, or (b) pursuant to an escrow or trust agreement, cash and/or securities authorized by § 1207.062 of the Texas Government Code, as amended at the time of issuance of such series of Bonds or Obligations. Such deposits may be invested only in obligations described above that are in principal amounts and maturities and bear interest at rates sufficient to provide for the timely payment of the principal amount and redemption premium, if any, of such Bonds or other Obligations plus interest thereon to the date of maturity or redemption. Upon such deposit and upon receipt of an opinion of nationally recognized bond counsel to the effect that such Bonds or Obligations are deemed to be fully paid and are no longer outstanding, such Bonds or other Obligations shall no longer be regarded to be Outstanding or unpaid. Any surplus amounts not required to accomplish such defeasance shall be returned to the System after the Obligations are retired. Payments of principal of and interest on any Bonds or other Obligations made by a provider of a Credit Agreement insuring a portion of the Bonds or other Obligations shall not be deemed to have been paid hereunder and such Bonds or other Obligations shall continue to be Outstanding until paid by the City.

Section 7.12. Legal Holidays. Unless otherwise provided for in a Supplemental Ordinance, in any case where the date of maturity of interest on or principal of the Bonds or other Obligations or the date fixed for redemption of any Bonds or other Obligations shall be in

the City a legal holiday or a day on which the Paying Agent/Registrar for the Bonds or other Obligations is authorized by law to close, then payment of interest or principal need not be made on such date but may be made on the next succeeding day not in the City a legal holiday or a day on which such Paying Agent/Registrar is authorized by law to close with the same force and effect as if made on the date of maturity or the date fixed for redemption and no interest shall accrue for the period from the date of maturity or redemption to the date of actual payment.

Section 7.13. No Recourse Against City Officials. No recourse shall be had for the payment of principal of or interest on any Bonds or other Obligations or for any claim based thereon or on this Ordinance against any official of the City or any person executing any Bonds or other Obligations.

Section 7.14. Amendment of Ordinance Without Consent. The City may, without the consent of or notice to any of the Owners, amend this Ordinance and any Supplemental Ordinance for any one or more of the following purposes:

- (a) to cure any ambiguity, defect, omission or inconsistent provision in this Ordinance or in the Bonds; or to comply with any applicable provision of law or regulation of federal agencies; provided, however, that such action shall not adversely affect the interests of the Owners of the Bonds;
- (b) to grant to or confer upon the Owners of the Bonds any additional rights, remedies, powers or authority that may lawfully be granted to or conferred upon the Owners of the Bonds;
- (c) to add to the covenants and agreements of the City contained in this Ordinance other covenants and agreements of, or conditions or restrictions upon, the City or to surrender or eliminate any right or power reserved to or conferred upon the City in this Ordinance;
- (d) to subject additional revenues to the lien and pledge of this Ordinance;
- (e) to provide for the issuance of Adjustable Rate Obligations, Short Term Obligations, or Refundable Obligations;
- (f) to authorize Credit Agreements and Qualified Hedge Agreements with respect to Outstanding Bonds;
- (g) to provide for the continued tax exemption for any Outstanding Bonds;
- (h) to provide for the continued exemption from registration of any Outstanding Bonds under the federal securities laws; or
- (i) to permit other utility systems provided for in Chapter 1502 of the Texas Government Code, as amended, to be combined with the System.



Section 7.15. Amendment to Ordinance Requiring Consent. The City may, with the consent of Owners holding a majority in aggregate principal amount of the Bonds then Outstanding affected thereby, amend, add to, or rescind any of the provisions of this Ordinance; provided that, without the consent of all Owners of Outstanding Bonds, no such amendment, addition, or rescission shall (1) extend the time or times of payment of the principal of, premium, if any, and interest on the Bonds, or reduce the principal amount thereof, the redemption price therefor, or the rate of interest thereon, (2) give any preference to any Bond over any other Bond, or (3) reduce the aggregate principal amount of Bonds required to be held by Owners for consent to any such amendment, addition, or rescission. For the purposes of this Section 7.15, the Owners of the Bonds shall include the initial Owners regardless of whether such Bonds are being held for subsequent resale.

Section 7.16. No Free Service. The City will not grant or permit any free service from the System, except for public buildings and institutions operated by the City and properties permitted to be exempt by state law. In addition, the City will not grant or permit any free service from the System permitted by the previous sentence if to do so would violate any condition or covenant to which the City is bound in connection with any federal grant agreement or otherwise.

## ARTICLE VIII

### MISCELLANEOUS

Section 8.1. Continuing Disclosure Obligations. The City's continuing disclosure obligations, if any, under United States Securities and Exchange Commission Rule 15c2-12 with respect to Obligations shall be set forth in the Supplemental Ordinance with respect to such Obligations.

Section 8.2. Further Proceedings. The Mayor of the City, the City Controller of the City and the City Secretary of the City and other appropriate officials of the City are hereby authorized and directed to do any and all things necessary and/or convenient to carry out the terms of this Ordinance. If requested by the Attorney General of Texas or his representatives, the City Attorney or his designee may authorize such ministerial changes in the written text of this Ordinance as are necessary to obtain the Attorney General's approval and as he determines are consistent with the intent and purposes of this Ordinance, which determination shall be final.

Section 8.3. Severability. If any Section, paragraph, clause, or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such Section, paragraph, clause, or provision shall not affect any of the remaining provisions of this Ordinance.

Section 8.4. Open Meeting. It is hereby found, determined and declared that a sufficient written notice of the date, hour, place and subject of the meeting of the City Council at which this Ordinance was adopted was posted at a place convenient and readily accessible at all times to the general public at the City Hall of the City for the time required by law preceding this meeting, as required by the Open Meetings Act, Chapter 551, Texas Government Code and that

this meeting has been open to the public as required by law at all times during which this Ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the contents and posting thereof.

Section 8.5. Declaration of Emergency and of Public Security Authorization. It is hereby officially found and determined that a case of emergency and urgent public necessity exists which requires the holding of the meeting at which this Ordinance is passed and further requires that this Ordinance be passed finally and take effect immediately on the date of its introduction, such emergency and urgent public necessity being that the proceeds from the sale of the Bonds are required as soon as possible and without delay for the purposes set forth herein. It is further officially found and determined that this Ordinance is a public security authorization, and therefore this Ordinance shall be effective immediately upon approval by the City Council pursuant to Section 1201.028 of the Texas Government Code.

Section 8.6. Repealer. All ordinances, or parts thereof inconsistent herewith are hereby repealed to the extent of such inconsistency.

**[Execution Page Follows]**

PASSED AND APPROVED THIS 21st day of April, 2004.

*Bill White*

Mayor

Approved as to Form:

*Gary L Wood*

Senior Assistant City Attorney  
 (Requested by Jon C. Vanden Bosch  
 Director of Department of  
 Public Works and Engineering)  
 (L.D. File No. 0340300230001)

AYE	NO	<u>2004-299</u>
✓		MAYOR WHITE
....	....	COUNCIL MEMBERS
✓		LAWRENCE
✓		GALLOWAY
	✓	GOLDBERG
✓		EDWARDS
	✓	WISEMAN
✓		KHAN
✓		HOLM
✓		GARCIA
✓		ALVARADO
✓		ELLIS
✓		QUAN
✓		SEKULA-GIBBS
✓		GREEN
✓		BERRY
CAPTION	ADOPTED	

MAY 017 Rev. 1/04

EXHIBIT A

TWDB Board Bonds

Outstanding Bonds as of June 1, 2004

Series	Amount Outstanding
Junior Lien Revenue Bonds, Series 1994A	\$2,490,000
Junior Lien Revenue Bonds, Series 1994B	\$1,000,000
Junior Lien Revenue Bonds, Series 1996C	\$62,300,000
Junior Lien Revenue Bonds, Series 1996D	\$159,970,000
Junior Lien Revenue Bonds, Series 1997E	\$174,975,000
Junior Lien Revenue Bonds, Series 1999C	\$47,400,000
Junior Lien Revenue Bonds, Series 1999B	\$6,030,000
Junior Lien Revenue Bonds, Series 2000A	\$67,640,000
Junior Lien Revenue Bonds, Series 2002C	\$180,000
TOTAL	\$521,985,000

Board Bonds to be issued in the future:

Clean Water SRF Commitment Number	Expiration Date Of Commitment	Amount
117100	None	\$19,460,000
124100	10-31-2004	\$50,050,000
124800	10-31-2004	\$24,935,000
127600	10-16-2004	\$14,875,000
128200	12-11-2004	\$71,770,000
Drinking Water SRF		
118100	None	\$5,955,000
TOTAL		\$187,045,000

**REQUEST FOR COUNCIL ACTION**

*1702*  
 Page 1 of 3  
 Agenda Item  
*1702*

TO: Mayor via City Secretary

Subject: Various interrelated actions related to restructuring the City's Water & Sewer debt and providing additional funding for drainage improvements.

**FROM (Department or other point of origin):**

Department of Finance and Administration  
 Office of the City Controller

Origination Date:  
 4/12/04

Agenda Date  
 APR 14 2004 APR 21 2004

**DIRECTOR'S SIGNATURE**

*Annise D. Parker* *Judy Gray Johnson*

Council District(s) affected:

All

*W/sep*

For additional information contact: Judy Gray Johnson 713/221-0125  
 Phone: Annise Parker 713/247-3098

Date and Identification of prior authorizing Council Action:  
 N/A

**RECOMMENDATION: (Summary)**

Approve four ordinances as follows, in the order indicated:

1. Ordinance amending the current water and sewer ordinance in order to allow changes in the current flow of funds.
2. Ordinance creating the new flow of funds and covenants related to the Combined Utility System (Master Ordinance).
3. Ordinance providing for the issuance of Series 2004 Combined Utility System Bonds, including approval of all financing documents (Supplemental Ordinance).
4. Ordinance limiting transfers from the General Purpose Fund created by the new master ordinance to stormwater and drainage purposes and amending previous ordinances related to transfers.

*5/10*  
*[Signature]*

Amount of Funding:

F&A Budget:

SOURCE OF FUNDING:  General Fund  Grant Fund  Enterprise Fund

Other (Specify)

**SPECIFIC EXPLANATION:**

The Finance Working Group recommends a restructuring of the City's Water & Sewer debt in order to provide present value savings, minimize needed rate increases, modernize the City's bond covenants, and provide for enhanced drainage improvements. This plan of finance was discussed at the Fiscal Affairs and Management Initiatives Committee on March 30, 2004 and is recommended by the City's financial advisor, Coastal Securities.

Amending Ordinance: The purpose of this ordinance is to amend the current ordinance for the Water and Sewer System in order to accomplish changes necessary to install the new ordinance without refunding all of the existing bonds. In particular, the amending ordinance deletes the requirement to make deposits into the current renewal and replacement fund and substitutes a requirement that funds be deposited into the revenue fund to be established under the new master ordinance.

The effect of this amendment to the existing ordinance will be to give certain bonds that will not be refunded (the non-refunded bonds) priority for debt service payments and to ensure that after providing for payment of debt service on the non-refunded bonds, net revenues are used for debt service on the bonds issued under the new Master Ordinance. The Texas Water Development Board (as owner of the majority of the non-refunded bonds) is being asked to consent to these changes at its board meeting April 21st. After this change, there will be no other bonds issued pursuant to the "old" ordinance other than an additional \$187 million in previously approved Texas Water Development Board Bonds. Since the bonds remaining under the old ordinance (the non-refunded bonds) are limited, these bonds may be upgraded by one or more of the rating agencies.

Master Ordinance: The Master Ordinance establishes the fundamental flow of funds and bondholder security provisions that have been discussed with the City Council, the rating agencies, the bond insurers, and investment bankers. The Master Ordinance refers to the system as a Combined Utility System in order to distinguish bonds issued under the new ordinance from the bonds issued under the previous ordinance. The Combined Utility System consists of the water and sanitary sewer facilities.

- o Lien Structure—the Master Ordinance allows for the issuance of debt in up to four lien levels, only two of which are expected to be used in the near future, the first lien and the third lien.

**REQUIRED AUTHORIZATION**

F&A Director:

Other Authorization:

Other Authorization:

Date:	Subject: Various interrelated actions related to restructuring the City's Water & Sewer debt and providing additional funding for drainage improvements.	Originator's Initials	Page 2 of 3
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- Flow of Funds—the water and sewer revenues will be deposited in the Water and Sewer Revenue Fund, and used first to pay Water and Sewer operating expenses. Transfers must be made monthly to the debt service funds under the “old” ordinance, and used to make the semiannual payments, with interest on June 1<sup>st</sup> and both principal and interest on December 1<sup>st</sup> each year on the non-refunded bonds. Surety bonds are in place to cover the reserve requirements on the non-refunded bonds. Available balances at the end of each month will be transferred to the Combined Utility System Revenue Fund, and used to pay debt service on bonds issued under the new Master Ordinance, with interest due on varying dates, and principal payments due each May 15<sup>th</sup>. Debt service reserve funds must be maintained at 50% of the maximum annual debt service. These are expected to be covered with surety bonds, since this is likely to be more cost-effective than maintaining cash reserves. Annually, available balances, those exceeding two months’ operating expenses, will be transferred to the General Purpose Fund, which will replace the renewal and replacement fund under the old ordinance. The General Purpose Fund may be used for capital expenditures, payment of general obligation debt originally issued for water or sewer purposes, and other water and sewer system needs. Money in the General Purpose Fund may also be used for other purposes that are not water or sewer related, but only in an amount not to exceed 8% of the prior year’s revenues each year.
- Rate Covenant and Additional Bonds Test—the City must set water and sewer rates and charges at levels sufficient to bring in net revenues, (after payment of operating expenses) at least equal to 120% of the current year debt service payments for first lien bonds and 110% of debt service payments for second lien bonds. Before the City may issue additional bonds, the net revenues for the previous year must be at least 120% of the maximum amount of debt service payments for first lien bonds and 110% of the maximum debt service payments for second lien bonds. (Rate increases implemented after the start of any such year may be included in the calculation as if they had been in place during the full year in question.) For both the rate covenant and the additional bonds test, limited amounts of unencumbered cash balances in the General Purpose fund may be counted along with net revenues in meeting the coverage requirements.
- Automatic Rate Adjustment—The master ordinance provides for automatic rate adjustments annually on April 1<sup>st</sup> based on the consumer price index for the Houston/Galveston/Brazoria area for the previous calendar year. This automatic rate adjustment in no way limits the duty and the authority of the City Council to make appropriate determinations as to rates and charges.

The goal in designing the new flow of funds and security provisions was to increase flexibility, but at the same time to maintain the bond ratings at their current level or better. Discussions with the rating agencies have indicated that this goal has been accomplished.

The Master Ordinance provides that each series of bonds and notes are to be issued subject to subsequent supplemental ordinances containing the details of each specific financing.

Supplemental Ordinance: The first supplemental ordinance provides for the issuance of the bonds necessary to restructure the water & sewer debt, including the following:

1. \$1.8 billion in tax-exempt fixed rate refunding bonds.
2. \$650 million in auction rate tax-exempt securities and a hedge agreement that “swaps” these variable rate payments to a fixed rate.
3. \$750 million in auction rate taxable securities that will remain in variable rate mode and convert to tax-exempt securities at the call date of the respective refunded bonds.

The above amounts are approximate, since market conditions at the time of pricing will determine the exact size. The City Council is asked to approve a parameter sale, meaning that the Mayor and City Controller will approve the final transaction subject to meeting Council-approved parameters. This is the City’s established method of approving negotiated transactions. Approval of the supplemental ordinance also approves the documents associated with the financing.

The investment banking team recommended for the first of the above items, (known as the “Series 2004A Bonds”) will include Bear Stearns & Co. Inc., Goldman, Sachs & Co., and UBS Financial Services, Inc. as co-book running managers; Piper Jaffray & Co. and Siebert Brandford Shank & Co., LLC as co-senior managers; and Banc of America Securities LLC, Banc One Capital Markets, Citigroup, Cabrera Capital Markets Inc., First Albany Corporation, JPMorgan, Lehman Brothers, Loop Capital Markets, The Malachi Group Inc., Merrill Lynch, Morgan Keegan, Morgan Stanley, RBC Dain Rauscher, and Ramirez & Co. Inc. as co-managers.

The tax-exempt series of auction rate bonds (“Series 2004B Bonds”) will be issued through negotiations with the three co-book running managers listed above.

The taxable series of auction rate bonds (“Series 2004C”) will be issued through negotiations with JPMorgan and Lehman Brothers.

The swap transaction will be conducted through a competitive process from among Bear Stearns & Co Inc, Citigroup, Goldman Sachs & Co., JPMorgan, Lehman Brothers, and UBS Financial Services, Inc.

Date:	Subject: Various interrelated actions related to restructuring the City's Water & Sewer debt and providing additional funding for drainage improvements.	Originator's Initials	Page 3 of 3
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Co-bond counsel on the transaction are Fulbright & Jaworski LLP and Burney & Foreman. Special disclosure counsel are Andrews Kurth LLP and Bates & Coleman, P.C. The financial advisors are Coastal Securities and SBK-Brooks Investment Corp. and for matters pertaining to hedging transactions, Swap Financial Group Inc.

Ordinance Creating a Dedicated Stormwater Fund: This ordinance renames the Stormwater Utility Fund and provides that all transfers out of the General Purpose Fund for non-water or sewer purposes be deposited in this fund to be used only for stormwater and drainage purposes.

There are three remaining ordinances related to the overall financial plan for water, sewer, and stormwater funding, which will be presented to City Council for approval during the next few weeks. These will be 1) the establishment of a new commercial paper program for the Combined Utility System, replacing the current commercial paper programs, 2) the establishment of a new commercial paper program for storm drainage capital projects, and 3) the issuance of bonds to the Texas Water Development Board.



# CITY OF HOUSTON

Finance and Administration  
Department

# 70, 70a, 70b, 70c  
and 70d  
**Interoffice**

Correspondence

4 - 21 - 04

To: Members of City Council

From: Judy Gray Johnson, Director  
Finance and Administration

Date: April 19, 2004

Subject: **Response to Council Regarding  
Water, Sewer and Drainage**

This memorandum is in response to questions about the proposed refinancing of the Water and Sewer Debt and the dedication of certain funds for storm drainage.

## Refinancing Plan

The overall purpose of the refinancing is to save money in two ways. First, it will lower the interest rate on the outstanding bonds. Second, it will let us put in place a new master ordinance that will allow us to save on money on future debt issuance for the water and sewer system.

Today all bonds issued for the water and sewer system must comply with the requirements of the current water and sewer master bond ordinance, (the "old" ordinance) which has been in place since 1988. Many of the bond covenants in the old ordinance are overly restrictive by today's standards and do not allow us to use innovative financing techniques that have been developed in the past 16 years. By refinancing most of the outstanding debt we will be able to replace the old master ordinance with a new one. The new ordinance will have lower cash reserve requirements, will not restrict the use of variable rate debt, and will allow hedging agreements that can save the City millions of dollars every year.

The standard way of measuring the reduction in interest rates for municipal bonds is to calculate present value savings. Unlike a loan or a mortgage, where there is one interest rate, and part of each payment is applied to principal, each bond has a separate interest rate and its own maturity date when the principal is due. All of the bonds are added together, and an overall interest rate can be computed on the combination. The old debt may have call premiums, (similar to a prepayment penalty) or there may be a waiting period before it can be paid off. In this case, the City puts money aside in an escrow fund to pay the debt off as soon as that is allowed (the "call date"). The money in the escrow fund will earn interest, which will be accumulated to pay off the old bonds at the call date. Any call premiums, waiting periods, the interest earned on the escrow fund, and the maturities on the new debt compared with the old debt, etc. have to be considered in determining whether the City can save money by issuing new bonds to retire the old ones. The present value savings calculation serves to compare the new debt against the debt being retired on an apples-to-apples basis. If the present value cost of the payments that would have been made on the old debt is more than

MS



the present value cost of the payments that will be made on the new debt, the City is saving money.

The present value savings for this refinancing will depend on the actual interest rates at the time the bonds are sold. If they had been sold on Wednesday, April 7, 2004 the present value savings would have been about \$47 million. This is an estimate of the current value of the reduction in debt service over the 30-year life of the bonds. The annual reduction in debt service payments varies and accordingly, in some years we will save more than in other years. The present value calculation takes into consideration, among other things, the difference between paying 4.3% interest on the new debt instead of 5.3% interest on the old debt. Just as any mortgage fees, appraisal fees, legal fees, title insurance, etc. have to be considered when one figures how much is saved when a mortgage is refinanced, there are costs associated with issuing bonds. For the proposed refinancing, the total costs for underwriting, bond insurance, legal fees, financial advisory fees, etc. will total about \$35 million. (A summary is attached.) The present value savings are calculated *after* adjusting for these costs.

Our goal has been to provide competition in the refinancing where we can do so, and achieve the lowest rates. Three types of bonds will be issued as part of the refinancing. These are fixed rate tax-exempt bonds (\$1.8 billion), variable rate taxable bonds (\$750 million), and variable rate tax-exempt bonds that will be swapped to a fixed rate through hedging agreements (\$650 million). The issuance of the fixed rate bonds will be done on a negotiated basis with the underwriting team. This is because of the size and complexity of the fixed rate transaction. It is simply too large and too complex for a competitive offering. The variable rate bonds, both taxable and tax-exempt, are auction-rate bonds. These bonds will be sold initially on a negotiated basis to the underwriters for each series, who will conduct the auctions. (The rates are variable because they are set at each auction date, on 7-day, 28-day or 35-day cycles.) We have named more than one dealer for each type of bond so that the dealers will be competing in the marketplace. The hedge agreements will be done based on competitive quotes from six firms. The best bidder will receive the largest contract, and bidders who agree to match the best bid will receive contracts for lower amounts, which will depend on whether or not all bidders agree to match the best bid. Two of the underwriters, JPMorgan and Banc One Capital Markets, Inc. have announced a merger. We have included them separately because the merger may not take place before the transaction is completed. If the merger takes place before the sale is completed, and Banc One Capital Markets is no longer a separate entity, they will be dropped from the underwriting team.

### **Water and Sewer Rate Increase**

One of the key requirements of any revenue bond ordinance is that the City set rates and charges for use of the system that will be enough to pay off the bonds when they come due. To ensure this, both the old ordinance and the new have restrictions that prevent the City from issuing any new debt unless the previous year's revenues are more than the most that would have to be paid in any future year counting the new debt and adding a cushion. (This is the "additional bonds test". The cushion is a fairly complicated calculation that varies slightly from one ordinance to another but the legal minimum is usually about 20%. The target coverage in order to maintain the City's current bond ratings is 30%. The cushion is referred to as coverage.) If last year's revenues don't meet the test then no more debt can be issued unless rates and charges are raised enough so that the next year's revenues will meet the

test. The City of Houston has reached that point. We cannot issue any more water and sewer system debt until we increase the water and sewer rates. The last water and sewer rate increase was in 1993, 11 years ago. Since that time, operating costs have been controlled, interest rates have fallen, and the debt has been refinanced to take advantage of lower rates, but we have reached the point where we simply cannot put it off any longer.

We have done everything we could to accomplish what is necessary with minimal rate impact. The proposed rates are based on the costs to operate the water and sewer system, and the revenues required to repay the water and sewer system debt. The rates and charges are set for different customer classes, residential, commercial, and industrial users.

The rate design takes into account a number of factors, including the following:

- The historical rate structure, and what has been paid by customers in each class.
- The cost to provide service to each customer class
- Rates that will encourage conservation.
- Rates that minimize the impact on single family residential low volume users.

The new bond ordinance includes an automatic rate adjustment mechanism, beginning in 2005. Water and sewer rates will be adjusted annually based on the local consumer price index. This serves as the default amount, which will go into place each year unless the Mayor and City Council take action to override it. This will be applied evenly across all rate classes. There is no direct connection to the Capital Improvement Plan approval process. The automatic adjustment provision is subject to the rate covenant and coverage requirements, and if the automatic adjustment were not sufficient, the City of Houston would be obligated to increase rates more than that amount. If the capital spending is increased, the rates will have to increase more than the automatic adjustment.

#### **Use of Unspent Water & Sewer Revenues for Storm Drainage**

As stated above, the water and sewer rates and charges are based on the costs to operate the water and sewer system, and the amount needed to pay debt service and meet coverage requirements. Since 1992, some of the unspent water and sewer revenues have been used to fund storm drainage maintenance costs. From 1992 to 1996, about 50% of the costs were paid from water & sewer revenues, and about 50% from the General Fund, for a total of just under \$20 million per year. Beginning in 1997, the total storm sewer maintenance costs were paid with water and sewer revenues, gradually increasing to a high of \$31.5 million in 2003. In addition, about \$250 million was transferred out of the water & sewer funds for a variety of purposes, including street overlays, health benefit costs, and disaster recovery from Tropical Storm Allison.

The new bond ordinance requires the unspent revenues at the end of each year to be placed in a separate fund within the water and sewer system, the "general purpose fund". (The unspent revenues come from the coverage requirement or cushion discussed above. The unspent amounts will be higher in dry years than in wet years based on water use.) The primary use of this fund will be for water and sewer purposes, beyond the basic operating expenses of the system and payment of debt service. This will include equipment and rolling stock purchases, capital expenditures, and payment of debt service on annexed district debt originally issued for water and sewer purposes. The proposed financing plan will allow limited

**City of Houston Water & Sewer System Refinancing, Series 2004A, B and C**  
**Estimate of Costs of Issuance paid through Bond Proceeds**

Underwriter's Discount (includes underwriters' counsel fees, out of pocket expenses and takedown) - based on par amount of bonds issued <sup>(1)</sup>	\$ 15,350,000
Municipal Bond Insurance - based on amount of bonds issued <sup>(1)</sup>	\$ 15,000,000
Debt Service Reserve Fund Surety Policy - based on amount of bonds issued <sup>(1)</sup>	\$ 1,335,000
Other Costs of Issuance - detailed below <sup>(2)</sup>	\$ 3,366,500
<b>Total Estimated Costs of Issuance</b>	<b><u>\$ 35,051,500</u></b>
Bond Counsel	\$ 975,000
Disclosure Counsel	975,000
Swap Counterparties' Counsel	100,000
Texas Water Development Board Counsel	25,000
Bank Counsel	37,000
Financial Advisor	750,000
Swap Advisor	700,000
Rating Agencies (Three at \$150,000 each)	450,000
Printing	65,000
Verification Agent	65,000
Escrow Agent, Paying Agent, Attorney General, CUSIP, etc.	24,500
	<u>\$ 4,166,500</u>
Paid from sources other than costs of issuance	-800,000
<b>Total paid from Bond Proceeds</b>	<b><u>\$ 3,366,500</u></b>

**Notes:**

(1) amount will be finalized on day of pricing when par amount of bonds and structure is finalized

(2) amount not contingent on amount of bonds issued, therefore amount not subject to fluctuation due to pricing.

# Attachment 2

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Jr Lien W&SS Rev Ref Bonds, Series 1998A (Original)**

Period Ending	Principal	Coupon	Interest	Compounded Interest	Debt Service
6/30/2022	15,447,908.20	0.00883425%		32,198.62	15,480,106.82
6/30/2023	16,362,526.50	5.49004445%		45,287,473.50	61,650,000.00
6/30/2024	16,939,610.55	5.50011871%		50,605,389.45	67,545,000.00
6/30/2025	15,188,947.00	5.50003849%		48,751,053.00	63,940,000.00
6/30/2026	14,518,125.00	5.50011330%		50,006,875.00	64,525,000.00
6/30/2027	23,340,902.40	5.50006490%		86,179,097.60	109,520,000.00
6/30/2028	22,106,697.90	5.50014514%		87,408,302.10	109,515,000.00
6/30/2029	29,967,732.00	5.50013045%		126,767,268.00	156,735,000.00
	153,872,449.55			495,037,657.27	648,910,106.82

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## Debt Outstanding as of September 1, 2021

## Bond Debt Service

## Houston Combined Utility System

## Aggregate First Lien Debt Service

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	247,845,000	**	237,636,625.93	485,481,625.93
6/30/2023	260,605,000	**	237,699,797.83	498,304,797.83
6/30/2024	268,690,000	**	227,536,263.30	496,226,263.30
6/30/2025	279,810,000	**	216,760,147.40	496,570,147.40
6/30/2026	285,995,000	**	205,217,950.43	491,212,950.43
6/30/2027	290,220,000	**	193,007,241.53	483,227,241.53
6/30/2028	302,690,000	**	180,532,208.15	483,222,208.15
6/30/2029	302,580,000	**	167,018,749.66	469,598,749.66
6/30/2030	360,515,000	**	155,468,795.31	515,983,795.31
6/30/2031	372,455,000	**	142,307,684.64	514,762,684.64
6/30/2032	385,505,000	**	128,733,002.45	514,238,002.45
6/30/2033	390,465,000	**	114,477,538.45	504,942,538.45
6/30/2034	406,195,000	**	99,422,193.10	505,617,193.10
6/30/2035	260,015,000	**	83,229,434.95	343,244,434.95
6/30/2036	268,710,000	**	71,918,915.05	340,628,915.05
6/30/2037	258,955,000	**	60,608,419.85	319,563,419.85
6/30/2038	191,135,000	**	51,537,902.65	242,672,902.65
6/30/2039	193,445,000	**	44,479,191.33	237,924,191.33
6/30/2040	138,885,000	**	38,520,053.70	177,405,053.70
6/30/2041	143,280,000	**	33,747,481.75	177,027,481.75
6/30/2042	112,280,000	**	29,267,220.30	141,547,220.30
6/30/2043	116,595,000	**	24,953,970.70	141,548,970.70
6/30/2044	113,115,000	**	20,616,613.55	133,731,613.55
6/30/2045	105,410,000	**	16,385,379.00	121,795,379.00
6/30/2046	92,230,000	**	12,462,782.75	104,692,782.75
6/30/2047	78,080,000	**	9,262,893.25	87,342,893.25
6/30/2048	78,045,000	**	6,528,459.38	84,573,459.38
6/30/2049	62,615,000	**	3,977,080.38	66,592,080.38
6/30/2050	47,055,000	**	1,872,416.75	48,927,416.75
6/30/2051	14,000,000	**	722,718.75	14,722,718.75
6/30/2052	14,475,000	**	243,700.00	14,718,700.00
	6,441,895,000		2,816,152,832.25	9,258,047,832.25

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2004B-2**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,833,800.00	2,833,800.00
6/30/2023			3,778,400.00	3,778,400.00
6/30/2024			3,778,400.00	3,778,400.00
6/30/2025			3,778,400.00	3,778,400.00
6/30/2026			3,778,400.00	3,778,400.00
6/30/2027			3,778,400.00	3,778,400.00
6/30/2028	955,000	3.7784%	3,776,796.28	4,731,796.28
6/30/2029	12,335,000	3.7784%	3,721,602.25	16,056,602.25
6/30/2030	16,100,000	3.7784%	3,249,214.09	19,349,214.09
6/30/2031	16,700,000	3.7784%	2,639,884.12	19,339,884.12
6/30/2032	17,320,000	3.7784%	2,007,850.16	19,327,850.16
6/30/2033	17,965,000	3.7784%	1,352,348.14	19,317,348.14
6/30/2034	18,625,000	3.7784%	672,450.24	19,297,450.24
	100,000,000		39,145,945.27	139,145,945.27

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2004B-3**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,125,350.00	2,125,350.00
6/30/2023			2,833,800.00	2,833,800.00
6/30/2024			2,833,800.00	2,833,800.00
6/30/2025			2,833,800.00	2,833,800.00
6/30/2026			2,833,800.00	2,833,800.00
6/30/2027			2,833,800.00	2,833,800.00
6/30/2028	710,000	3.7784%	2,832,607.70	3,542,607.70
6/30/2029	9,255,000	3.7784%	2,791,431.54	12,046,431.54
6/30/2030	12,075,000	3.7784%	2,437,005.03	14,512,005.03
6/30/2031	12,525,000	3.7784%	1,980,007.55	14,505,007.55
6/30/2032	12,990,000	3.7784%	1,505,982.08	14,495,982.08
6/30/2033	13,475,000	3.7784%	1,014,353.46	14,489,353.46
6/30/2034	13,970,000	3.7784%	504,382.81	14,474,382.81
	75,000,000		29,360,120.17	104,360,120.17

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2004B-4**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,125,350.00	2,125,350.00
6/30/2023			2,833,800.00	2,833,800.00
6/30/2024			2,833,800.00	2,833,800.00
6/30/2025			2,833,800.00	2,833,800.00
6/30/2026			2,833,800.00	2,833,800.00
6/30/2027			2,833,800.00	2,833,800.00
6/30/2028	710,000	3.7784%	2,832,607.70	3,542,607.70
6/30/2029	9,255,000	3.7784%	2,791,431.54	12,046,431.54
6/30/2030	12,075,000	3.7784%	2,437,005.03	14,512,005.03
6/30/2031	12,525,000	3.7784%	1,980,007.55	14,505,007.55
6/30/2032	12,990,000	3.7784%	1,505,982.08	14,495,982.08
6/30/2033	13,475,000	3.7784%	1,014,353.46	14,489,353.46
6/30/2034	13,970,000	3.7784%	504,382.81	14,474,382.81
	75,000,000		29,360,120.17	104,360,120.17

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2004B-5**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,833,800.00	2,833,800.00
6/30/2023			3,778,400.00	3,778,400.00
6/30/2024			3,778,400.00	3,778,400.00
6/30/2025			3,778,400.00	3,778,400.00
6/30/2026			3,778,400.00	3,778,400.00
6/30/2027			3,778,400.00	3,778,400.00
6/30/2028	955,000	3.7784%	3,776,796.28	4,731,796.28
6/30/2029	12,335,000	3.7784%	3,721,602.25	16,056,602.25
6/30/2030	16,100,000	3.7784%	3,249,214.09	19,349,214.09
6/30/2031	16,700,000	3.7784%	2,639,884.12	19,339,884.12
6/30/2032	17,320,000	3.7784%	2,007,850.16	19,327,850.16
6/30/2033	17,965,000	3.7784%	1,352,348.14	19,317,348.14
6/30/2034	18,625,000	3.7784%	672,450.24	19,297,450.24
	100,000,000		39,145,945.27	139,145,945.27

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2004B-6**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,219,573.85	2,219,573.85
6/30/2023			2,959,431.80	2,959,431.80
6/30/2024			2,959,431.80	2,959,431.80
6/30/2025			2,959,431.80	2,959,431.80
6/30/2026			2,959,431.80	2,959,431.80
6/30/2027			2,959,431.80	2,959,431.80
6/30/2028	755,000	3.7784%	2,958,163.94	3,713,163.94
6/30/2029	9,665,000	3.7784%	2,914,674.55	12,579,674.55
6/30/2030	12,610,000	3.7784%	2,544,546.69	15,154,546.69
6/30/2031	13,080,000	3.7784%	2,067,301.18	15,147,301.18
6/30/2032	13,565,000	3.7784%	1,572,272.01	15,137,272.01
6/30/2033	14,070,000	3.7784%	1,058,884.01	15,128,884.01
6/30/2034	14,580,000	3.7784%	526,406.69	15,106,406.69
	78,325,000		30,658,981.91	108,983,981.91

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2007A - Exchanged**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,806,750	2,806,750
6/30/2023			2,806,750	2,806,750
6/30/2024			2,806,750	2,806,750
6/30/2025			2,806,750	2,806,750
6/30/2026			2,806,750	2,806,750
6/30/2027			2,806,750	2,806,750
6/30/2028			2,806,750	2,806,750
6/30/2029			2,806,750	2,806,750
6/30/2030			2,806,750	2,806,750
6/30/2031			2,806,750	2,806,750
6/30/2032			2,806,750	2,806,750
6/30/2033			2,806,750	2,806,750
6/30/2034			2,806,750	2,806,750
6/30/2035	17,785,000	5.000%	2,362,125	20,147,125
6/30/2036	18,700,000	5.000%	1,450,000	20,150,000
6/30/2037	19,650,000	5.000%	491,250	20,141,250
	56,135,000		40,791,125	96,926,125

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2011B (TWDB - Clean Water)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	640,000	1.650%	529,865.00	1,169,865.00
6/30/2023	665,000	1.850%	518,433.75	1,183,433.75
6/30/2024	695,000	2.000%	505,332.50	1,200,332.50
6/30/2025	720,000	2.150%	490,642.50	1,210,642.50
6/30/2026	750,000	2.300%	474,277.50	1,224,277.50
6/30/2027	785,000	2.400%	456,232.50	1,241,232.50
6/30/2028	815,000	2.500%	436,625.00	1,251,625.00
6/30/2029	850,000	2.600%	415,387.50	1,265,387.50
6/30/2030	880,000	2.700%	392,457.50	1,272,457.50
6/30/2031	920,000	2.750%	367,927.50	1,287,927.50
6/30/2032	955,000	2.850%	341,668.75	1,296,668.75
6/30/2033	995,000	2.900%	313,632.50	1,308,632.50
6/30/2034	1,035,000	3.000%	283,680.00	1,318,680.00
6/30/2035	1,080,000	3.100%	251,415.00	1,331,415.00
6/30/2036	1,120,000	3.150%	217,035.00	1,337,035.00
6/30/2037	1,165,000	3.150%	181,046.25	1,346,046.25
6/30/2038	1,215,000	3.150%	143,561.25	1,358,561.25
6/30/2039	1,265,000	3.150%	104,501.25	1,369,501.25
6/30/2040	1,315,000	3.150%	63,866.25	1,378,866.25
6/30/2041	1,370,000	3.150%	21,577.50	1,391,577.50
	19,235,000		6,509,165.00	25,744,165.00

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2011C (TWDB - Clean Water)**

Period				
Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,645,000	2.650%	124,223.75	1,769,223.75
6/30/2023	1,715,000	2.850%	77,988.75	1,792,988.75
6/30/2024	1,785,000	3.000%	26,775.00	1,811,775.00
	5,145,000		228,987.50	5,373,987.50

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2011D**

Period	Principal	Coupon	Principal 2	Coupon 2	Interest	Debt Service
Ending						
6/30/2022	9,645,000	5.00%	1,645,000	4.00%	274,025	11,564,025
	9,645,000				274,025	11,564,025

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2011E**

Period				
Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	4,090,000	5.000%	102,250	4,192,250
	4,090,000		102,250	4,192,250

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2012A (FRNs)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			3,542,250.00	3,542,250.00
6/30/2023			4,723,000.00	4,723,000.00
6/30/2024			4,723,000.00	4,723,000.00
6/30/2025			4,723,000.00	4,723,000.00
6/30/2026			4,723,000.00	4,723,000.00
6/30/2027			4,723,000.00	4,723,000.00
6/30/2028	1,150,000	4.6784%	4,721,068.82	5,871,068.82
6/30/2029	15,425,000	4.6784%	4,653,645.37	20,078,645.37
6/30/2030	20,125,000	4.6784%	4,062,934.51	24,187,934.51
6/30/2031	20,875,000	4.6784%	3,301,272.04	24,176,272.04
6/30/2032	21,675,000	4.6784%	2,511,187.61	24,186,187.61
6/30/2033	22,450,000	4.6784%	1,690,917.96	24,140,917.96
6/30/2034	23,300,000	4.6784%	841,239.77	24,141,239.77
	<b>125,000,000</b>		<b>48,939,516.09</b>	<b>173,939,516.09</b>

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2012B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			2,833,800.00	2,833,800.00
6/30/2023			3,778,400.00	3,778,400.00
6/30/2024			3,778,400.00	3,778,400.00
6/30/2025			3,778,400.00	3,778,400.00
6/30/2026			3,778,400.00	3,778,400.00
6/30/2027			3,778,400.00	3,778,400.00
6/30/2028	950,000	3.7784%	3,776,804.68	4,726,804.68
6/30/2029	12,325,000	3.7784%	3,721,807.96	16,046,807.96
6/30/2030	16,100,000	3.7784%	3,249,780.85	19,349,780.85
6/30/2031	16,700,000	3.7784%	2,640,450.88	19,340,450.88
6/30/2032	17,325,000	3.7784%	2,008,408.52	19,333,408.52
6/30/2033	17,975,000	3.7784%	1,352,709.18	19,327,709.18
6/30/2034	18,625,000	3.7784%	672,450.24	19,297,450.24
	100,000,000		39,148,212.31	139,148,212.31

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2012D**

Period				
Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	3,570,000	5.000%	276,750	3,846,750
6/30/2023	3,750,000	5.000%	93,750	3,843,750
	7,320,000		370,500	7,690,500

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2012E (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,515,000	0.570%	521,327.25	2,036,327.25
6/30/2023	1,525,000	0.680%	511,824.50	2,036,824.50
6/30/2024	1,540,000	0.810%	500,402.50	2,040,402.50
6/30/2025	1,550,000	0.890%	487,268.00	2,037,268.00
6/30/2026	1,565,000	0.970%	472,780.25	2,037,780.25
6/30/2027	1,580,000	1.050%	456,895.00	2,036,895.00
6/30/2028	1,600,000	1.120%	439,640.00	2,039,640.00
6/30/2029	1,620,000	1.190%	421,041.00	2,041,041.00
6/30/2030	1,635,000	1.250%	401,183.25	2,036,183.25
6/30/2031	1,660,000	1.310%	380,091.50	2,040,091.50
6/30/2032	1,680,000	1.370%	357,710.50	2,037,710.50
6/30/2033	1,705,000	1.430%	334,011.75	2,039,011.75
6/30/2034	1,730,000	1.500%	308,846.00	2,038,846.00
6/30/2035	1,755,000	1.570%	282,094.25	2,037,094.25
6/30/2036	1,785,000	1.640%	253,680.50	2,038,680.50
6/30/2037	1,815,000	1.710%	223,525.25	2,038,525.25
6/30/2038	1,845,000	1.760%	191,771.00	2,036,771.00
6/30/2039	1,880,000	1.780%	158,803.00	2,038,803.00
6/30/2040	1,915,000	1.790%	124,931.75	2,039,931.75
6/30/2041	1,950,000	1.800%	90,242.50	2,040,242.50
6/30/2042	1,985,000	1.810%	54,728.25	2,039,728.25
6/30/2043	2,020,000	1.820%	18,382.00	2,038,382.00
	37,855,000		6,991,180.00	44,846,180.00

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2012F**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	390,000	3.000%	53,500	443,500
6/30/2023	405,000	3.000%	41,575	446,575
6/30/2024			35,500	35,500
6/30/2025			35,500	35,500
6/30/2026			35,500	35,500
6/30/2027			35,500	35,500
6/30/2028	1,420,000	2.500%	17,750	1,437,750
	2,215,000		254,825	2,469,825

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2013A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,450,000	0.750%	613,804.00	2,063,804.00
6/30/2023	1,460,000	0.940%	601,504.50	2,061,504.50
6/30/2024	1,475,000	1.060%	586,825.00	2,061,825.00
6/30/2025	1,495,000	1.180%	570,187.00	2,065,187.00
6/30/2026	1,510,000	1.300%	551,551.50	2,061,551.50
6/30/2027	1,535,000	1.400%	530,991.50	2,065,991.50
6/30/2028	1,555,000	1.480%	508,739.50	2,063,739.50
6/30/2029	1,580,000	1.540%	485,066.50	2,065,066.50
6/30/2030	1,605,000	1.590%	460,140.75	2,065,140.75
6/30/2031	1,630,000	1.640%	434,015.00	2,064,015.00
6/30/2032	1,655,000	1.690%	406,664.25	2,061,664.25
6/30/2033	1,685,000	1.720%	378,188.50	2,063,188.50
6/30/2034	1,715,000	1.760%	348,605.50	2,063,605.50
6/30/2035	1,745,000	1.800%	317,808.50	2,062,808.50
6/30/2036	1,780,000	1.850%	285,638.50	2,065,638.50
6/30/2037	1,810,000	1.900%	251,978.50	2,061,978.50
6/30/2038	1,845,000	1.950%	216,794.75	2,061,794.75
6/30/2039	1,885,000	1.990%	180,050.25	2,065,050.25
6/30/2040	1,920,000	2.020%	141,902.50	2,061,902.50
6/30/2041	1,960,000	2.030%	102,616.50	2,062,616.50
6/30/2042	2,000,000	2.040%	62,322.50	2,062,322.50
6/30/2043	2,045,000	2.050%	20,961.25	2,065,961.25
	37,340,000		8,056,356.75	45,396,356.75

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev & Ref Bonds, Series 2013B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	3,460,000	4.000%	401,600	3,861,600
6/30/2023	3,620,000	5.000%	241,900	3,861,900
6/30/2024	3,785,000	4.000%	75,700	3,860,700
	10,865,000		719,200	11,584,200

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2014A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,840,000	0.900%	1,147,821.50	2,987,821.50
6/30/2023	1,855,000	1.140%	1,128,968.00	2,983,968.00
6/30/2024	1,880,000	1.310%	1,106,080.50	2,986,080.50
6/30/2025	1,905,000	1.460%	1,079,860.00	2,984,860.00
6/30/2026	1,935,000	1.600%	1,050,473.50	2,985,473.50
6/30/2027	1,970,000	1.750%	1,017,756.00	2,987,756.00
6/30/2028	2,005,000	1.870%	981,771.75	2,986,771.75
6/30/2029	2,045,000	1.970%	942,881.75	2,987,881.75
6/30/2030	2,085,000	2.070%	901,158.75	2,986,158.75
6/30/2031	2,130,000	2.160%	856,575.00	2,986,575.00
6/30/2032	2,175,000	2.250%	809,102.25	2,984,102.25
6/30/2033	2,225,000	2.320%	758,823.50	2,983,823.50
6/30/2034	2,280,000	2.370%	705,995.50	2,985,995.50
6/30/2035	2,335,000	2.420%	650,724.00	2,985,724.00
6/30/2036	2,390,000	2.470%	592,954.00	2,982,954.00
6/30/2037	2,455,000	2.520%	532,504.50	2,987,504.50
6/30/2038	2,515,000	2.550%	469,505.25	2,984,505.25
6/30/2039	2,580,000	2.580%	404,157.00	2,984,157.00
6/30/2040	2,650,000	2.610%	336,292.50	2,986,292.50
6/30/2041	2,720,000	2.640%	265,806.00	2,985,806.00
6/30/2042	2,795,000	2.660%	192,728.50	2,987,728.50
6/30/2043	2,870,000	2.670%	117,240.50	2,987,240.50
6/30/2044	2,945,000	2.680%	39,463.00	2,984,463.00
	52,585,000		16,088,643.25	68,673,643.25



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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds (Taxable), Series 2014B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	59,700,000	3.228%	16,672,635.20	76,372,635.20
6/30/2023	62,915,000	3.428%	14,745,519.20	77,660,519.20
6/30/2024	64,390,000	3.628%	12,588,793.00	76,978,793.00
6/30/2025	67,220,000	3.828%	10,252,723.80	77,472,723.80
6/30/2026	69,770,000	3.828%	7,679,542.20	77,449,542.20
6/30/2027	66,940,000	3.828%	5,008,746.60	71,948,746.60
6/30/2028	63,905,000	3.828%	2,446,283.40	66,351,283.40
	454,840,000		69,394,243.40	524,234,243.40

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2014C**

Period Ending	Principal	Coupon	Principal 2	Coupon 2	Principal 3	Coupon 3	Interest	Debt Service
6/30/2022	66,560,000	5.000%	1,500,000	4.000%	1,400,000	3.000%	27,466,750	96,926,750
6/30/2023	72,330,000	5.000%	2,225,000	4.000%			24,036,750	98,591,750
6/30/2024	77,295,000	5.000%					20,331,250	97,626,250
6/30/2025	81,760,000	5.000%					16,466,500	98,226,500
6/30/2026	85,755,000	5.000%					12,378,500	98,133,500
6/30/2027	82,685,000	5.000%					8,090,750	90,775,750
6/30/2028	78,330,000	5.000%	1,000,000	4.000%			3,956,500	83,286,500
	544,715,000		4,725,000		1,400,000		112,727,000	663,567,000

## Debt Outstanding as of September 1, 2021

## Bond Debt Service

## Houston Combined Utility System

## First Lien Rev &amp; Ref Bonds, Series 2014D

Period Ending	Principal	Coupon	Principal 2	Coupon 2	Interest	Debt Service
6/30/2022	22,390,000	4.000%	1,055,000	5.000%	20,686,800	44,131,800
6/30/2023	24,500,000	4.000%	120,000	5.000%	19,491,050	44,111,050
6/30/2024	23,810,000	3.000%	2,500,000	5.000%	18,243,400	44,553,400
6/30/2025	27,580,000	5.000%			16,921,150	44,501,150
6/30/2026	18,975,000	5.000%			15,757,275	34,732,275
6/30/2027	19,955,000	5.000%			14,784,025	34,739,025
6/30/2028	20,970,000	5.000%			13,760,900	34,730,900
6/30/2029	22,050,000	5.000%			12,685,400	34,735,400
6/30/2030	23,065,000	4.000%			11,672,850	34,737,850
6/30/2031	24,005,000	4.000%			10,731,450	34,736,450
6/30/2032	19,635,000	4.000%			9,858,650	29,493,650
6/30/2033	20,680,000	4.000%			9,052,350	29,732,350
6/30/2034	21,775,000	4.000%			8,203,250	29,978,250
6/30/2035	23,030,000	5.000%			7,192,000	30,222,000
6/30/2036	24,465,000	5.000%			6,004,625	30,469,625
6/30/2037	9,730,000	5.000%			5,149,750	14,879,750
6/30/2038	10,230,000	5.000%			4,650,750	14,880,750
6/30/2039	10,755,000	5.000%			4,126,125	14,881,125
6/30/2040	11,305,000	5.000%			3,574,625	14,879,625
6/30/2041	11,885,000	5.000%			2,994,875	14,879,875
6/30/2042	12,495,000	5.000%			2,385,375	14,880,375
6/30/2043	13,135,000	5.000%			1,744,625	14,879,625
6/30/2044	13,810,000	5.000%			1,071,000	14,881,000
6/30/2045	14,515,000	5.000%			362,875	14,877,875
	444,745,000		3,675,000		221,105,175	669,525,175

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2015A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,660,000	0.310%	557,090.50	2,217,090.50
6/30/2023	1,670,000	0.500%	550,342.50	2,220,342.50
6/30/2024	1,675,000	0.620%	540,975.00	2,215,975.00
6/30/2025	1,690,000	0.730%	529,614.00	2,219,614.00
6/30/2026	1,700,000	0.860%	516,135.50	2,216,135.50
6/30/2027	1,715,000	0.950%	500,679.25	2,215,679.25
6/30/2028	1,735,000	1.020%	483,684.50	2,218,684.50
6/30/2029	1,755,000	1.070%	465,446.75	2,220,446.75
6/30/2030	1,770,000	1.120%	446,145.50	2,216,145.50
6/30/2031	1,790,000	1.170%	425,762.00	2,215,762.00
6/30/2032	1,815,000	1.220%	404,219.00	2,219,219.00
6/30/2033	1,835,000	1.270%	381,495.25	2,216,495.25
6/30/2034	1,860,000	1.320%	357,567.00	2,217,567.00
6/30/2035	1,885,000	1.370%	332,378.75	2,217,378.75
6/30/2036	1,910,000	1.420%	305,905.50	2,215,905.50
6/30/2037	1,940,000	1.460%	278,182.50	2,218,182.50
6/30/2038	1,970,000	1.490%	249,344.00	2,219,344.00
6/30/2039	2,000,000	1.520%	219,467.50	2,219,467.50
6/30/2040	2,030,000	1.550%	188,535.00	2,218,535.00
6/30/2041	2,060,000	1.580%	156,528.50	2,216,528.50
6/30/2042	2,095,000	1.610%	123,389.75	2,218,389.75
6/30/2043	2,130,000	1.630%	89,165.50	2,219,165.50
6/30/2044	2,165,000	1.640%	54,053.00	2,219,053.00
6/30/2045	2,200,000	1.650%	18,150.00	2,218,150.00
	45,055,000		8,174,256.75	53,229,256.75

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2015B (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,285,000	0.610%	434,554.25	2,719,554.25
6/30/2023	2,300,000	0.800%	418,385.00	2,718,385.00
6/30/2024	2,320,000	0.920%	398,513.00	2,718,513.00
6/30/2025	2,340,000	1.030%	375,790.00	2,715,790.00
6/30/2026	2,370,000	1.160%	349,993.00	2,719,993.00
6/30/2027	2,395,000	1.250%	321,278.25	2,716,278.25
6/30/2028	2,425,000	1.320%	290,304.50	2,715,304.50
6/30/2029	2,460,000	1.370%	257,448.50	2,717,448.50
6/30/2030	2,495,000	1.420%	222,883.00	2,717,883.00
6/30/2031	2,530,000	1.470%	186,573.00	2,716,573.00
6/30/2032	2,570,000	1.520%	148,445.50	2,718,445.50
6/30/2033	2,610,000	1.570%	108,425.00	2,718,425.00
6/30/2034	2,650,000	1.620%	66,471.50	2,716,471.50
6/30/2035	2,695,000	1.670%	22,503.25	2,717,503.25
	34,445,000		3,601,567.75	38,046,567.75

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2015D**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			3,132,500	3,132,500
6/30/2023			3,132,500	3,132,500
6/30/2024			3,132,500	3,132,500
6/30/2025			3,132,500	3,132,500
6/30/2026	9,390,000	5.000%	2,897,750	12,287,750
6/30/2027	11,050,000	5.000%	2,386,750	13,436,750
6/30/2028	11,615,000	5.000%	1,820,125	13,435,125
6/30/2029	12,210,000	5.000%	1,224,500	13,434,500
6/30/2030	6,295,000	5.000%	761,875	7,056,875
6/30/2031			604,500	604,500
6/30/2032	2,460,000	5.000%	543,000	3,003,000
6/30/2033	2,440,000	5.000%	420,500	2,860,500
6/30/2034	2,420,000	5.000%	299,000	2,719,000
6/30/2035	2,395,000	5.000%	178,625	2,573,625
6/30/2036	2,375,000	5.000%	59,375	2,434,375
	62,650,000		23,726,000	86,376,000

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2016A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,925,000	0.020%	619,732.50	2,544,732.50
6/30/2023	1,925,000	0.200%	617,615.00	2,542,615.00
6/30/2024	1,930,000	0.380%	612,023.00	2,542,023.00
6/30/2025	1,940,000	0.520%	603,312.00	2,543,312.00
6/30/2026	1,950,000	0.640%	592,028.00	2,542,028.00
6/30/2027	1,965,000	0.780%	578,124.50	2,543,124.50
6/30/2028	1,980,000	0.870%	561,848.00	2,541,848.00
6/30/2029	2,000,000	0.950%	543,735.00	2,543,735.00
6/30/2030	2,020,000	1.030%	523,832.00	2,543,832.00
6/30/2031	2,040,000	1.100%	502,209.00	2,542,209.00
6/30/2032	2,065,000	1.150%	479,115.25	2,544,115.25
6/30/2033	2,090,000	1.200%	454,701.50	2,544,701.50
6/30/2034	2,115,000	1.250%	428,942.75	2,543,942.75
6/30/2035	2,140,000	1.300%	401,814.00	2,541,814.00
6/30/2036	2,170,000	1.350%	373,256.50	2,543,256.50
6/30/2037	2,200,000	1.400%	343,209.00	2,543,209.00
6/30/2038	2,230,000	1.450%	311,641.50	2,541,641.50
6/30/2039	2,265,000	1.490%	278,599.75	2,543,599.75
6/30/2040	2,300,000	1.500%	244,475.50	2,544,475.50
6/30/2041	2,335,000	1.520%	209,479.50	2,544,479.50
6/30/2042	2,370,000	1.540%	173,484.50	2,543,484.50
6/30/2043	2,405,000	1.560%	136,476.50	2,541,476.50
6/30/2044	2,445,000	1.570%	98,524.25	2,543,524.25
6/30/2045	2,485,000	1.580%	59,699.50	2,544,699.50
6/30/2046	2,520,000	1.590%	20,034.00	2,540,034.00
	53,810,000		9,767,913.00	63,577,913.00

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

First Lien Rev & Ref Bonds, Series 2016B

Period Ending	Principal	Coupon	Principal 2	Coupon 2	Interest	Debt Service
6/30/2022	19,235,000	5.000%			41,431,075	60,666,075
6/30/2023	20,195,000	5.000%			40,445,325	60,640,325
6/30/2024	20,960,000	5.000%			39,416,450	60,376,450
6/30/2025	22,155,000	5.000%			38,338,575	60,493,575
6/30/2026	22,665,000	5.000%			37,218,075	59,883,075
6/30/2027	21,190,000	5.000%			36,121,700	57,311,700
6/30/2028	22,435,000	5.000%			35,031,075	57,466,075
6/30/2029	15,940,000	5.000%			34,071,700	50,011,700
6/30/2030	23,730,000	5.000%			33,079,950	56,809,950
6/30/2031	31,045,000	5.000%			31,710,575	62,755,575
6/30/2032	36,070,000	4.000%			30,213,050	66,283,050
6/30/2033	38,405,000	5.000%			28,531,525	66,936,525
6/30/2034	21,115,000	5.000%	20,000,000	5.250%	26,518,525	67,633,525
6/30/2035	105,735,000	5.000%			22,822,275	128,557,275
6/30/2036	111,065,000	5.000%			17,402,275	128,467,275
6/30/2037	114,575,000	5.000%			11,761,275	126,336,275
6/30/2038	61,940,000	4.000%			7,658,100	69,598,100
6/30/2039	21,075,000	4.000%	43,500,000	4.500%	5,019,050	69,594,050
6/30/2040	11,425,000	4.000%			3,390,300	14,815,300
6/30/2041	11,890,000	4.000%			2,924,000	14,814,000
6/30/2042	12,380,000	4.000%			2,438,600	14,818,600
6/30/2043	12,885,000	4.000%			1,933,300	14,818,300
6/30/2044	13,410,000	4.000%			1,407,400	14,817,400
6/30/2045	13,955,000	4.000%			860,100	14,815,100
6/30/2046	14,525,000	4.000%			290,500	14,815,500
	820,000,000		63,500,000		530,034,775	1,413,534,775



Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2017A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,030,000	0.120%	748,777.00	2,778,777.00
6/30/2023	2,030,000	0.280%	744,717.00	2,774,717.00
6/30/2024	2,040,000	0.400%	737,795.00	2,777,795.00
6/30/2025	2,045,000	0.550%	728,091.25	2,773,091.25
6/30/2026	2,055,000	0.670%	715,583.25	2,770,583.25
6/30/2027	2,070,000	0.800%	700,419.00	2,770,419.00
6/30/2028	2,085,000	0.900%	682,756.50	2,767,756.50
6/30/2029	2,105,000	0.990%	662,954.25	2,767,954.25
6/30/2030	2,125,000	1.070%	641,165.75	2,766,165.75
6/30/2031	2,150,000	1.170%	617,219.50	2,767,219.50
6/30/2032	2,175,000	1.250%	591,048.25	2,766,048.25
6/30/2033	2,200,000	1.320%	562,934.50	2,762,934.50
6/30/2034	2,230,000	1.380%	533,027.50	2,763,027.50
6/30/2035	2,260,000	1.440%	501,368.50	2,761,368.50
6/30/2036	2,295,000	1.490%	467,998.75	2,762,998.75
6/30/2037	2,330,000	1.530%	433,076.50	2,763,076.50
6/30/2038	2,365,000	1.560%	396,805.00	2,761,805.00
6/30/2039	2,400,000	1.590%	359,278.00	2,759,278.00
6/30/2040	2,440,000	1.610%	320,556.00	2,760,556.00
6/30/2041	2,480,000	1.620%	280,826.00	2,760,826.00
6/30/2042	2,520,000	1.630%	240,200.00	2,760,200.00
6/30/2043	2,560,000	1.640%	198,670.00	2,758,670.00
6/30/2044	2,600,000	1.650%	156,228.00	2,756,228.00
6/30/2045	2,645,000	1.660%	112,824.50	2,757,824.50
6/30/2046	2,690,000	1.670%	68,409.50	2,758,409.50
6/30/2047	2,735,000	1.680%	22,974.00	2,757,974.00
	59,660,000		12,225,703.50	71,885,703.50

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2017B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	5,495,000	4.000%	13,030,750	18,525,750
6/30/2023	5,750,000	5.000%	12,777,100	18,527,100
6/30/2024	6,045,000	5.000%	12,482,225	18,527,225
6/30/2025	18,585,000	5.000%	11,866,475	30,451,475
6/30/2026	19,540,000	5.000%	10,913,350	30,453,350
6/30/2027	20,540,000	5.000%	9,911,350	30,451,350
6/30/2028	21,600,000	5.000%	8,857,850	30,457,850
6/30/2029	12,900,000	5.000%	7,995,350	20,895,350
6/30/2030	7,760,000	5.000%	7,478,850	15,238,850
6/30/2031			7,284,850	7,284,850
6/30/2032			7,284,850	7,284,850
6/30/2033			7,284,850	7,284,850
6/30/2034			7,284,850	7,284,850
6/30/2035	8,160,000	5.000%	7,080,850	15,240,850
6/30/2036	8,580,000	5.000%	6,662,350	15,242,350
6/30/2037	9,015,000	5.000%	6,222,475	15,237,475
6/30/2038	9,480,000	5.000%	5,760,100	15,240,100
6/30/2039	9,965,000	5.000%	5,273,975	15,238,975
6/30/2040	10,475,000	5.000%	4,762,975	15,237,975
6/30/2041	11,015,000	5.000%	4,225,725	15,240,725
6/30/2042	11,580,000	5.000%	3,660,850	15,240,850
6/30/2043	12,175,000	5.000%	3,066,975	15,241,975
6/30/2044	12,730,000	4.000%	2,508,000	15,238,000
6/30/2045	13,250,000	4.000%	1,988,400	15,238,400
6/30/2046	13,790,000	4.000%	1,447,600	15,237,600
6/30/2047	14,355,000	4.000%	884,700	15,239,700
6/30/2048	14,940,000	4.000%	298,800	15,238,800
	277,725,000		178,296,475	456,021,475

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2018A (TWDB)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,945,000	0.180%	805,991.50	2,750,991.50
6/30/2023	1,950,000	0.340%	800,926.00	2,750,926.00
6/30/2024	1,955,000	0.510%	792,625.75	2,747,625.75
6/30/2025	1,970,000	0.640%	781,336.50	2,751,336.50
6/30/2026	1,980,000	0.770%	767,409.50	2,747,409.50
6/30/2027	2,000,000	0.910%	750,686.50	2,750,686.50
6/30/2028	2,020,000	1.040%	731,082.50	2,751,082.50
6/30/2029	2,040,000	1.120%	709,154.50	2,749,154.50
6/30/2030	2,065,000	1.210%	685,237.25	2,750,237.25
6/30/2031	2,090,000	1.270%	659,472.50	2,749,472.50
6/30/2032	2,120,000	1.320%	632,209.00	2,752,209.00
6/30/2033	2,145,000	1.370%	603,523.75	2,748,523.75
6/30/2034	2,175,000	1.420%	573,388.00	2,748,388.00
6/30/2035	2,210,000	1.470%	541,702.00	2,751,702.00
6/30/2036	2,240,000	1.510%	508,546.50	2,748,546.50
6/30/2037	2,275,000	1.540%	474,117.00	2,749,117.00
6/30/2038	2,310,000	1.570%	438,466.00	2,748,466.00
6/30/2039	2,350,000	1.590%	401,650.00	2,751,650.00
6/30/2040	2,385,000	1.610%	363,768.25	2,748,768.25
6/30/2041	2,425,000	1.630%	324,805.25	2,749,805.25
6/30/2042	2,465,000	1.650%	284,705.25	2,749,705.25
6/30/2043	2,505,000	1.660%	243,577.50	2,748,577.50
6/30/2044	2,550,000	1.670%	201,493.50	2,751,493.50
6/30/2045	2,590,000	1.680%	158,445.00	2,748,445.00
6/30/2046	2,635,000	1.690%	114,423.25	2,749,423.25
6/30/2047	2,680,000	1.700%	69,377.50	2,749,377.50
6/30/2048	2,725,000	1.710%	23,298.75	2,748,298.75
	60,800,000		13,441,419.00	74,241,419.00

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2018C (FRNs)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			7,006,534.34	7,006,534.34
6/30/2023			9,367,710.75	9,367,710.75
6/30/2024			9,384,890.85	9,384,890.85
6/30/2025			9,350,530.65	9,350,530.65
6/30/2026			9,367,710.75	9,367,710.75
6/30/2027			9,367,710.75	9,367,710.75
6/30/2028	2,350,000	4.121%	9,380,785.60	11,730,785.60
6/30/2029	30,750,000	4.121%	9,208,444.51	39,958,444.51
6/30/2030	40,100,000	4.121%	8,052,576.63	48,152,576.63
6/30/2031	41,600,000	4.121%	6,541,788.09	48,141,788.09
6/30/2032	43,150,000	4.121%	4,983,965.17	48,133,965.17
6/30/2033	44,725,000	4.121%	3,342,581.13	48,067,581.13
6/30/2034	46,400,000	4.121%	1,663,825.18	48,063,825.18
	249,075,000		97,019,054.41	346,094,054.41

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

First Lien Rev Ref Bonds, Series 2018D

Period Ending	Principal	Coupon	Principal 2	Coupon 2	Interest	Debt Service
6/30/2022	4,345,000	5.000%			14,771,575	19,116,575
6/30/2023	4,580,000	5.000%			14,548,450	19,128,450
6/30/2024	2,690,000	5.000%	2,250,000	3.000%	14,332,950	19,272,950
6/30/2025	3,145,000	5.000%	2,000,000	2.500%	14,128,325	19,273,325
6/30/2026	6,550,000	5.000%			13,860,950	20,410,950
6/30/2027	8,030,000	5.000%			13,496,450	21,526,450
6/30/2028	10,165,000	5.000%			13,041,575	23,206,575
6/30/2029	12,485,000	5.000%			12,475,325	24,960,325
6/30/2030	7,695,000	5.000%			11,970,825	19,665,825
6/30/2031	14,600,000	5.000%			11,413,450	26,013,450
6/30/2032	15,190,000	5.000%			10,668,700	25,858,700
6/30/2033	14,825,000	5.000%			9,918,325	24,743,325
6/30/2034	14,990,000	5.000%			9,172,950	24,162,950
6/30/2035	12,530,000	5.000%			8,484,950	21,014,950
6/30/2036	13,170,000	5.000%			7,842,450	21,012,450
6/30/2037	13,840,000	5.000%			7,167,200	21,007,200
6/30/2038	14,555,000	5.000%			6,457,325	21,012,325
6/30/2039	12,670,000	5.000%			5,776,700	18,446,700
6/30/2040	9,850,000	5.000%			5,213,700	15,063,700
6/30/2041	10,355,000	5.000%			4,708,575	15,063,575
6/30/2042	10,890,000	5.000%			4,177,450	15,067,450
6/30/2043	11,445,000	5.000%			3,619,075	15,064,075
6/30/2044	12,035,000	5.000%			3,032,075	15,067,075
6/30/2045	12,585,000	4.000%			2,479,500	15,064,500
6/30/2046	13,100,000	4.000%			1,965,800	15,065,800
6/30/2047	13,635,000	4.000%			1,431,100	15,066,100
6/30/2048	14,190,000	4.000%			874,600	15,064,600
6/30/2049	14,770,000	4.000%			295,400	15,065,400
	308,910,000		4,250,000		227,325,750	540,485,750

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds (TAXABLE), Series 2018E**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,035,000	2.961%	7,808,355.73	9,843,355.73
6/30/2023	2,095,000	3.111%	7,745,639.83	9,840,639.83
6/30/2024	2,145,000	3.221%	7,678,506.88	9,823,506.88
6/30/2025	2,230,000	3.375%	7,606,330.40	9,836,330.40
6/30/2026	2,265,000	3.455%	7,529,571.28	9,794,571.28
6/30/2027	2,810,000	3.543%	7,440,664.25	10,250,664.25
6/30/2028	4,220,000	3.643%	7,314,017.80	11,534,017.80
6/30/2029	34,030,000	3.723%	6,603,682.05	40,633,682.05
6/30/2030	43,630,000	3.823%	5,136,226.15	48,766,226.15
6/30/2031	44,790,000	3.923%	3,423,682.85	48,213,682.85
6/30/2032	46,120,000	3.973%	1,628,953.20	47,748,953.20
6/30/2033	1,240,000	4.073%	687,526.80	1,927,526.80
6/30/2034	1,340,000	4.123%	634,650.10	1,974,650.10
6/30/2035	2,675,000	4.172%	551,225.50	3,226,225.50
6/30/2036	2,785,000	4.172%	437,329.90	3,222,329.90
6/30/2037	2,905,000	4.172%	318,636.50	3,223,636.50
6/30/2038	3,030,000	4.172%	194,832.40	3,224,832.40
6/30/2039	3,155,000	4.172%	65,813.30	3,220,813.30
	203,500,000		72,805,644.90	276,305,644.90

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

Series 2019A First Lien CUS (TWDB)

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,060,000	0.000%	538,293.50	2,598,293.50
6/30/2023	2,060,000	0.000%	538,293.50	2,598,293.50
6/30/2024	2,060,000	0.050%	537,778.50	2,597,778.50
6/30/2025	2,065,000	0.120%	536,024.50	2,601,024.50
6/30/2026	2,065,000	0.200%	532,720.50	2,597,720.50
6/30/2027	2,070,000	0.260%	527,964.50	2,597,964.50
6/30/2028	2,075,000	0.340%	521,746.00	2,596,746.00
6/30/2029	2,085,000	0.420%	513,840.00	2,598,840.00
6/30/2030	2,095,000	0.530%	503,909.75	2,598,909.75
6/30/2031	2,105,000	0.660%	491,411.50	2,596,411.50
6/30/2032	2,120,000	0.760%	476,409.00	2,596,409.00
6/30/2033	2,140,000	0.840%	459,365.00	2,599,365.00
6/30/2034	2,160,000	0.900%	440,657.00	2,600,657.00
6/30/2035	2,180,000	0.940%	420,691.00	2,600,691.00
6/30/2036	2,200,000	0.990%	399,555.00	2,599,555.00
6/30/2037	2,220,000	1.040%	377,121.00	2,597,121.00
6/30/2038	2,245,000	1.100%	353,229.50	2,598,229.50
6/30/2039	2,270,000	1.150%	327,829.50	2,597,829.50
6/30/2040	2,300,000	1.190%	301,092.00	2,601,092.00
6/30/2041	2,325,000	1.230%	273,108.25	2,598,108.25
6/30/2042	2,355,000	1.260%	243,973.00	2,598,973.00
6/30/2043	2,385,000	1.280%	213,872.50	2,598,872.50
6/30/2044	2,415,000	1.300%	182,911.00	2,597,911.00
6/30/2045	2,450,000	1.310%	151,166.00	2,601,166.00
6/30/2046	2,480,000	1.320%	118,750.50	2,598,750.50
6/30/2047	2,515,000	1.330%	85,657.75	2,600,657.75
6/30/2048	2,545,000	1.340%	51,881.50	2,596,881.50
6/30/2049	2,580,000	1.350%	17,415.00	2,597,415.00
	62,625,000		10,136,666.75	72,761,666.75

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**2019B First Lien Rev Ref Bonds, Series 2019B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,570,000	4.000%	6,771,100	9,341,100
6/30/2023	2,690,000	5.000%	6,652,450	9,342,450
6/30/2024	2,785,000	2.000%	6,557,350	9,342,350
6/30/2025	2,840,000	2.000%	6,501,100	9,341,100
6/30/2026	2,945,000	5.000%	6,399,075	9,344,075
6/30/2027	3,095,000	5.000%	6,248,075	9,343,075
6/30/2028	3,255,000	5.000%	6,089,325	9,344,325
6/30/2029	3,420,000	5.000%	5,922,450	9,342,450
6/30/2030	3,595,000	5.000%	5,747,075	9,342,075
6/30/2031	3,780,000	5.000%	5,562,700	9,342,700
6/30/2032	3,975,000	5.000%	5,368,825	9,343,825
6/30/2033	4,180,000	5.000%	5,164,950	9,344,950
6/30/2034	4,390,000	5.000%	4,950,700	9,340,700
6/30/2035	4,615,000	5.000%	4,725,575	9,340,575
6/30/2036	4,855,000	5.000%	4,488,825	9,343,825
6/30/2037	5,105,000	5.000%	4,239,825	9,344,825
6/30/2038	5,365,000	5.000%	3,978,075	9,343,075
6/30/2039	5,610,000	4.000%	3,731,750	9,341,750
6/30/2040	5,840,000	4.000%	3,502,750	9,342,750
6/30/2041	6,080,000	4.000%	3,264,350	9,344,350
6/30/2042	6,325,000	4.000%	3,016,250	9,341,250
6/30/2043	6,585,000	4.000%	2,758,050	9,343,050
6/30/2044	6,855,000	4.000%	2,489,250	9,344,250
6/30/2045	7,135,000	4.000%	2,209,450	9,344,450
6/30/2046	7,460,000	5.000%	1,880,250	9,340,250
6/30/2047	7,845,000	5.000%	1,497,625	9,342,625
6/30/2048	8,245,000	5.000%	1,095,375	9,340,375
6/30/2049	8,670,000	5.000%	672,500	9,342,500
6/30/2050	9,115,000	5.000%	227,875	9,342,875
	149,225,000		121,712,950	270,937,950



Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2019C (TAXABLE)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	5,520,000	1.712%	13,406,393.50	18,926,393.50
6/30/2023	17,300,000	1.716%	13,210,708.30	30,510,708.30
6/30/2024	17,635,000	1.746%	12,908,320.75	30,543,320.75
6/30/2025	5,070,000	1.826%	12,708,078.10	17,778,078.10
6/30/2026	5,175,000	1.949%	12,611,358.63	17,786,358.63
6/30/2027	5,285,000	2.049%	12,506,783.43	17,791,783.43
6/30/2028	5,405,000	2.155%	12,394,399.73	17,799,399.73
6/30/2029	27,065,000	2.205%	12,037,769.23	39,102,769.23
6/30/2030	46,435,000	2.255%	11,215,822.98	57,650,822.98
6/30/2031	53,615,000	2.355%	10,060,951.73	63,675,951.73
6/30/2032	49,550,000	2.455%	8,821,408.85	58,371,408.85
6/30/2033	49,425,000	2.505%	7,594,134.48	57,019,134.48
6/30/2034	51,250,000	2.555%	6,320,367.60	57,570,367.60
6/30/2035	21,285,000	2.605%	5,388,411.73	26,673,411.73
6/30/2036	21,940,000	2.655%	4,819,921.10	26,759,921.10
6/30/2037	23,115,000	2.984%	4,183,791.80	27,298,791.80
6/30/2038	23,810,000	2.984%	3,483,670.80	27,293,670.80
6/30/2039	31,590,000	2.984%	2,657,102.80	34,247,102.80
6/30/2040	32,535,000	2.984%	1,700,357.80	34,235,357.80
6/30/2041	33,510,000	2.984%	714,966.40	34,224,966.40
6/30/2042	3,550,000	2.984%	162,031.20	3,712,031.20
6/30/2043	3,655,000	2.984%	54,532.60	3,709,532.60
	533,720,000		168,961,283.50	702,681,283.50

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Bonds, Series 2020B (TWDB - Clean Water)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2023	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2024	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2025	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2026	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2027	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2028	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2029	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2030	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2031	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2032	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2033	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2034	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2035	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2036	1,530,000	0.000%	52,323.50	1,582,323.50
6/30/2037	1,530,000	0.040%	52,017.50	1,582,017.50
6/30/2038	1,530,000	0.070%	51,176.00	1,581,176.00
6/30/2039	1,535,000	0.110%	49,796.25	1,584,796.25
6/30/2040	1,535,000	0.160%	47,724.00	1,582,724.00
6/30/2041	1,535,000	0.190%	45,037.75	1,580,037.75
6/30/2042	1,540,000	0.220%	41,885.50	1,581,885.50
6/30/2043	1,545,000	0.250%	38,260.25	1,583,260.25
6/30/2044	1,550,000	0.280%	34,159.00	1,584,159.00
6/30/2045	1,555,000	0.300%	29,656.50	1,584,656.50
6/30/2046	1,560,000	0.320%	24,828.00	1,584,828.00
6/30/2047	1,565,000	0.340%	19,671.50	1,584,671.50
6/30/2048	1,570,000	0.350%	14,263.50	1,584,263.50
6/30/2049	1,575,000	0.360%	8,681.00	1,583,681.00
6/30/2050	1,580,000	0.370%	2,923.00	1,582,923.00
	44,655,000		1,244,932.25	45,899,932.25

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev & Ref Bonds, Series 2020C**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	8,370,000	5.000%	18,230,000	26,600,000
6/30/2023	8,800,000	5.000%	17,800,750	26,600,750
6/30/2024	9,250,000	5.000%	17,349,500	26,599,500
6/30/2025	9,725,000	5.000%	16,875,125	26,600,125
6/30/2026	4,930,000	5.000%	16,508,750	21,438,750
6/30/2027	10,475,000	5.000%	16,123,625	26,598,625
6/30/2028	11,020,000	5.000%	15,586,250	26,606,250
6/30/2029	11,575,000	5.000%	15,021,375	26,596,375
6/30/2030	12,170,000	5.000%	14,427,750	26,597,750
6/30/2031	12,795,000	5.000%	13,803,625	26,598,625
6/30/2032	13,455,000	5.000%	13,147,375	26,602,375
6/30/2033	14,145,000	5.000%	12,457,375	26,602,375
6/30/2034	14,865,000	5.000%	11,732,125	26,597,125
6/30/2035	15,630,000	5.000%	10,969,750	26,599,750
6/30/2036	16,350,000	4.000%	10,252,000	26,602,000
6/30/2037	17,015,000	4.000%	9,584,700	26,599,700
6/30/2038	17,705,000	4.000%	8,890,300	26,595,300
6/30/2039	15,350,000	3.000%	8,305,950	23,655,950
6/30/2040	15,900,000	4.000%	7,757,700	23,657,700
6/30/2041	16,040,000	2.500%	7,239,200	23,279,200
6/30/2042	16,570,000	4.000%	6,707,300	23,277,300
6/30/2043	17,250,000	4.000%	6,030,900	23,280,900
6/30/2044	17,950,000	4.000%	5,326,900	23,276,900
6/30/2045	18,780,000	5.000%	4,498,400	23,278,400
6/30/2046	19,745,000	5.000%	3,535,275	23,280,275
6/30/2047	20,545,000	3.000%	2,733,475	23,278,475
6/30/2048	21,170,000	3.000%	2,107,750	23,277,750
6/30/2049	21,930,000	4.000%	1,351,600	23,281,600
6/30/2050	22,825,000	4.000%	456,500	23,281,500
	432,330,000		294,811,325	727,141,325

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**2020 First Lien Rev Ref Bonds, Series 2020D (Taxable)**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,300,000	0.455%	3,409,197.70	5,709,197.70
6/30/2023	2,310,000	0.605%	3,396,977.45	5,706,977.45
6/30/2024	2,325,000	0.732%	3,381,480.20	5,706,480.20
6/30/2025	8,235,000	0.826%	3,338,960.15	11,573,960.15
6/30/2026	8,325,000	0.976%	3,264,323.60	11,589,323.60
6/30/2027	3,935,000	1.221%	3,199,674.43	7,134,674.43
6/30/2028	3,995,000	1.371%	3,148,265.53	7,143,265.53
6/30/2029	4,065,000	1.522%	3,089,945.15	7,154,945.15
6/30/2030	9,130,000	1.572%	2,987,248.70	12,117,248.70
6/30/2031	9,285,000	1.622%	2,840,185.55	12,125,185.55
6/30/2032	9,445,000	1.722%	2,683,562.75	12,128,562.75
6/30/2033	9,620,000	1.822%	2,514,603.10	12,134,603.10
6/30/2034	15,550,000	1.872%	2,281,416.90	17,831,416.90
6/30/2035	15,855,000	1.972%	1,979,538.60	17,834,538.60
6/30/2036	16,165,000	2.022%	1,659,780.15	17,824,780.15
6/30/2037	2,910,000	2.542%	1,459,365.90	4,369,365.90
6/30/2038	2,975,000	2.542%	1,384,567.55	4,359,567.55
6/30/2039	3,055,000	2.542%	1,307,926.25	4,362,926.25
6/30/2040	11,405,000	2.542%	1,124,139.65	12,529,139.65
6/30/2041	11,700,000	2.542%	830,475.10	12,530,475.10
6/30/2042	8,375,000	2.642%	571,134.35	8,946,134.35
6/30/2043	8,600,000	2.642%	346,894.60	8,946,894.60
6/30/2044	8,830,000	2.642%	116,644.30	8,946,644.30
	178,390,000		50,316,307.65	228,706,307.65

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Series 2020A (Forward Delivery)**

Period				
Ending	Principal	Coupon	Interest	Debt Service
6/30/2022			4,006,000	4,006,000
6/30/2023			4,006,000	4,006,000
6/30/2024			4,006,000	4,006,000
6/30/2025			4,006,000	4,006,000
6/30/2026			4,006,000	4,006,000
6/30/2027			4,006,000	4,006,000
6/30/2028			4,006,000	4,006,000
6/30/2029			4,006,000	4,006,000
6/30/2030			4,006,000	4,006,000
6/30/2031			4,006,000	4,006,000
6/30/2032			4,006,000	4,006,000
6/30/2033	39,375,000	5.000%	3,021,625	42,396,625
6/30/2034	40,745,000	5.000%	1,018,625	41,763,625
	80,120,000		48,106,250	128,226,250

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## Debt Outstanding as of September 1, 2021

## Bond Debt Service

## Houston Combined Utility System

## First Lien Rev Ref Bonds, Series 2021A

Period Ending	Principal	Coupon	Principal 2	Coupon 2	Principal 3	Coupon 3	Interest	Debt Service
6/30/2022	-		-		-		9,204,374.06	9,204,374.06
6/30/2023	4,465,000	3.000%					10,255,687.50	14,720,687.50
6/30/2024	4,625,000	4.000%					10,096,212.50	14,721,212.50
6/30/2025	4,840,000	5.000%					9,882,712.50	14,722,712.50
6/30/2026	5,085,000	5.000%					9,634,587.50	14,719,587.50
6/30/2027	5,350,000	5.000%					9,373,712.50	14,723,712.50
6/30/2028	5,620,000	5.000%					9,099,462.50	14,719,462.50
6/30/2029	5,910,000	5.000%					8,811,212.50	14,721,212.50
6/30/2030	6,215,000	5.000%					8,508,087.50	14,723,087.50
6/30/2031	6,530,000	5.000%					8,189,462.50	14,719,462.50
6/30/2032	6,865,000	5.000%					7,854,587.50	14,719,587.50
6/30/2033	7,220,000	5.000%					7,502,462.50	14,722,462.50
6/30/2034	7,550,000	4.000%					7,170,962.50	14,720,962.50
6/30/2035	7,860,000	4.000%					6,862,762.50	14,722,762.50
6/30/2036	8,180,000	4.000%					6,541,962.50	14,721,962.50
6/30/2037	8,515,000	4.000%					6,208,062.50	14,723,062.50
6/30/2038	8,815,000	3.000%					5,905,537.50	14,720,537.50
6/30/2039	9,085,000	3.000%					5,637,037.50	14,722,037.50
6/30/2040	9,360,000	3.000%					5,360,362.50	14,720,362.50
6/30/2041	9,645,000	3.000%					5,075,287.50	14,720,287.50
6/30/2042	9,990,000	4.000%					4,730,812.50	14,720,812.50
6/30/2043	10,400,000	4.000%					4,323,012.50	14,723,012.50
6/30/2044	10,825,000	4.000%					3,898,512.50	14,723,512.50
6/30/2045	11,265,000	4.000%					3,456,712.50	14,721,712.50
6/30/2046	11,725,000	4.000%					2,996,912.50	14,721,912.50
6/30/2047	12,205,000	4.000%					2,518,312.50	14,723,312.50
6/30/2048	6,980,000	4.000%	4,185,000	2.375%	1,495,000	3.000%	2,062,490.63	14,722,490.63
6/30/2049	7,265,000	4.000%	4,285,000	2.375%	1,540,000	3.000%	1,631,484.38	14,721,484.38
6/30/2050	7,555,000	4.000%	4,390,000	2.375%	1,590,000	3.000%	1,185,118.75	14,720,118.75
6/30/2051	7,870,000	4.000%	4,490,000	2.375%	1,640,000	3.000%	722,718.75	14,722,718.75
6/30/2052	8,190,000	4.000%	4,600,000	2.375%	1,685,000	3.000%	243,700.00	14,718,700.00
	236,005,000		21,950,000		7,950,000		184,944,324.06	450,849,324.06

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**First Lien Rev Ref Bonds, Taxable Series 2021B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,045,000	0.151%	1,479,982.31	3,524,982.31
6/30/2023	1,870,000	0.191%	1,656,651.00	3,526,651.00
6/30/2024	5,315,000	0.341%	1,645,803.08	6,960,803.08
6/30/2025	5,175,000	0.526%	1,623,130.75	6,798,130.75
6/30/2026	5,215,000	0.811%	1,588,373.68	6,803,373.68
6/30/2027	9,265,000	1.011%	1,520,392.28	10,785,392.28
6/30/2028	9,375,000	1.366%	1,409,526.45	10,784,526.45
6/30/2029	9,515,000	1.516%	1,273,371.50	10,788,371.50
6/30/2030	5,205,000	1.709%	1,156,771.08	6,361,771.08
6/30/2031	730,000	1.909%	1,105,326.50	1,835,326.50
6/30/2032	5,545,000	1.929%	1,044,877.13	6,589,877.13
6/30/2033	5,650,000	2.009%	934,641.35	6,584,641.35
6/30/2034	630,000	2.209%	870,928.75	1,500,928.75
6/30/2035	645,000	2.309%	856,523.88	1,501,523.88
6/30/2036	660,000	2.409%	841,127.65	1,501,127.65
6/30/2037	12,840,000	2.459%	675,310.15	13,515,310.15
6/30/2038	13,160,000	2.509%	352,350.15	13,512,350.15
6/30/2039	7,205,000	2.599%	93,628.98	7,298,628.98
	100,045,000		20,128,716.63	120,173,716.63

## Debt Outstanding as of September 1, 2021

## Bond Debt Service

## Houston Combined Utility System

## Aggregate Subordinate Lien Debt Service

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	12,475,000	**	11,749,843.50	24,224,843.50
6/30/2023	12,625,000	**	11,584,475.75	24,209,475.75
6/30/2024	12,795,000	**	11,404,937.75	24,199,937.75
6/30/2025	12,975,000	**	11,210,621.00	24,185,621.00
6/30/2026	13,180,000	**	11,000,953.25	24,180,953.25
6/30/2027	13,395,000	**	10,775,294.00	24,170,294.00
6/30/2028	13,630,000	**	10,532,091.75	24,162,091.75
6/30/2029	13,885,000	**	10,269,190.50	24,154,190.50
6/30/2030	14,170,000	**	9,980,631.75	24,150,631.75
6/30/2031	14,485,000	**	9,662,798.00	24,147,798.00
6/30/2032	14,825,000	**	9,316,087.00	24,141,087.00
6/30/2033	15,190,000	**	8,942,147.50	24,132,147.50
6/30/2034	15,585,000	**	8,544,192.75	24,129,192.75
6/30/2035	16,005,000	**	8,123,691.75	24,128,691.75
6/30/2036	16,450,000	**	7,682,716.50	24,132,716.50
6/30/2037	16,910,000	**	7,221,448.00	24,131,448.00
6/30/2038	17,390,000	**	6,738,047.50	24,128,047.50
6/30/2039	17,905,000	**	6,230,985.25	24,135,985.25
6/30/2040	18,435,000	**	5,697,020.00	24,132,020.00
6/30/2041	18,985,000	**	5,139,654.50	24,124,654.50
6/30/2042	19,555,000	**	4,561,430.00	24,116,430.00
6/30/2043	20,150,000	**	3,957,512.50	24,107,512.50
6/30/2044	20,765,000	**	3,329,115.00	24,094,115.00
6/30/2045	21,400,000	**	2,674,162.25	24,074,162.25
6/30/2046	22,055,000	**	1,993,430.25	24,048,430.25
6/30/2047	21,445,000	**	1,311,591.50	22,756,591.50
6/30/2048	19,095,000	**	674,150.00	19,769,150.00
6/30/2049	10,135,000	**	207,566.00	10,342,566.00
6/30/2050	1,695,000	2.480%	21,018.00	1,716,018.00
	457,590,000		200,536,803.50	658,126,803.50



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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2015E**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	665,000	1.220%	612,157.00	1,277,157.00
6/30/2023	675,000	1.390%	603,409.25	1,278,409.25
6/30/2024	685,000	1.570%	593,340.75	1,278,340.75
6/30/2025	700,000	1.680%	582,083.50	1,282,083.50
6/30/2026	715,000	1.760%	569,911.50	1,284,911.50
6/30/2027	730,000	1.970%	556,429.00	1,286,429.00
6/30/2028	745,000	2.190%	541,080.75	1,286,080.75
6/30/2029	765,000	2.360%	523,896.00	1,288,896.00
6/30/2030	785,000	2.540%	504,899.50	1,289,899.50
6/30/2031	805,000	2.650%	484,263.75	1,289,263.75
6/30/2032	830,000	2.750%	462,185.00	1,292,185.00
6/30/2033	850,000	2.800%	438,872.50	1,288,872.50
6/30/2034	875,000	2.860%	414,460.00	1,289,460.00
6/30/2035	900,000	2.880%	388,987.50	1,288,987.50
6/30/2036	930,000	2.910%	362,496.00	1,292,496.00
6/30/2037	955,000	3.110%	334,114.25	1,289,114.25
6/30/2038	985,000	3.110%	303,947.25	1,288,947.25
6/30/2039	1,015,000	3.110%	272,847.25	1,287,847.25
6/30/2040	1,050,000	3.120%	240,684.00	1,290,684.00
6/30/2041	1,080,000	3.120%	207,456.00	1,287,456.00
6/30/2042	1,115,000	3.200%	172,768.00	1,287,768.00
6/30/2043	1,150,000	3.200%	136,528.00	1,286,528.00
6/30/2044	1,190,000	3.210%	99,028.50	1,289,028.50
6/30/2045	1,225,000	3.210%	60,267.75	1,285,267.75
6/30/2046	1,265,000	3.210%	20,303.25	1,285,303.25
	22,685,000		9,486,416.25	32,171,416.25

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Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2016D**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,705,000	0.910%	1,302,330.25	3,007,330.25
6/30/2023	1,720,000	0.990%	1,286,058.50	3,006,058.50
6/30/2024	1,735,000	1.090%	1,268,088.75	3,003,088.75
6/30/2025	1,755,000	1.200%	1,248,103.00	3,003,103.00
6/30/2026	1,775,000	1.290%	1,226,124.25	3,001,124.25
6/30/2027	1,795,000	1.370%	1,202,379.75	2,997,379.75
6/30/2028	1,820,000	1.570%	1,175,797.00	2,995,797.00
6/30/2029	1,850,000	1.690%	1,145,877.50	2,995,877.50
6/30/2030	1,880,000	2.010%	1,111,351.00	2,991,351.00
6/30/2031	1,920,000	2.180%	1,071,529.00	2,991,529.00
6/30/2032	1,960,000	2.290%	1,028,159.00	2,988,159.00
6/30/2033	2,005,000	2.330%	982,358.75	2,987,358.75
6/30/2034	2,050,000	2.390%	934,503.00	2,984,503.00
6/30/2035	2,105,000	2.520%	883,482.50	2,988,482.50
6/30/2036	2,155,000	2.500%	830,022.00	2,985,022.00
6/30/2037	2,210,000	2.540%	775,017.50	2,985,017.50
6/30/2038	2,270,000	2.710%	716,192.00	2,986,192.00
6/30/2039	2,335,000	2.710%	653,794.25	2,988,794.25
6/30/2040	2,400,000	2.710%	589,635.00	2,989,635.00
6/30/2041	2,470,000	2.710%	523,646.50	2,993,646.50
6/30/2042	2,540,000	2.710%	455,761.00	2,995,761.00
6/30/2043	2,615,000	3.040%	381,596.00	2,996,596.00
6/30/2044	2,690,000	3.040%	300,960.00	2,990,960.00
6/30/2045	2,770,000	3.040%	217,968.00	2,987,968.00
6/30/2046	2,850,000	3.040%	132,544.00	2,982,544.00
6/30/2047	2,935,000	3.040%	44,612.00	2,979,612.00
	56,315,000		21,487,890.50	77,802,890.50

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2017C**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,170,000	0.930%	1,862,989.50	4,032,989.50
6/30/2023	2,190,000	1.080%	1,841,073.00	4,031,073.00
6/30/2024	2,215,000	1.200%	1,815,957.00	4,030,957.00
6/30/2025	2,240,000	1.310%	1,787,995.00	4,027,995.00
6/30/2026	2,270,000	1.440%	1,756,979.00	4,026,979.00
6/30/2027	2,305,000	1.540%	1,722,886.50	4,027,886.50
6/30/2028	2,340,000	1.640%	1,685,950.00	4,025,950.00
6/30/2029	2,380,000	1.810%	1,645,223.00	4,025,223.00
6/30/2030	2,425,000	2.010%	1,599,312.75	4,024,312.75
6/30/2031	2,475,000	2.190%	1,547,840.25	4,022,840.25
6/30/2032	2,535,000	2.370%	1,490,699.25	4,025,699.25
6/30/2033	2,595,000	2.470%	1,428,611.25	4,023,611.25
6/30/2034	2,665,000	2.550%	1,362,584.25	4,027,584.25
6/30/2035	2,730,000	2.610%	1,292,979.00	4,022,979.00
6/30/2036	2,805,000	2.660%	1,220,046.00	4,025,046.00
6/30/2037	2,880,000	2.710%	1,143,715.50	4,023,715.50
6/30/2038	2,955,000	2.740%	1,064,208.00	4,019,208.00
6/30/2039	3,035,000	2.790%	981,386.25	4,016,386.25
6/30/2040	3,120,000	2.920%	893,496.00	4,013,496.00
6/30/2041	3,210,000	2.930%	800,917.50	4,010,917.50
6/30/2042	3,300,000	2.930%	705,546.00	4,005,546.00
6/30/2043	3,395,000	2.940%	607,294.50	4,002,294.50
6/30/2044	3,495,000	3.020%	504,613.50	3,999,613.50
6/30/2045	3,595,000	3.020%	397,554.50	3,992,554.50
6/30/2046	3,700,000	3.010%	287,585.00	3,987,585.00
6/30/2047	3,810,000	3.000%	174,750.00	3,984,750.00
6/30/2048	3,920,000	3.000%	58,800.00	3,978,800.00
	76,755,000		31,680,992.50	108,435,992.50

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2018B**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	2,725,000	1.650%	2,747,583.25	5,472,583.25
6/30/2023	2,765,000	1.720%	2,701,323.00	5,466,323.00
6/30/2024	2,810,000	1.810%	2,652,113.50	5,462,113.50
6/30/2025	2,855,000	1.900%	2,599,560.50	5,454,560.50
6/30/2026	2,910,000	1.970%	2,543,774.50	5,453,774.50
6/30/2027	2,965,000	2.030%	2,485,016.25	5,450,016.25
6/30/2028	3,025,000	2.080%	2,423,461.50	5,448,461.50
6/30/2029	3,090,000	2.230%	2,357,548.00	5,447,548.00
6/30/2030	3,160,000	2.380%	2,285,490.50	5,445,490.50
6/30/2031	3,240,000	2.490%	2,207,548.50	5,447,548.50
6/30/2032	3,320,000	2.610%	2,123,884.50	5,443,884.50
6/30/2033	3,410,000	2.680%	2,034,864.50	5,444,864.50
6/30/2034	3,505,000	2.760%	1,940,801.50	5,445,801.50
6/30/2035	3,605,000	2.810%	1,841,782.25	5,446,782.25
6/30/2036	3,710,000	2.850%	1,738,264.50	5,448,264.50
6/30/2037	3,820,000	2.880%	1,630,389.00	5,450,389.00
6/30/2038	3,935,000	2.920%	1,517,930.00	5,452,930.00
6/30/2039	4,055,000	2.940%	1,400,870.50	5,455,870.50
6/30/2040	4,180,000	3.220%	1,273,964.00	5,453,964.00
6/30/2041	4,305,000	3.220%	1,137,355.50	5,442,355.50
6/30/2042	4,440,000	3.220%	996,561.00	5,436,561.00
6/30/2043	4,580,000	3.220%	851,339.00	5,431,339.00
6/30/2044	4,720,000	3.220%	701,609.00	5,421,609.00
6/30/2045	4,870,000	3.060%	551,106.00	5,421,106.00
6/30/2046	5,025,000	3.060%	399,712.50	5,424,712.50
6/30/2047	5,190,000	3.060%	243,423.00	5,433,423.00
6/30/2048	5,360,000	3.060%	82,008.00	5,442,008.00
	101,575,000		45,469,284.25	147,044,284.25

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2018F**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	4,090,000	1.670%	4,635,114.00	8,725,114.00
6/30/2023	4,155,000	1.760%	4,564,398.50	8,719,398.50
6/30/2024	4,225,000	1.840%	4,488,964.50	8,713,964.50
6/30/2025	4,300,000	1.930%	4,408,599.50	8,708,599.50
6/30/2026	4,380,000	2.030%	4,322,647.50	8,702,647.50
6/30/2027	4,465,000	2.120%	4,230,861.50	8,695,861.50
6/30/2028	4,560,000	2.200%	4,133,372.50	8,693,372.50
6/30/2029	4,655,000	2.250%	4,030,843.75	8,685,843.75
6/30/2030	4,765,000	2.380%	3,921,771.50	8,686,771.50
6/30/2031	4,880,000	2.540%	3,803,092.00	8,683,092.00
6/30/2032	5,005,000	2.680%	3,674,049.00	8,679,049.00
6/30/2033	5,140,000	2.810%	3,534,765.00	8,674,765.00
6/30/2034	5,285,000	2.890%	3,386,179.75	8,671,179.75
6/30/2035	5,440,000	2.950%	3,229,571.50	8,669,571.50
6/30/2036	5,600,000	3.010%	3,065,051.50	8,665,051.50
6/30/2037	5,770,000	3.050%	2,892,779.00	8,662,779.00
6/30/2038	5,945,000	3.090%	2,712,936.25	8,657,936.25
6/30/2039	6,135,000	3.200%	2,522,926.00	8,657,926.00
6/30/2040	6,325,000	3.160%	2,324,831.00	8,649,831.00
6/30/2041	6,530,000	3.160%	2,121,722.00	8,651,722.00
6/30/2042	6,740,000	3.160%	1,912,056.00	8,652,056.00
6/30/2043	6,960,000	3.160%	1,695,596.00	8,655,596.00
6/30/2044	7,190,000	3.160%	1,472,026.00	8,662,026.00
6/30/2045	7,430,000	3.420%	1,231,371.00	8,661,371.00
6/30/2046	7,675,000	3.420%	973,075.50	8,648,075.50
6/30/2047	7,935,000	3.420%	706,144.50	8,641,144.50
6/30/2048	8,200,000	3.420%	430,236.00	8,630,236.00
6/30/2049	8,480,000	3.420%	145,008.00	8,625,008.00
	162,260,000		80,569,989.25	242,829,989.25

Debt Outstanding as of September 1, 2021

Bond Debt Service

Houston Combined Utility System

**Subordinate Lien Rev Bonds, Series 2020E**

Period Ending	Principal	Coupon	Interest	Debt Service
6/30/2022	1,120,000	0.120%	589,669.50	1,709,669.50
6/30/2023	1,120,000	0.140%	588,213.50	1,708,213.50
6/30/2024	1,125,000	0.170%	586,473.25	1,711,473.25
6/30/2025	1,125,000	0.220%	584,279.50	1,709,279.50
6/30/2026	1,130,000	0.270%	581,516.50	1,711,516.50
6/30/2027	1,135,000	0.400%	577,721.00	1,712,721.00
6/30/2028	1,140,000	0.530%	572,430.00	1,712,430.00
6/30/2029	1,145,000	0.630%	565,802.25	1,710,802.25
6/30/2030	1,155,000	0.760%	557,806.50	1,712,806.50
6/30/2031	1,165,000	0.840%	548,524.50	1,713,524.50
6/30/2032	1,175,000	1.110%	537,110.25	1,712,110.25
6/30/2033	1,190,000	1.330%	522,675.50	1,712,675.50
6/30/2034	1,205,000	1.510%	505,664.25	1,710,664.25
6/30/2035	1,225,000	1.580%	486,889.00	1,711,889.00
6/30/2036	1,250,000	1.660%	466,836.50	1,716,836.50
6/30/2037	1,275,000	1.730%	445,432.75	1,720,432.75
6/30/2038	1,300,000	1.780%	422,834.00	1,722,834.00
6/30/2039	1,330,000	1.820%	399,161.00	1,729,161.00
6/30/2040	1,360,000	1.860%	374,410.00	1,734,410.00
6/30/2041	1,390,000	1.900%	348,557.00	1,738,557.00
6/30/2042	1,420,000	2.340%	318,738.00	1,738,738.00
6/30/2043	1,450,000	2.340%	285,159.00	1,735,159.00
6/30/2044	1,480,000	2.340%	250,878.00	1,730,878.00
6/30/2045	1,510,000	2.340%	215,895.00	1,725,895.00
6/30/2046	1,540,000	2.340%	180,210.00	1,720,210.00
6/30/2047	1,575,000	2.480%	142,662.00	1,717,662.00
6/30/2048	1,615,000	2.480%	103,106.00	1,718,106.00
6/30/2049	1,655,000	2.480%	62,558.00	1,717,558.00
6/30/2050	1,695,000	2.480%	21,018.00	1,716,018.00
	<b>38,000,000</b>		<b>11,842,230.75</b>	<b>49,842,230.75</b>

Credit Provider	Description	Series	Amount	Exp. Date	Asso.	Facility Fee	Interest Rate
Bank of America	CP Liquidity	SERIES B-1	100,000,000	8/19/2027	Revolving Credit Agmt	0.29%	*
Morgan Stanley	CP Liquidity	SERIES B-2	75,000,000	3/13/2022	Extendable CP	ECP	Appropriation Only
Sumitomo	CP Liquidity	SERIES B-3	75,000,000	1/10/2025	Direct Pay LOC	0.45%	**
PNC	CP Liquidity	SERIES B-4	100,000,000	7/12/2022	Revolving Credit Agmt	0.26%	***
Morgan Stanley	CP Liquidity	SERIES B-5	250,000,000	3/1/2023	Extendable CP	ECP	Appropriation Only
Bank of America	CP Liquidity	SERIES B-6	100,000,000	8/19/2027	Revolving Credit Agmt	0.29%	*

\* The rate for a draw on commercial paper is equal to the greatest of (i) the Prime Rate in effect at such time plus one percent (1.00%), (ii) the Federal Funds Rate in effect at such time plus two percent (2.00%), and (iii) seven percent (7.00%).

\*\* The rate for a draw on commercial paper is equal to the greatest of (i) the Prime Rate plus two percent (2.00%), (ii) the Federal Funds Rate plus three percent (3.00%), (iii) the SIFMA Rate in effect at such time plus three percent (3.00%) and (iv) seven percent (7.00%).

\*\*\* The rate for a draw on commercial paper is equal to the greatest of (i) the Prime Rate in effect at such time (2.00%), (ii) the Overnight Bank Funding Rate in effect at such time plus fifty basis points (0.50%), (iii) the Daily LIBOR Rate in effect at such time plus one hundred basis points (1.00%) and (iv) eight percent (8.00%).

# Attachment 3



City of Houston, Texas, Ordinance No. 2021-515

**AN ORDINANCE ADOPTING AMENDED RATES AND CHARGES FOR WATER AND WASTEWATER SERVICE PROVIDED BY THE CITY OF HOUSTON COMBINED UTILITY SYSTEM; AMENDING CHAPTER 47 OF THE CODE OF ORDINANCES, HOUSTON, TEXAS, RELATING TO CHARGES AND TERMS OF SERVICE FOR WATER AND WASTEWATER SERVICE; ESTABLISHING FEES; CONTAINING FINDINGS AND OTHER PROVISIONS RELATING TO THE FOREGOING SUBJECT; CONTAINING A SAVINGS CLAUSE; ESTABLISHING AN EFFECTIVE DATE; PROVIDING FOR SEVERABILITY; AND DECLARING AN EMERGENCY.**

\* \* \* \*

**WHEREAS**, the City of Houston (the "City") operates a combined utility system (the "System") for the purpose of providing water service and sanitary sewer ("wastewater") service to its residents and other governmental and private entities pursuant to Texas Government Code Chapter 1502, the City's Charter and its Code of Ordinances; and

**WHEREAS**, the System 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; and

**WHEREAS**, the System's infrastructure includes three water purification plants, 51 groundwater plants and an extensive transmission and distribution system, 39 wastewater treatment plants and the collection system, including 381 lift stations and 6,200 miles of wastewater lines; and

**WHEREAS**, the City issues revenue bonds to pay the capital cost of repairs, replacements and extensions of the System (collectively "System Bonds") pursuant to Ordinance No. 2004-299 (the "Master Ordinance") and various Supplemental Ordinances, as defined in the Master Ordinance; and

**WHEREAS**, the Master Ordinance provides that all revenue and income derived or received by the City from the operation and ownership of the System are "Gross Revenues" and provides for the use of Gross Revenues to pay the cost of operating, maintaining, and repairing the System, debt service on the System Bonds and other obligations of the System (the "Cost"); and

**WHEREAS**, Article IX, Section 20 of the City Charter states, in part, the average annual rates for water and wastewater services (collectively "Rates") over the period beginning January 1, 2005, shall not be increased, without voter approval, in any fiscal year by an amount greater than the combined rates of inflation and population growth in the City, identified as provided in Article III, Section 1(a)(i) of the City Charter, excluding rate increases required by bond covenants and rates established by contract; and

**WHEREAS**, Section 5.2 of the Master Ordinance includes a debt service coverage ratio covenant requiring the City to fix, charge, and collect sufficient rates and charges for the use and services of the System to produce net revenues in each fiscal year at least equal to 120% of the combined Debt Service Requirements scheduled to occur in such Fiscal Year on all Previous Ordinance Bonds and First Lien Bonds then Outstanding, as those capitalized terms are defined in the Master Ordinance; and

**WHEREAS**, Section 7.3 of the Master Ordinance includes a covenant requiring that, for so long as any System Bonds or other obligations are outstanding, the City shall maintain the System in good condition and working order and will operate it in an efficient and economical manner at a reasonable cost and in accordance with sound business principles; and

**WHEREAS**, Section 5.2 of the Master Ordinance and Ordinance No. 2010-305, collectively, require certain automatic annual adjustments to the Rates based on inflationary indices described therein, which automatic adjustments are not altered by this Ordinance; and

**WHEREAS**, the System has implemented the annual automatic adjustments annually since 2010 in accordance with the Master Ordinance and Ordinance No. 2010-305 and other applicable law; and

**WHEREAS**, the Cost has increased and is projected to continue increasing beyond the rate of inflation due to increases in the cost of chemicals and other supplies at a rate greater than the rate of inflation, increased State and Federal regulatory requirements, and needed replacement of System infrastructure; and

**WHEREAS**, the continued maintenance, development, and improvement of the System is essential to protect the health, safety and welfare of Houstonians, to keep the System in good and working order, and to ensure the System is operated in an efficient and economical manner at a reasonable cost and in accordance with sound business principles; and

**WHEREAS**, the City will be required to invest an estimated \$2 billion over 15 years to upgrade its wastewater treatment and collection system pursuant to a Consent Decree negotiated among the City, Environmental Protection Agency, Department of Justice, and State of Texas, and ordered and approved by a federal district court on March 31, 2021; and

**WHEREAS**, in order to keep the System in good and working order, and to ensure the System is operated in an efficient and economical manner at a reasonable cost and in accordance with sound business principles, it is necessary to protect the System from the effects of unforeseen disasters by responding to the needs of the System's aging water and wastewater infrastructure, increasing the backups that support drinking water and wastewater plants, and strengthening vulnerabilities in the entire System; and

**WHEREAS**, in order to ensure the System is operated in an efficient and economical manner at a reasonable cost and in accordance with sound business

principles, it is necessary that the System maintain a cash balance sufficient to maintain the financial integrity of the System and to ensure the System can financially sustain operations during unforeseen circumstances that may restrict its revenues; and

**WHEREAS**, the Rate adjustments and increases recommended in this Ordinance are necessary to pay increases in the Cost, protect the financial integrity of the System, and comply with the City's covenants contained in the Master Ordinance and all other applicable law, including but not limited to the City's obligation to satisfy the debt service coverage ratio and to operate the System in an efficient and economical manner at a reasonable cost and in accordance with sound business principles; **NOW THEREFORE**,

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF HOUSTON, TEXAS:**

**Section 1.** That the findings contained in the preamble of this Ordinance are determined to be true and correct and are hereby adopted as a part of this Ordinance.

**Section 2.** That the City Council hereby adopts the 2021 Water & Wastewater Cost of Service Rate Study (the "Rate Study") included in Exhibit A, attached hereto and incorporated herein.

**Section 3.** That Chapter 47 of the Code of Ordinances, Houston, Texas, is hereby amended as described in Exhibit B, attached hereto and incorporated herein.

**Section 4.** That the City Council hereby approves and authorizes amended rates, fees, and charges for water and wastewater service consistent with the schedule and up to the amounts set forth in Exhibit C. Subject to the requirements of the Master Ordinance, Chapter 1502 of the Texas Government Code, the City Charter, and all other applicable laws, the Director of Houston Public Works may revise the Rate Study included in Exhibit A prior to September 1, 2021 and any revised rates and charges recommended from such revision may be adopted on September 1, 2021 as long as they do not in any case deviate from the scheduled dates or exceed the rates and charges for any customer type set forth in Exhibit C. A table of the final rates and charges adopted by Houston Public Works in accordance with this Ordinance shall be published on the City Secretary's website on

September 1, 2021. The rates and charges set forth in that table shall be final and shall be implemented in accordance with their respective effective dates without any further action from City Council.

**Section 4A.** That if there are dollars that come to the City in the future from the State, the Feds or whatever the source may be, that can be used for infrastructure that this City Council will consider using some or all of those dollars to reduce the rate that may be imposed.

**Section 5.** That the provisions of this Ordinance shall take effect on the date set forth herein. However, the sanitary sewer and water rates set forth in Ordinance No. 2010-305 adopted by the City Council of the City on April 21, 2010, shall remain in effect for (a) so long as necessary during the pendency of all legal proceedings initiated pursuant to Chapter 1205 of the Texas Government Code seeking emergency validation of the water and wastewater rates adopted in Section 4 of this Ordinance, and (b) the limited purpose of consideration in connection with compliance with Section 6.1 of the Master Ordinance.

**Section 6.** That the City Council hereby approves the following fees established in Sections 47-61(b) and 47-145 of the Code of Ordinances, Houston, Texas, in the initial amounts shown below:

Description	Statutory Authority	Amount
Industrial waste program charge	47-145	\$100.00
TCEQ public health service fee (per connection/per month)	47-61(b)	\$0.21
Conservation rate, the rate available to single family residential users using no more than 3,000 gallons in a month	47-61(a)	\$1.00/kgal

**Section 7.** That each year, the City will apply the Rate adjustments based on inflationary indices described in Section 5.2 of the Master Ordinance and Ordinance No. 2010-305, which automatic adjustments are not altered by this Ordinance.

**Section 8.** That all rates, fees and charges for water and wastewater services not included in the Rate Study or amended and/or updated by this Ordinance will continue to be assessed and collected pursuant to their existing authorizations in the Code of Ordinances, Houston, Texas, (the "Code") and previous rate ordinances, including without limitation Ordinance No. 2010-305.

**Section 9.** That the Director of Houston Public Works shall ensure that a copy of this Ordinance is provided to the Director of Finance, who shall incorporate the new and adjusted rates, fees and charges in the City Fee Schedule.

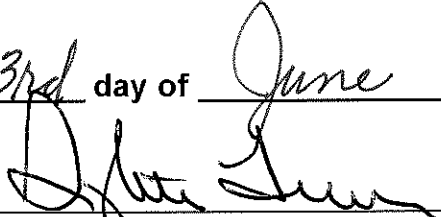
**Section 10.** That the City Attorney is hereby authorized to direct the publisher of the Code to make such non-substantive changes to the Code as are necessary to conform to the provisions adopted in this Ordinance, and also to make such changes to the provisions adopted in this Ordinance to conform them to the provisions and conventions of the published Code.

**Section 11.** That if any provision, section, subsection, sentence, clause or phrase of this Ordinance, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the validity of the remaining portions of this Ordinance or their applicability to other persons or sets of circumstances shall not be affected thereby, it being the intent of the City Council in adopting this Ordinance that no portion hereof or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality, voidness or invalidity of any other

portion hereof, and all provisions of this Ordinance are declared to be severable for that purpose.

**Section 12.** That a public emergency exists requiring that this Ordinance be passed finally on the date of its introduction as requested in writing by the Mayor; therefore, this ordinance shall be passed finally on that day and shall take effect at 12:01 a.m. on the 1<sup>st</sup> day of July, 2021.

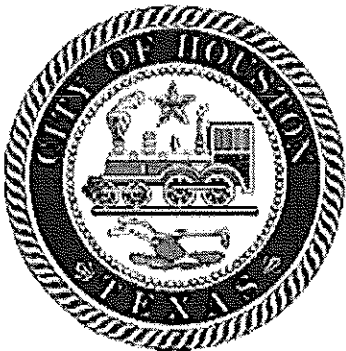
**PASSED AND APPROVED** this 23<sup>rd</sup> day of June, 2021.

  
 Mayor of the City of Houston

Prepared by Legal Dept. Dudra Perry  
 Senior Assistant City Attorney  
 Requested by Carol Haddock, P.E., Director, Houston Public Works  
 L.D. File No. [pending]

AYE	NO	Roll Call
✓		<b>MAYOR TURNER</b>
....	....	<b>COUNCIL MEMBERS</b>
	✓	PECK
✓		JACKSON
✓		KAMIN
✓		EVANS-SHABAZZ
✓		MARTIN
✓		THOMAS
	✓	TRAVIS
✓		CISNEROS
✓		GALLEGOS
✓		POLLARD
✓		MARTHA CASTEX-TATUM
	✓	KNOX
✓		ROBINSON
	✓	KUBOSH
	✓	<b>ABSENT ON PERSONAL BUSINESS</b>
✓		PLUMMER
✓		ALCORN
CAPTION	ADOPTED	

# **EXHIBIT A**



City of Houston

# WATER AND WASTEWATER COST OF SERVICE RATE STUDY

FINAL | June 2021



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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.

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.



Figure ES.1 Cost of Service Rate Study Process

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 July 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) is 1.4x for first lien and junior lien combined. DSCR is evaluated for the combined water and wastewater utility. However, because the wastewater utility's projected FYE 2021 DSCR is well below the 1.4x target, the analysis allows the wastewater DSCR to transition to the full target in the first two years as long as the wastewater DSCR is at least 1.3x and the combined utility DSCR is at least 1.4x.

- 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 minimum 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.

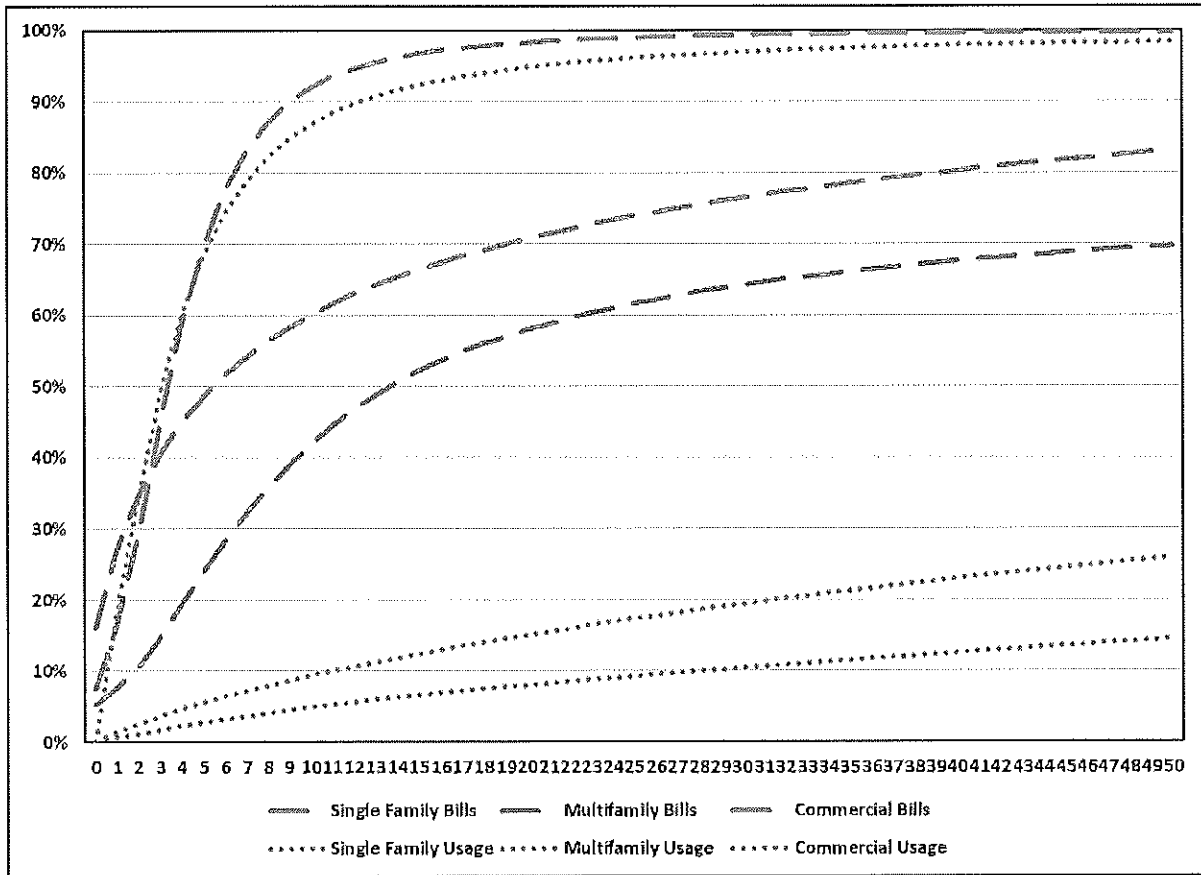


Figure ES.2 Bill Frequency and Usage Analysis

### 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:

July 1, 2021	9.0 percent	April 1, 2024	6.0 percent
April 1, 2022	7.5 percent	April 1, 2025	6.0 percent
April 1, 2023	7.5 percent	April 1, 2026	6.0 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:

July 1, 2021	20.0 percent	April 1, 2024	6.0 percent
April 1, 2022	18.5 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	4.5 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	April 2021	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<b>Water System:</b>							
Recommended Revenue Increase	1.5%	9.0%	7.5%	7.5%	6.0%	6.0%	6.0%
Water Sales with Increase <sup>(2)</sup>	\$601.0	\$662.4	\$675.2	\$725.8	\$777.3	\$823.9	\$873.4
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
<b>Annualized Revenue Requirement <sup>(3)</sup></b>	<b>\$607.7</b>	<b>\$662.4</b>	<b>\$712.1</b>	<b>\$765.5</b>	<b>\$811.4</b>	<b>\$860.1</b>	<b>\$911.7</b>

Description	FYE 2021	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	April 2021	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<b>Wastewater System:</b>							
Recommended Revenue Increase	1.5%	20.0%	18.5%	6.0%	6.0%	6.0%	4.5%
Wastewater Sales with Increase <sup>(2)</sup>	\$517.7	\$628.1	\$658.0	\$755.8	\$801.1	\$849.2	\$896.7
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	542.4		567.4	592.3	568.2	477.4
<b>Annualized Revenue Requirement <sup>(3)</sup></b>	<b>\$523.4</b>	<b>\$628.1</b>	<b>\$744.3</b>	<b>\$789.0</b>	<b>\$836.3</b>	<b>\$886.5</b>	<b>\$926.4</b>

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 1.40x, and the target DSCR for total debt is 1.20x. Carollo recommends Houston Water continue to target 1.40x DSCR for first lien and junior lien but not drop below 1.30x.

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. Houston Water’s minimum cash balance is equal to 300 days of O&M expenses.

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

Table ES.2 Combined Utility System Revenue Requirements (\$ millions) <sup>(1)</sup>

Description	FYE 2021 <sup>(2)</sup>	FYE 2022 <sup>(3)</sup>	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Expenses:</b>						
O&M Expenses	\$577.6	\$585.2	\$588.4	\$594.6	\$598.8	\$612.9
Jr./1st Debt Service	542.2	621.9	703.3	775.7	853.7	918.9
Other Debt Service	39.9	43.5	45.1	47.5	49.5	50.5
Cash-funded CIP	0.0	200.0	200.0	200.0	200.0	200.0
<b>Total Expenses</b>	<b>\$1,159.7</b>	<b>\$1,450.6</b>	<b>\$1,536.8</b>	<b>\$1,617.8</b>	<b>\$1,702.0</b>	<b>\$1,782.3</b>
Plus: Required Debt Coverage <sup>(4)</sup>	146.5	178.8	190.5	150.8	125.0	111.1
Plus: Required Cash <sup>(5)</sup>	474.7	481.0	483.6	488.7	492.2	503.8
<b>Required Revenue + Cash</b>	<b>\$1,780.9</b>	<b>\$2,110.4</b>	<b>\$2,210.9</b>	<b>\$2,257.4</b>	<b>\$2,319.2</b>	<b>\$2,397.2</b>
Less: Cash Balance	(931.6)	(790.1)	(707.8)	(645.5)	(594.0)	(564.2)
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)	(9.3)	(7.7)	(6.2)
Less: Rate Revenue (pre-increase)	(1,118.7)	(1,131.1)	(1,456.4)	(1,554.4)	(1,647.7)	(1,746.6)
<b>Rate Revenue (Surplus)/Deficit</b>	<b>(\$311.9)</b>	<b>\$132.3</b>	<b>(\$7.1)</b>	<b>(\$0.5)</b>	<b>\$19.4</b>	<b>\$23.1</b>
Recommended Increase <sup>(6)</sup>	---	28.8%	6.7%	6.0%	6.0%	5.2%
Additional Revenue	\$0.0	\$202.1	\$25.2	\$24.0	\$25.4	\$23.5
<b>First/Junior Lien DSCR</b>	<b>1.21 x</b>	<b>1.41 x</b>	<b>1.45 x</b>	<b>1.43 x</b>	<b>1.41 x</b>	<b>1.40 x</b>
<b>Cash (Days O&amp;M)</b>	<b>589</b>	<b>493</b>	<b>439</b>	<b>396</b>	<b>362</b>	<b>336</b>
<b>Annualized Revenue Requirement <sup>(7)</sup></b>	<b>\$1,131.1</b>	<b>\$1,456.4</b>	<b>\$1,554.4</b>	<b>\$1,647.7</b>	<b>\$1,746.6</b>	<b>\$1,838.1</b>

## 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) 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 40% of the junior/first debt service payment to avoid double-counting revenue requirements.
- (5) Required cash is equal to 300 days of O&M expenses.
- (6) Recommended increase shown for FYE 2022 includes the July 1, 2021, and the April 1, 2022, increases, as shown in Table ES.1.
- (7) 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.

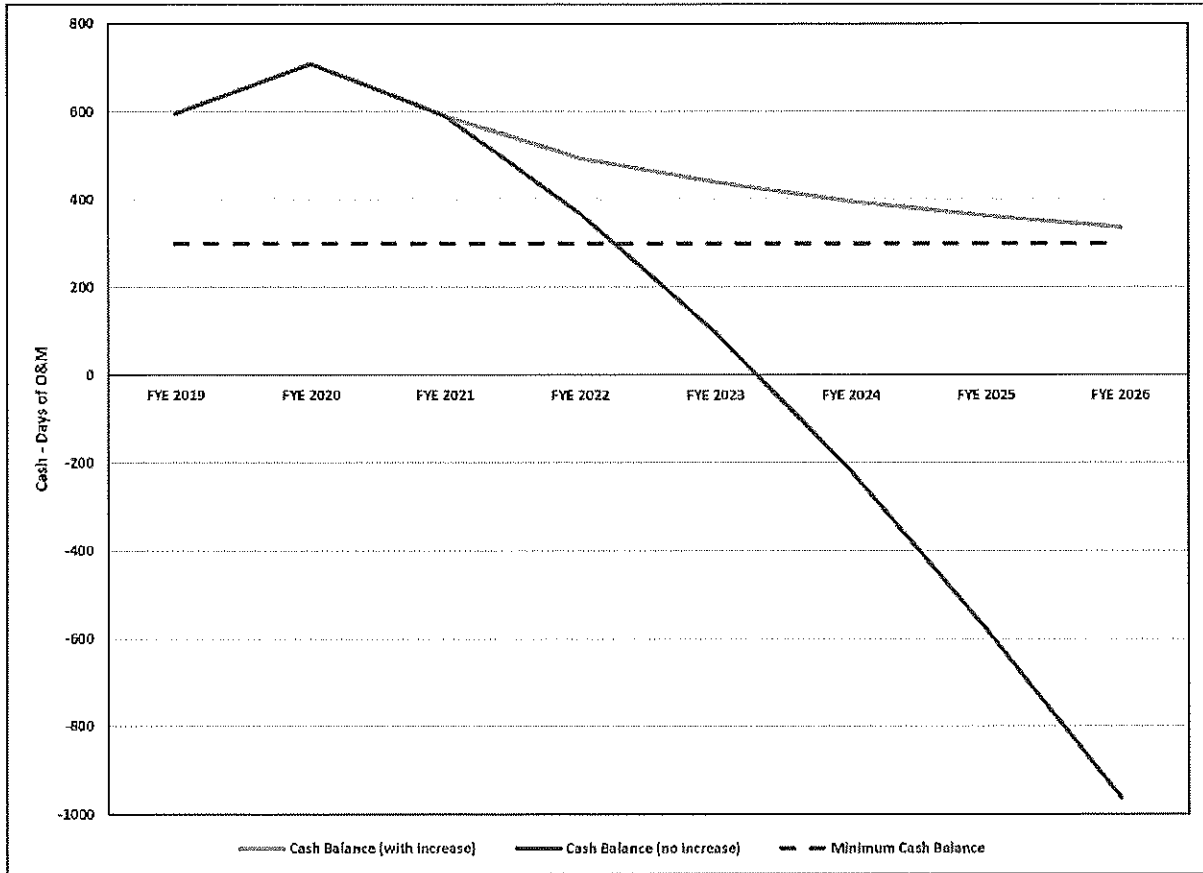


Figure ES.3 Projected Cash Balance (Days of O&M)

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.



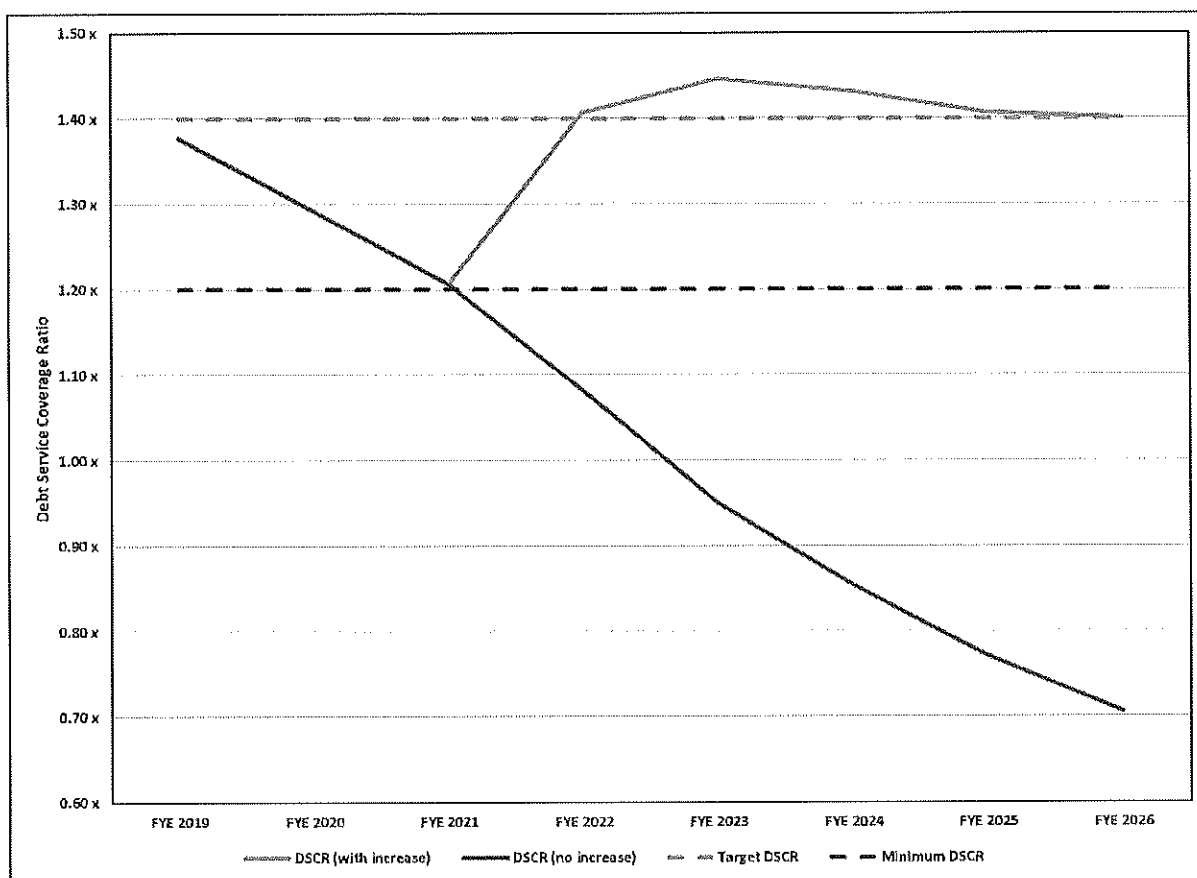


Figure ES.4 Projected Debt Service Coverage Ratio

## 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) <sup>(1)</sup>

Customer Type	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<b>Retail:</b>						
Single Family Residential	\$179.8	\$194.0	\$206.4	\$217.2	\$229.5	\$239.6
Multifamily Residential	153.5	165.7	177.0	187.3	199.3	209.4
Commercial/Industrial	184.1	198.9	212.9	225.4	239.8	251.9
Irrigation	19.7	21.3	22.8	24.1	25.6	26.9
Transient	5.3	5.7	6.1	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	1.3	1.3	1.4	1.4
Unmetered Fire	9.3	10.0	10.5	10.9	11.3	11.6
<b>Wholesale:</b>						
Contract Treated with Airgap	32.2	34.8	36.7	38.8	41.2	43.3
Contract Treated without Airgap	4.4	4.8	5.1	5.3	5.7	6.0
GRP Participants	13.2	14.3	22.1	23.3	24.8	26.1
Contract Water – Untreated	21.5	23.0	23.4	23.4	23.1	22.6
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
<b>Total Revenue Requirements</b>	<b>\$662.4</b>	<b>\$712.1</b>	<b>\$765.5</b>	<b>\$811.4</b>	<b>\$860.1</b>	<b>\$911.7</b>

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) <sup>(1)</sup>

Customer Type	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<b>Retail:</b>						
Single Family Residential	\$212.8	\$251.8	\$265.7	\$280.6	\$296.8	\$309.7
Multifamily Residential	210.2	249.3	265.2	281.9	299.2	313.1
Commercial	170.2	201.9	214.7	228.1	242.1	253.3
Industrial Surcharge	28.4	33.7	35.6	37.7	39.9	41.7
Sewer Only (Unmetered)	0.5	0.6	0.6	0.6	0.6	0.7
<b>Wholesale:</b>						
Capital without Collection System	3.9	4.6	4.6	4.6	4.8	4.9
No Capital with Collection System	1.8	2.1	2.2	2.3	2.5	2.6
Connection-based	0.3	0.4	0.4	0.4	0.4	0.4
<b>Total Revenue Requirements</b>	<b>\$628.1</b>	<b>\$744.3</b>	<b>\$789.0</b>	<b>\$836.3</b>	<b>\$886.5</b>	<b>\$926.4</b>

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 July 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
	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<i>Month of Adjustment</i>	<i>Charges</i>		<i>Future Adjustments</i>			
5/8"	\$6.25	+\$0.32	+\$0.25	+\$0.14	+\$0.11	+\$0.03
3/4"	6.25	+0.32	+0.25	+0.14	+0.11	+0.03
1"	8.80	+0.41	+0.39	+0.24	+0.21	+0.11
1½"	12.43	+0.54	+0.60	+0.39	+0.36	+0.20
2"	14.61	+0.62	+0.73	+0.47	+0.45	+0.26
3"	32.76	+1.29	+1.77	+1.18	+1.20	+0.77
4"	63.27	+2.40	+3.52	+2.38	+2.46	+1.62
6"	147.88	+5.50	+8.36	+5.71	+5.95	+3.97
8"	184.20	+6.83	+10.44	+7.13	+7.45	+4.98
10"	244.84	+9.05	+13.91	+9.52	+9.95	+6.67
12"	341.44	+12.59	+19.44	+13.31	+13.94	+9.35
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 July 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

Customer Type	Existing	Proposed	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026	April 2027	April 2028
	Charges		Future Adjustments					
<b>Transient:</b>								
1"	\$20.17	\$95.00	+\$11.96	+\$10.33	+\$10.30	+\$10.28	+\$10.27	
2"	26.90	185.00	+20.00	+20.00	+20.00	+20.00	+20.00	
3"	33.62	460.00	+51.36	+50.24	+50.31	+50.37	+50.40	
<b>Resale:</b>								
5/8" and 3/4"	\$22.83	\$24.05	+\$0.20	+\$0.10	+\$0.06	+\$0.02	+\$0.00	
1"	26.47	39.00	+0.27	+0.13	+0.10	+0.07	+0.04	
1½"	65.31	60.40	+0.31	+0.20	+0.16	+0.12	+0.11	
2"	99.60	73.25	+0.33	+0.23	+0.20	+0.16	+0.15	
3"	215.61	180.00	+0.83	+0.52	+0.49	+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	+2.91	+3.00	+3.08	+3.13	
<b>Metered Fire:</b>								
5/8"	\$6.05	\$4.70	+\$0.23	+\$0.12	+\$0.07	+\$0.03	+\$0.01	
3/4"	6.24	4.70	+0.23	+0.12	+0.07	+0.03	+0.01	
1"	7.50	6.15	+0.27	+0.17	+0.13	+0.08	+0.07	
1½"	11.35	8.20	+0.35	+0.24	+0.20	+0.17	+0.14	
2"	13.36	9.45	+0.38	+0.29	+0.24	+0.21	+0.19	
3"	35.35	20.00	+0.48	+0.66	+0.62	+0.58	+0.58	
4"	48.19	37.00	+1.37	+1.28	+1.25	+1.23	+1.21	
6"	82.59	85.00	+3.00	+3.00	+3.00	+3.00	+3.00	
8"	215.64	105.00	+4.30	+3.74	+3.75	+3.76	+3.77	
10"	215.64	140.00	+4.87	+4.98	+5.00	+5.03	+5.05	

Meter Size	Existing	FYF 2021	FYF 2022	FYF 2023	FYF 2024	FYF 2025	FYF 2026
Month of Adjustment		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments				
<b>Unmetered Fire <sup>(1)</sup>:</b>							
5/8" and 3/4"	\$15.83	\$6.70	+\$0.21	+\$0.09	+\$0.05	+\$0.00	+\$0.00
1"	15.83	9.55	+0.23	+0.12	+0.09	+0.04	+0.02
1½"	63.05	13.60	+0.29	+0.17	+0.13	+0.10	+0.07
2"	93.00	16.05	+0.30	+0.20	+0.16	+0.13	+0.10
3"	93.00	36.00	+0.87	+0.45	+0.41	+0.38	+0.37
4"	93.00	70.00	+1.35	+0.86	+0.84	+0.81	+0.79
6"	103.59	165.00	+2.00	+2.00	+2.00	+2.00	+2.00
8"	176.82	205.00	+3.05	+2.49	+2.50	+2.51	+2.52
10"	238.53	275.00	+1.60	+3.31	+3.34	+3.36	+3.38
12"	238.53	380.00	+5.79	+4.61	+4.67	+4.73	+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 July 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

Meter Size	Existing	FYF 2021	FYF 2022	FYF 2023	FYF 2024	FYF 2025	FYF 2026
Month of Adjustment		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Rates		Future Adjustments				
<b>Customers with usage up to 3,000 gallons per month:</b>							
First 1 kgal	\$0.16	\$1.00	+\$0.20	+\$0.15	+\$0.15	+\$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.

Water Usage	Existing	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bills		Incremental Bill Amounts			

**Customers with usage in excess of 3,000 gallons per month:**

Water Usage	Existing	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bills		Incremental Bill Amounts			
First 1 kgal	\$0.16					
Next 1 kgal	7.65					
Next 1 kgal	0.45	\$5.50	+\$0.60	+\$0.50	+\$0.45	+\$0.50
Next 1 kgal	12.56					
Next 1 kgal	5.29					
Next 1 kgal	5.29					
Next 6 kgal	5.74					
Next 8 kgal	9.46	11.00	+0.65	+0.55	+0.60	+0.60
Over 20 kgal	9.46	15.00	+0.65	+0.55	+0.45	+0.45

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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bills		Incremental Bill Amounts			
Meter Charge + TCEO Fee	\$5.82	\$6.46	+\$0.32	+\$0.25	+\$0.14	+\$0.11
1,000 gallons	5.98	7.46	+0.52	+0.40	+0.29	+0.26
2,000 gallons	13.63	8.46	+0.72	+0.55	+0.44	+0.41
3,000 gallons	14.08	9.46	+0.92	+0.70	+0.59	+0.56
4,000 gallons	26.64	28.46	+2.72	+2.25	+1.94	+2.11
5,000 gallons	31.93	33.96	+3.32	+2.75	+2.39	+2.61
6,000 gallons	37.22	39.46	+3.92	+3.25	+2.84	+3.11

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.

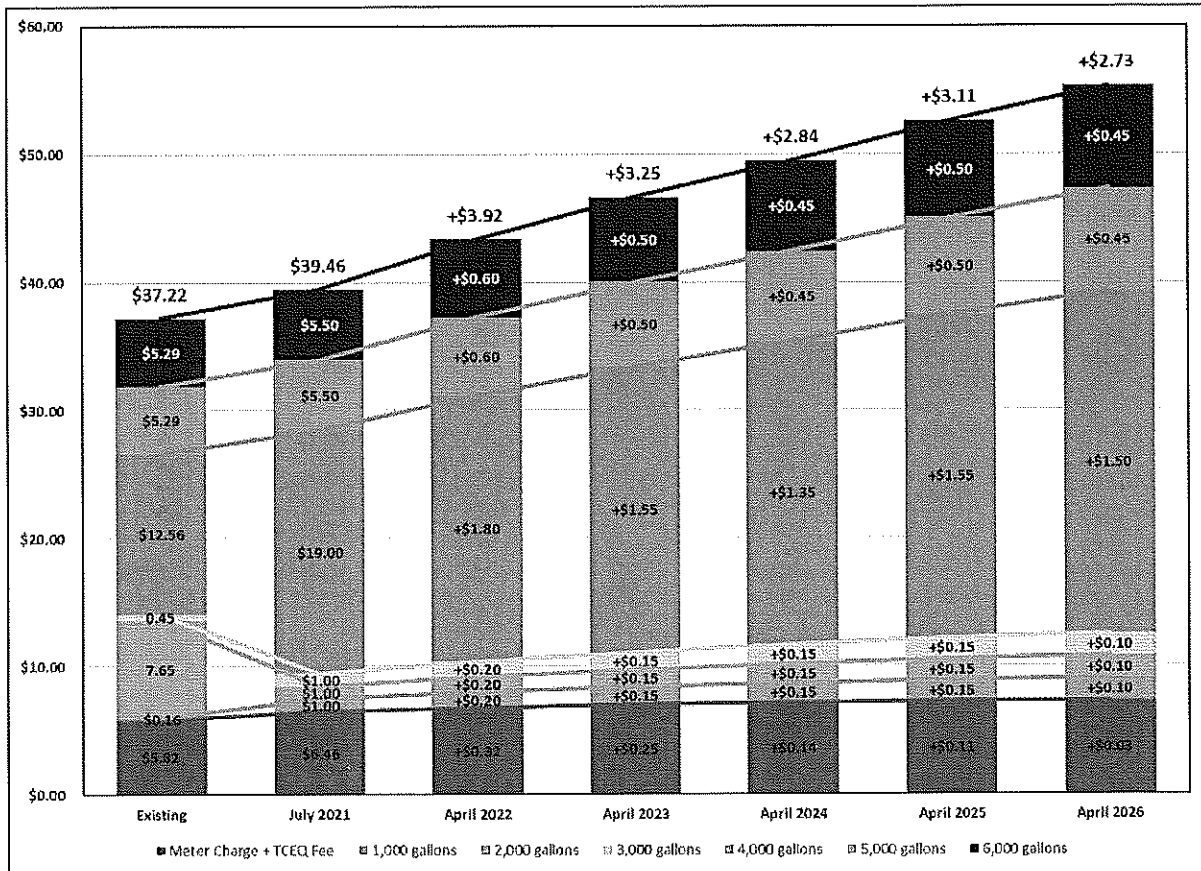


Figure ES.5 Existing and Proposed Single Family Residential Water Rates and Bills

*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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025
		Rates		Future Adjustments				
Multifamily Residential	All Usage	\$4.65	\$5.45	+\$0.49	+\$0.45	+\$0.40	+\$0.47	+\$0.38
Commercial/Industrial	All Usage	4.77	5.55	+0.60	+0.55	+0.50	+0.57	+0.47
Irrigation <sup>(1)</sup>	Block 1	3.50	---	---	---	---	---	---
	Block 2	8.06	---	---	---	---	---	---
	All Usage	---	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Transient	All Usage	5.35	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Resale	All Usage	5.73	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Emergency Backup	All Usage	8.85	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Metered Fire	All Usage	4.77	10.00	+0.45	+0.42	+0.35	+0.44	+0.34

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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025
		Rates		Future Adjustments				
Contract w/Airgap	Minimum	\$3.31	\$3.35	+\$0.35	+\$0.05	+\$0.10	+\$0.15	+\$0.10
	Excess	0.82	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
Contract w/o Airgap	Minimum	4.04	4.05	+0.15	+0.05	+0.05	+0.15	+0.15
	Excess	0.82	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
GRP Areas 1 & 2	All Usage	3.23	2.68	+0.28	+0.04	+0.08	+0.12	+0.08
GRP Area 3	All Usage	1.21	1.01	+0.11	+1.14	+0.06	+0.09	+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 <sup>(1)</sup>	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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
5/8"	\$10.00	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.62
3/4"	10.00	+1.50	+1.50	+0.75	+0.75	+0.62
1"	12.45	+1.79	+2.57	+1.24	+1.13	+0.93
1½"	15.93	+2.23	+4.08	+1.95	+1.66	+1.40
2"	18.03	+2.47	+5.00	+2.38	+1.97	+1.69
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 July 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 July 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

Meter Size	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
Month of Adjustment	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
<b>Industrial with Surcharge:</b>						
Industrial Program	---	\$100.00	+\$200.00	+\$300.00	+\$200.00	+\$200.00
<b>Sewer Only:</b>						
Single Family Res.	\$30.51	\$36.00	+\$7.00	+\$5.00	+\$4.00	+\$4.00
Duplex	64.71	72.00	+14.00	+10.00	+8.00	+8.00
Multifamily Res.	37.85	36.00	+7.00	+5.00	+4.00	+4.00
Commercial	71.41	72.00	+14.00	+10.00	+8.00	+8.00
Industrial	71.39	72.00	+14.00	+10.00	+8.00	+8.00

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 July 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		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Rates	Future Adjustments					
First 1 kgal	\$0.20	\$4.00	+\$1.10	+\$0.30	+\$0.60	+\$0.55	+\$0.45
Next 1 kgal	0.41						
Next 1 kgal	0.33						
Next 1 kgal	17.20	10.50	+1.60	+0.15	+0.25	+0.50	+0.35
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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026	April 2026
	Bills		Incremental Bill Amounts				
Meter Charge only	\$12.37	\$10.00	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.62
1,000 gallons	12.57	14.00	+2.60	+1.80	+1.35	+1.30	+1.07
2,000 gallons	12.98	18.00	+3.70	+2.10	+1.95	+1.85	+1.52
3,000 gallons	13.31	22.00	+4.80	+2.40	+2.55	+2.40	+1.97
4,000 gallons	30.51	32.50	+6.40	+2.55	+2.80	+2.90	+2.32
5,000 gallons	36.73	43.00	+8.00	+2.70	+3.05	+3.40	+2.67
6,000 gallons	45.78	53.50	+9.60	+2.85	+3.30	+3.90	+3.02

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.

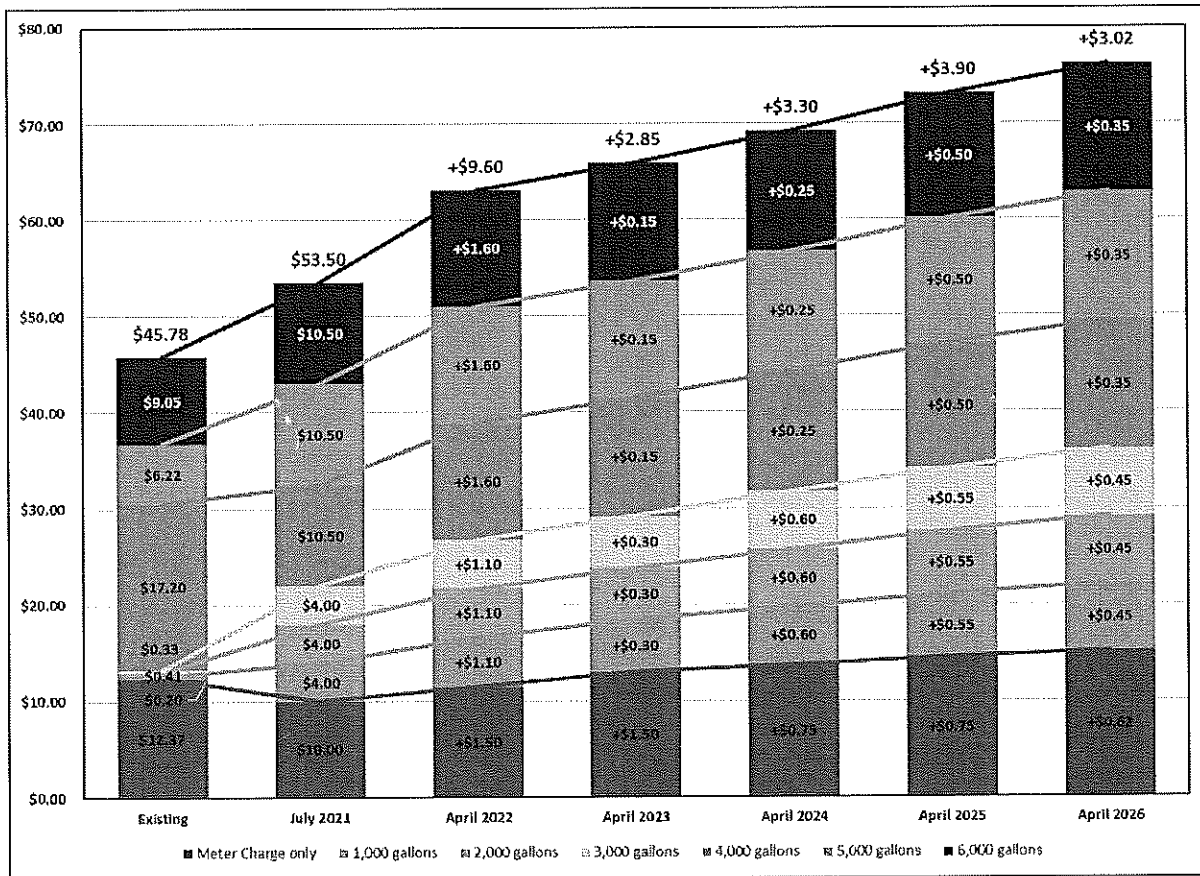


Figure ES.6 Existing and Proposed Single Family Residential Wastewater Rates and Bills

*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 July 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
	<i>Month of Adjustment</i>		<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
		<i>Rates</i>			<i>Future Adjustments</i>			
Multifamily Residential	All Flow	+\$6.76	+\$7.40	+\$1.40	+\$0.22	+\$0.46	+\$0.52	+\$0.40
Commercial	All Flow	6.76	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial (no surcharge)	First 2 kgal	4.16	---	---	---	---	---	---
	Over 2 kgal	7.40	---	---	---	---	---	---
	All Usage	---	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial with Surcharge	All Flow	4.90	8.00	+1.26	+0.02	+0.15	+0.28	+0.14
	BOD <sup>(1)</sup>	0.8440	0.4437	+0.0842	+0.0382	+0.0394	+0.0387	+0.0309
	TSS <sup>(1)</sup>	0.3331	0.3384	+0.0603	+0.0151	+0.0171	+0.0211	+0.0161
	Ammonia <sup>1</sup>	---	0.6253	+0.1033	-0.0019	+0.0040	+0.0210	+0.0137

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 July 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	
		<i>Month of Adjustment</i>		<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
		<i>Rates</i>			<i>Future Adjustments</i>				
Capital w/o Collection System	All Flow	\$1.64	\$1.65	+\$0.00	+\$0.00	+\$0.00	+\$0.00	+\$0.00	+\$0.00
Capital with Collection System	All Flow	---	3.00	+0.23	+0.01	+0.01	+0.02	+0.03	
No Capital w/Collection System	All Flow	6.25	6.25	+0.23	+0.36	+0.38	+0.41	+0.31	
Connection-based	All Connections	8.86/24.71	25.00	+2.01	+1.54	+1.64	+1.77	+1.40	

**ES.7.3 Customer Bill Impacts**

Figure ES.7 illustrates the impact of the recommended July 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.

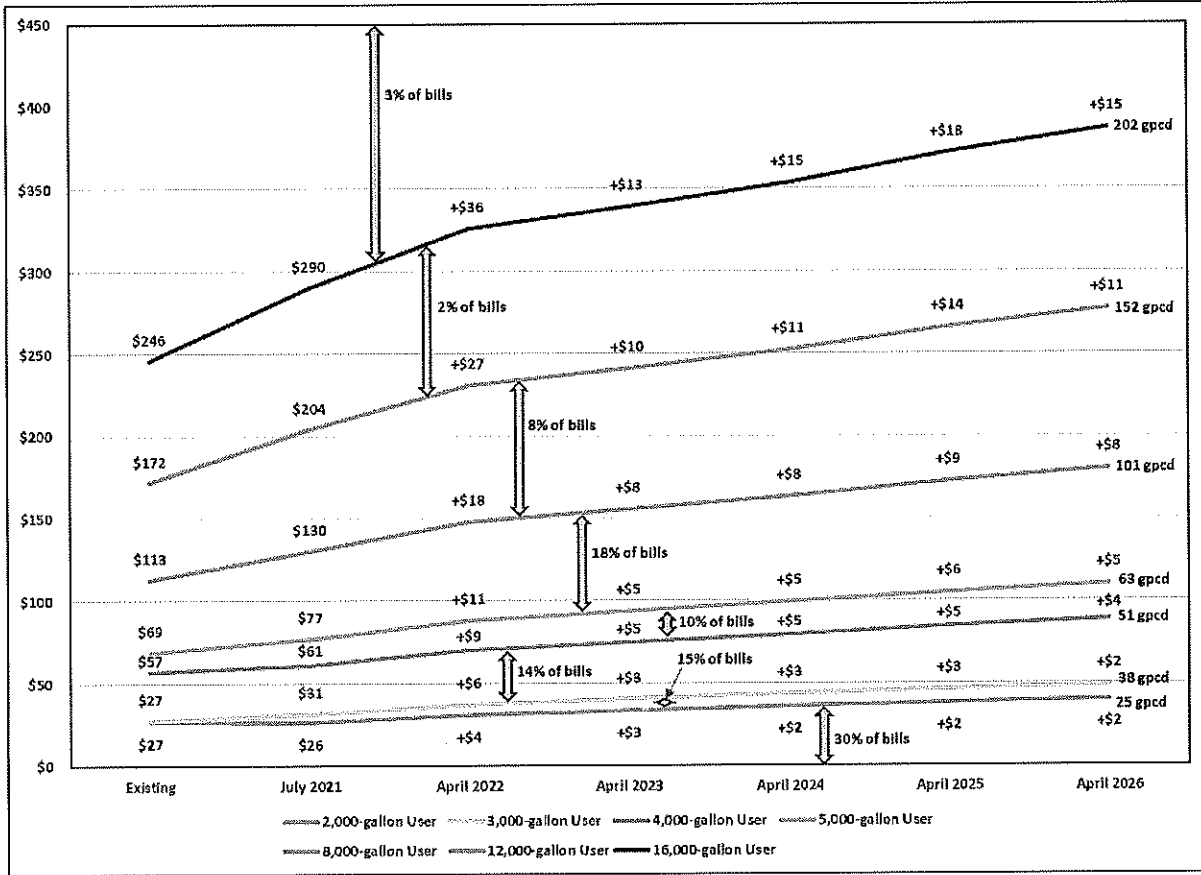


Figure ES.7 Single Family Residential Monthly Combined Bill Impact



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.

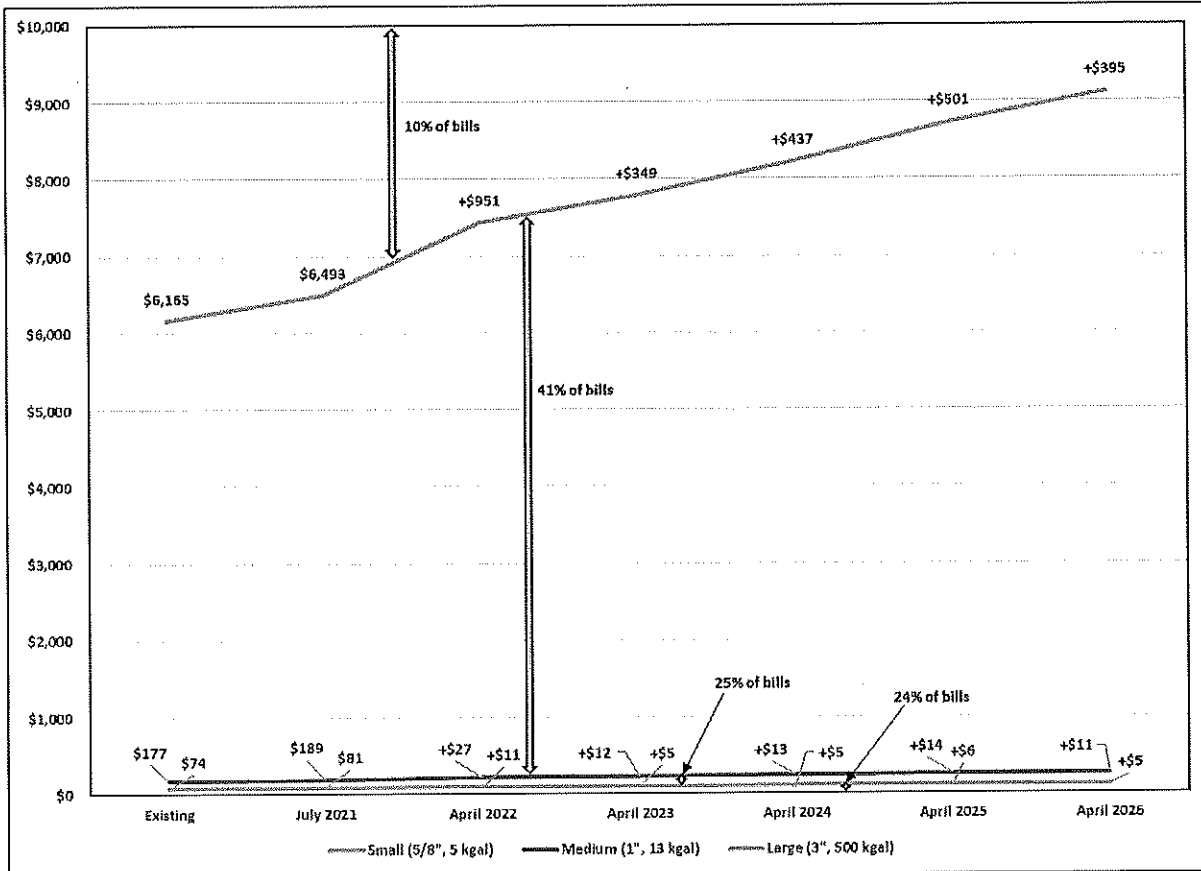


Figure ES.8 Multifamily Residential Monthly Combined Bill Impact

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.

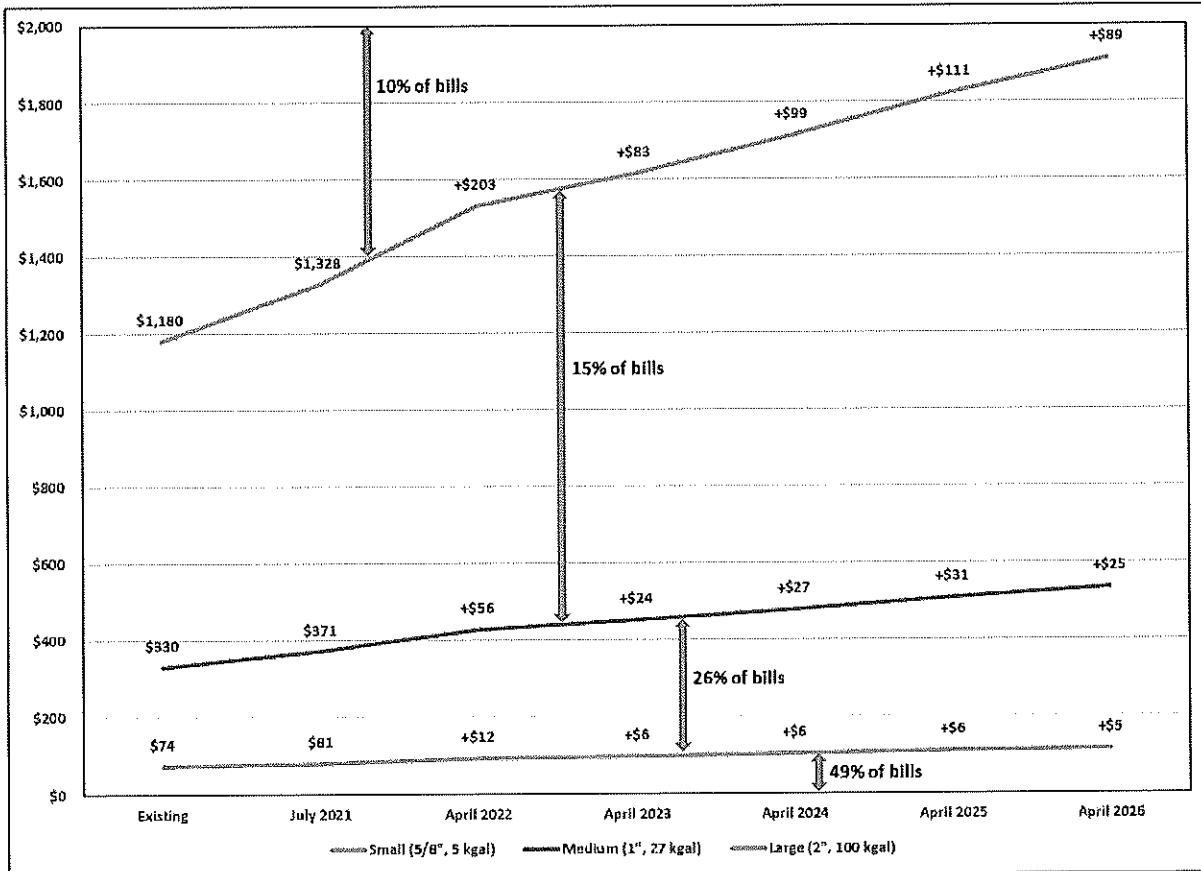


Figure ES.9 Commercial/Industrial Monthly Combined Bill Impact

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

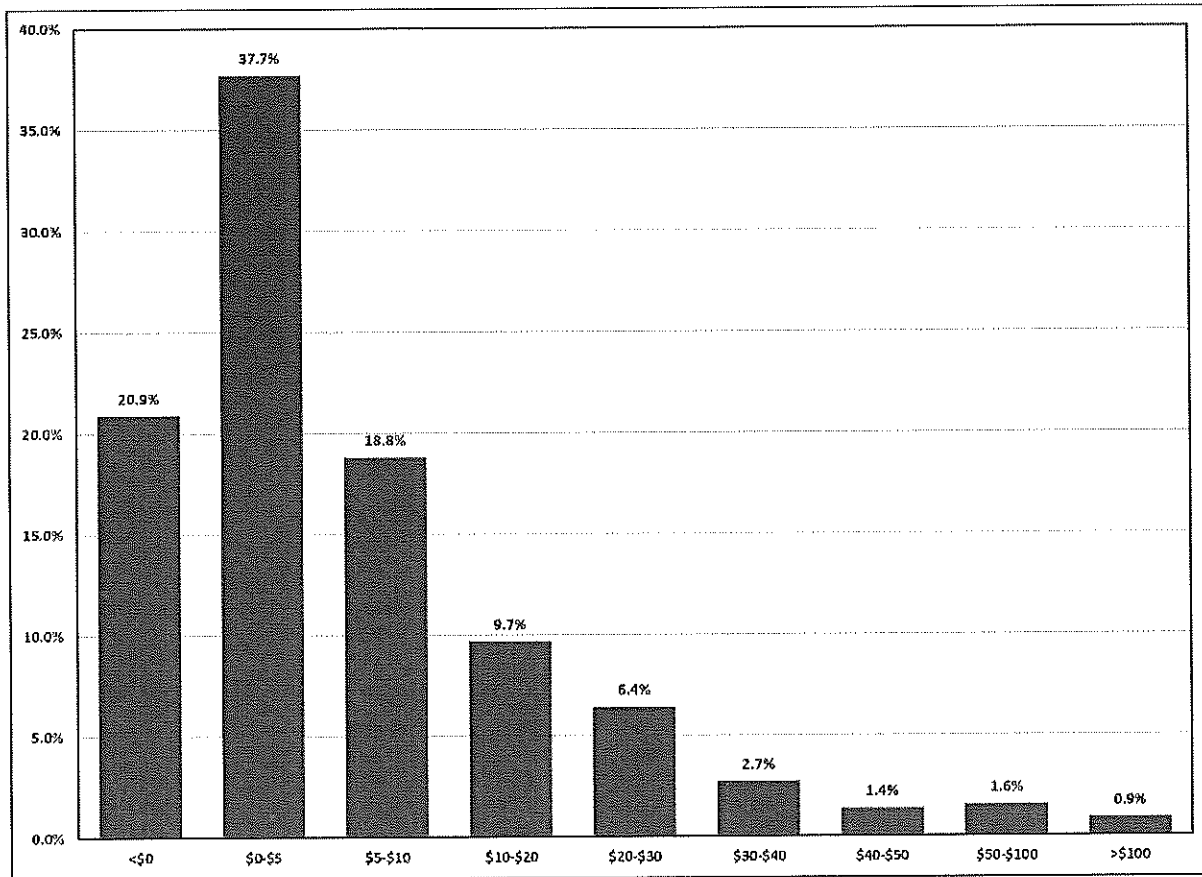


Figure ES.10 Distribution of July 2021 Monthly Combined Bill Impacts for Single Family Residential Customers

### ES.8 Recommendations

Carollo recommends implementation of the July 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 July 1, 2021, by 7.5 percent on April 1, 2022, and April 1, 2023, and by 6.0 percent on April 1, 2024, April 1, 2025, and April 1, 2026.
- Wastewater user charge revenue increases by 20.0 percent on July 1, 2021, by 18.5 percent on April 1, 2022, by 6.0 percent on April 1, 2023, April 1, 2024, April 1, 2025, and by 4.5 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.

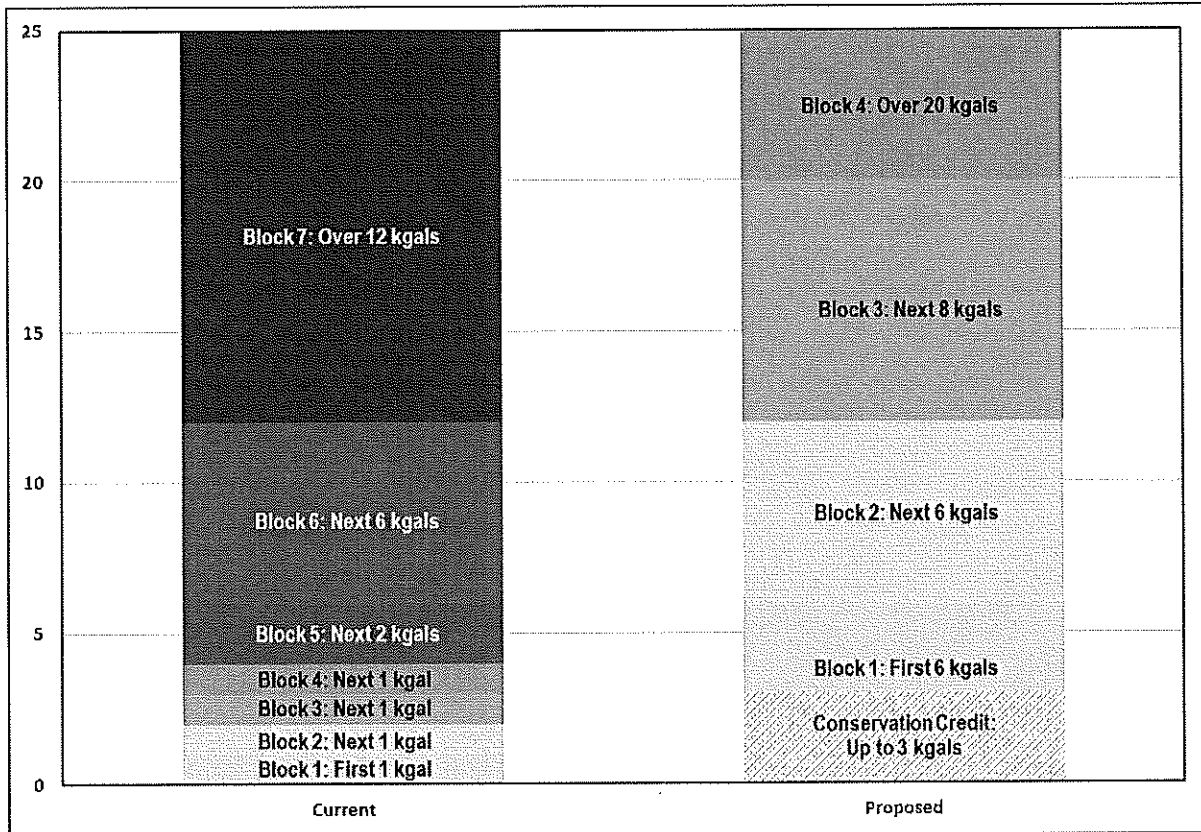


Figure ES.11 Existing and Proposed Single Family Residential Volume Water Rate Structures

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.

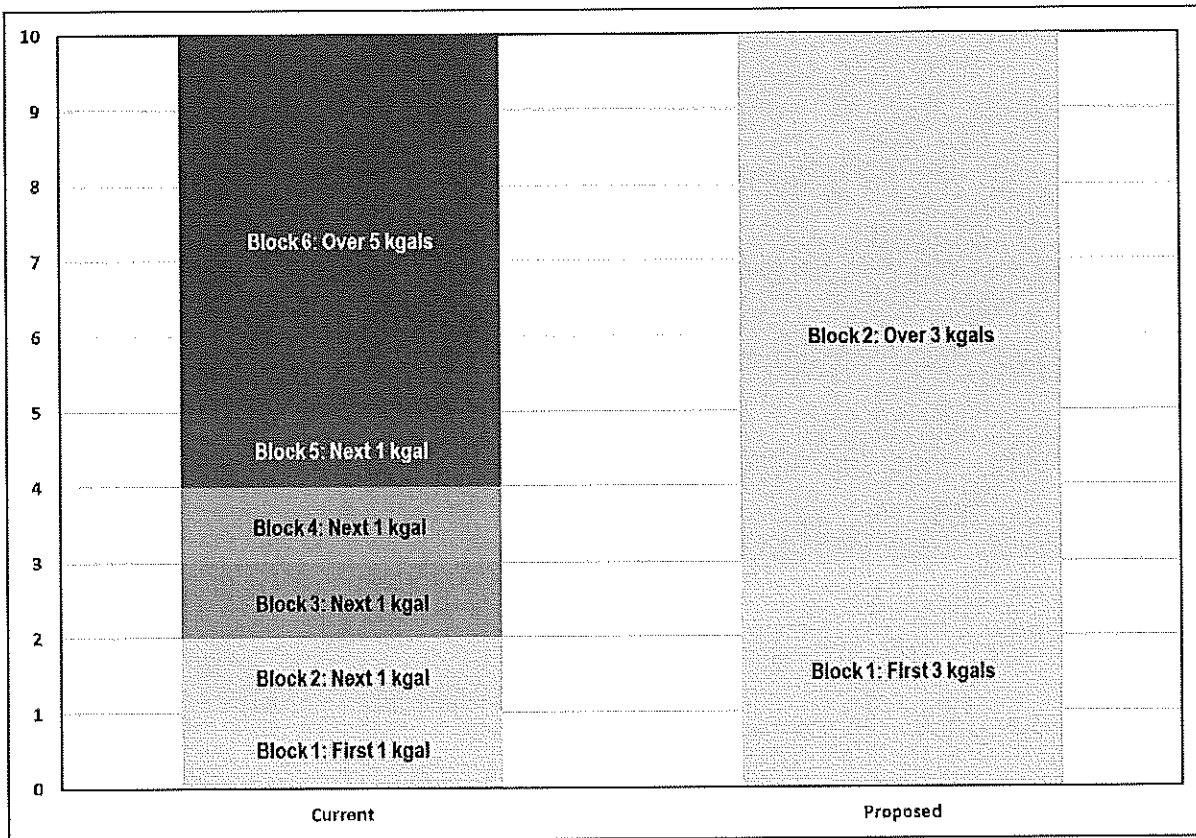


Figure ES.12 Existing and Proposed Single Family Residential Volume Wastewater Rate Structures

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, 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 1.40x, and the target DSCR for total debt is 1.20x. 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 40 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. Carollo recommends Houston Water continue to target 1.40x DSCR for first lien and junior lien but not drop below 1.30x.

### 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. Houston Water's minimum cash balance is equal to 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 of at least 300 days of O&M expenses. Since O&M expenses are projected to increase each year, the minimum cash balance must also increase to maintain a balance of at least 300 days, 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 34 percent operating and 66 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Drinking Water Operations:</b>						
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
<b>Total Drinking Water Operations</b>	<b>\$206.0</b>	<b>\$208.1</b>	<b>\$211.2</b>	<b>\$217.4</b>	<b>\$221.5</b>	<b>\$235.6</b>
<b>Operation Services (G&amp;A):</b>						
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
<b>Total Operation Services (G&amp;A)</b>	<b>\$19.9</b>	<b>\$20.2</b>	<b>\$20.2</b>	<b>\$20.2</b>	<b>\$20.2</b>	<b>\$20.2</b>
<b>Other O&amp;M:</b>						
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)
<b>Total Other O&amp;M</b>	<b>\$65.4</b>	<b>\$66.3</b>	<b>\$66.3</b>	<b>\$66.3</b>	<b>\$66.4</b>	<b>\$66.4</b>
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$291.3</b>	<b>\$294.7</b>	<b>\$297.8</b>	<b>\$304.0</b>	<b>\$308.2</b>	<b>\$322.2</b>

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 43 percent of total revenue requirements in FYE 2022, increasing to 51 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Existing Debt Service:</b>						
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	5.8	6.8	8.1	6.8	8.2	8.8
<b>Existing Debt Service</b>	<b>\$262.4</b>	<b>\$274.5</b>	<b>\$276.9</b>	<b>\$276.3</b>	<b>\$278.6</b>	<b>\$278.0</b>
<b>Future Debt Service:</b>						
First Lien – NEWPP	\$0.0	\$0.0	\$13.3	\$22.8	\$22.8	\$22.8
First Lien – Other	13.0	45.6	80.8	109.1	140.8	177.0
<b>Future Debt Service</b>	<b>\$13.0</b>	<b>\$45.6</b>	<b>\$94.1</b>	<b>\$131.9</b>	<b>\$163.7</b>	<b>\$199.9</b>
<b>DEBT SERVICE <sup>(2)</sup></b>	<b>\$275.4</b>	<b>\$320.1</b>	<b>\$371.0</b>	<b>\$408.2</b>	<b>\$442.3</b>	<b>\$477.9</b>

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 1.4 times the annual debt service payment for junior and first liens and 1.2 times the total annual debt service payment. This means there must be \$1.40 in net revenue (revenue less operating expenses) available for every \$1.00 of junior and first lien debt service outstanding and \$1.20 in net revenue available for every \$1.00 of total 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) <sup>(1)</sup>

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 <sup>(2)</sup>	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
<b>Total Water CIP</b>	<b>\$483.4</b>	<b>\$673.3</b>	<b>\$541.6</b>	<b>\$526.2</b>	<b>\$772.6</b>	<b>\$763.8</b>

## 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) <sup>(1)</sup>

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	110.8	97.7	94.1	115.2	123.1
Debt – Commercial Paper	198.5	207.7	183.1	176.4	216.1	230.8
Debt – First Lien <sup>(2)</sup>	234.7	304.7	654.5	176.0	281.9	292.8
<b>Total Water CIP</b>	<b>\$483.4</b>	<b>\$673.3</b>	<b>\$935.3</b>	<b>\$446.5</b>	<b>\$613.2</b>	<b>\$646.7</b>

## 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 <sup>(1)</sup>	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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Operating Revenue:</b>						
Water Sales <sup>(2)</sup>	\$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
<b>Total Operating Revenue</b>	<b>\$607.9</b>	<b>\$614.6</b>	<b>\$614.6</b>	<b>\$614.6</b>	<b>\$614.6</b>	<b>\$614.6</b>
<b>Non-operating Revenue:</b>						
Impact Fee Revenue <sup>(3)</sup>	\$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	2.2	0.1	0.0
<b>Total Non-operating Revenue</b>	<b>\$23.9</b>	<b>\$34.2</b>	<b>\$33.7</b>	<b>\$37.3</b>	<b>\$36.3</b>	<b>\$42.0</b>
<b>TOTAL REVENUE</b>	<b>\$631.8</b>	<b>\$648.9</b>	<b>\$648.4</b>	<b>\$651.9</b>	<b>\$650.9</b>	<b>\$656.7</b>

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 maintains a minimum cash balance of at least 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Beginning Cash Balance (July 1)</b>	<b>\$505.4</b>	<b>\$517.9</b>	<b>\$388.7</b>	<b>\$218.0</b>	<b>\$11.1</b>	<b>(\$256.2)</b>
<b>Additions:</b>						
Total Revenues	631.8	648.9	648.4	651.9	650.9	656.7
<b>Deductions:</b>						
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	306.6	342.2	370.5	402.1	436.0
Commercial Paper	5.7	6.8	8.1	6.8	8.2	8.8
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	110.8	97.7	94.1	115.2	123.1
<b>Ending Cash Balance (June 30)</b>	<b>\$517.9</b>	<b>\$388.7</b>	<b>\$218.0</b>	<b>\$11.1</b>	<b>(\$256.2)</b>	<b>(\$575.3)</b>
Target Cash Balance	\$239.4	\$242.2	\$244.8	\$249.8	\$253.3	\$264.9
<b>Cash Surplus / (Deficit)</b>	<b>\$278.5</b>	<b>\$146.5</b>	<b>(\$26.7)</b>	<b>(\$238.7)</b>	<b>(\$509.5)</b>	<b>(\$840.2)</b>

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 40 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 1.40x. 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues <sup>(2)</sup> (a)	\$619.8	\$636.7	\$636.2	\$639.8	\$638.7	\$644.5
Adjustments <sup>(3)</sup> (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 <sup>(4)</sup> (d)	240.9	282.4	331.3	369.1	400.8	434.7
Debt Service Coverage <sup>(5)</sup> (e)	96.4	113.0	132.5	147.7	160.3	173.9
Total Coverage Expenses (f = c + d + e)	628.6	690.0	761.6	820.8	869.2	930.8
<b>Bond Coverage Surplus / (Deficit) (a + b - f)</b>	<b>\$16.1</b>	<b>(\$29.5)</b>	<b>(\$101.6)</b>	<b>(\$158.4)</b>	<b>(\$207.9)</b>	<b>(\$266.2)</b>

## 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 0.4 times debt service, which is what is needed to achieve 1.4x 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 minimum 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) <sup>(2)</sup> (a)	\$517.9	\$388.7	\$218.0	\$11.1	(\$256.2)	(\$575.3)
Annual O&M Expense <sup>(3)</sup> (b)	291.3	294.7	297.8	304.0	308.2	322.2
Target Cash Balance <sup>(4)</sup> (c = b * 300 / 365)	239.4	242.2	244.8	249.8	253.3	264.9
<b>Above / (Below) Target (a - c)</b>	<b>\$278.5</b>	<b>\$146.5</b>	<b>(\$26.7)</b>	<b>(\$238.7)</b>	<b>(\$509.5)</b>	<b>(\$840.2)</b>

## 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.

## 1.2.5 Recommended Revenue Increases

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

July 1, 2021	9.0 percent	April 1, 2024	6.0 percent
April 1, 2022	7.5 percent	April 1, 2025	6.0 percent
April 1, 2023	7.5 percent	April 1, 2026	6.0 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) <sup>(1)</sup>

Description	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Costs <sup>(2)</sup>	\$294.7	\$297.8	\$304.0	\$308.2	\$322.2
Capital Costs <sup>(3)</sup>	443.0	482.9	517.6	573.7	618.2
<b>Total Revenue Requirement</b>	<b>\$737.7</b>	<b>\$780.7</b>	<b>\$821.6</b>	<b>\$881.9</b>	<b>\$940.4</b>
<b>Revenue Requirement Adjustments:</b>					
Water Service Penalties <sup>(4)</sup>	(5.6)	(6.5)	(7.0)	(7.5)	(7.9)
Other Water Operating Revenue (Non-rate) <sup>(4)</sup>	(1.4)	(1.4)	(1.4)	(1.4)	(1.4)
Impact Fee Revenue <sup>(4)</sup>	(20.6)	(21.4)	(26.7)	(27.7)	(33.6)
Non-operating Water Revenue (Non-rate) <sup>(4)</sup>	(8.4)	(8.4)	(8.4)	(8.4)	(8.4)
Interest	(5.2)	(4.6)	(4.0)	(3.7)	(3.2)
Additions / (Subtractions) from Cash Balance	15.5	27.1	37.4	26.8	25.7
<b>Rate Revenue Requirement</b>	<b>\$712.1</b>	<b>\$765.5</b>	<b>\$811.4</b>	<b>\$860.1</b>	<b>\$911.7</b>
Pre-Increase Rate Revenues	\$607.7	\$712.1	\$765.5	\$811.4	\$860.1
July 1 Revenue Adjustment (full year)	\$54.7	\$0.0	\$0.0	\$0.0	\$0.0
<b>JULY 1 REVENUE ADJUSTMENT</b>	<b>9.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
April 1 Revenue Adjustment (full year)	\$49.7	\$53.4	\$45.9	\$48.7	\$51.6
<b>APRIL 1 REVENUE ADJUSTMENT</b>	<b>7.5%</b>	<b>7.5%</b>	<b>6.0%</b>	<b>6.0%</b>	<b>6.0%</b>

## 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 40 percent operating and 60 percent capital. By FYE 2026, that split has shifted to 33 percent operating and 67 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Wastewater Operations:</b>						
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
<b>Total Wastewater Operations</b>	<b>\$201.7</b>	<b>\$204.7</b>	<b>\$204.7</b>	<b>\$204.7</b>	<b>\$204.7</b>	<b>\$204.7</b>
<b>Operation Services (G&amp;A):</b>						
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
<b>Total Operation Services (G&amp;A)</b>	<b>\$19.8</b>	<b>\$20.1</b>	<b>\$20.1</b>	<b>\$20.1</b>	<b>\$20.1</b>	<b>\$20.1</b>
<b>Other O&amp;M:</b>						
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)
<b>Total Other O&amp;M</b>	<b>\$64.9</b>	<b>\$65.8</b>	<b>\$65.8</b>	<b>\$65.8</b>	<b>\$65.9</b>	<b>\$65.9</b>
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$286.3</b>	<b>\$290.6</b>	<b>\$290.6</b>	<b>\$290.6</b>	<b>\$290.7</b>	<b>\$290.7</b>

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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Existing Debt Service:</b>						
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	5.8	5.4	8.4	8.0	7.3
<b>Existing Debt Service</b>	<b>\$295.1</b>	<b>\$307.1</b>	<b>\$307.2</b>	<b>\$310.2</b>	<b>\$309.6</b>	<b>\$306.1</b>
<b>Future Debt Service:</b>						
First Lien – Other	\$11.4	\$38.2	\$70.2	\$104.8	\$151.3	\$185.4
<b>Future Debt Service</b>	<b>\$11.4</b>	<b>\$38.2</b>	<b>\$70.2</b>	<b>\$104.8</b>	<b>\$151.3</b>	<b>\$185.4</b>
<b>DEBT SERVICE <sup>(2)</sup></b>	<b>\$306.5</b>	<b>\$345.3</b>	<b>\$377.5</b>	<b>\$415.0</b>	<b>\$460.9</b>	<b>\$491.5</b>

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 1.4 times the annual debt service payment for junior and first liens and 1.2 times the total annual debt service payment. This means there must be \$1.40 in net revenue (revenue less operating expenses) available for every \$1.00 of junior and first lien debt service outstanding and \$1.20 in net revenue available for every \$1.00 of total 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 \$2.7 billion for the wastewater system. Of this, \$2.0 billion (73 percent) is planned for annual infrastructure investment from the 2020 Needs Assessment, 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Active CIP <sup>(2)</sup>	\$23.3	\$44.1	\$57.5	\$97.4	\$94.4	\$53.5
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
<b>Total Wastewater CIP</b>	<b>\$429.7</b>	<b>\$542.4</b>	<b>\$567.4</b>	<b>\$592.3</b>	<b>\$568.2</b>	<b>\$477.4</b>

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) <sup>(1)</sup>

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	89.2	102.3	105.9	84.8	76.9
Debt – Commercial Paper	176.5	167.3	191.9	198.6	0.0	0.0
Debt – First Lien	203.4	236.1	273.2	287.8	483.5	400.5
<b>Total Wastewater CIP</b>	<b>\$429.7</b>	<b>\$542.4</b>	<b>\$567.4</b>	<b>\$592.3</b>	<b>\$568.2</b>	<b>\$477.4</b>

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 <sup>(1)</sup>	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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>Operating Revenue:</b>						
Wastewater User Charges <sup>(2)</sup>	\$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
<b>Total Operating Revenue</b>	<b>\$524.6</b>	<b>\$530.5</b>	<b>\$530.5</b>	<b>\$530.5</b>	<b>\$530.5</b>	<b>\$530.5</b>
<b>Non-operating Revenue:</b>						
Impact Fee Revenue <sup>(3)</sup>	\$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	2.0	0.0	0.0	0.0
<b>Total Non-operating Revenue</b>	<b>\$27.2</b>	<b>\$31.3</b>	<b>\$29.8</b>	<b>\$28.5</b>	<b>\$29.3</b>	<b>\$30.1</b>
<b>TOTAL REVENUE</b>	<b>\$551.8</b>	<b>\$561.7</b>	<b>\$560.3</b>	<b>\$559.0</b>	<b>\$559.8</b>	<b>\$560.5</b>

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 maintains a minimum cash balance of at least 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Beginning Cash Balance (July 31)	\$200.4	\$413.6	\$199.4	(\$51.6)	(\$365.0)	(\$692.5)
<b>Additions:</b>						
Total Revenues	551.8	561.7	560.3	559.0	559.8	560.5
<b>Deductions:</b>						
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	339.5	372.0	406.6	453.0	484.2
Commercial Paper	5.3	5.8	5.4	8.4	8.0	7.3
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	89.2	102.3	105.9	84.8	76.9
Ending Cash Balance (June 30)	\$413.6	\$199.4	(\$61.6)	(\$365.0)	(\$692.5)	(\$1,041.9)
Target Cash Balance	\$235.3	\$238.8	\$238.9	\$238.9	\$238.9	\$238.9
Cash Surplus / (Deficit)	\$178.3	(\$39.4)	(\$300.4)	(\$603.8)	(\$931.4)	(\$1,280.8)

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 40 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 1.40x. 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues <sup>(2)</sup> (a)	\$541.5	\$551.3	\$549.8	\$548.6	\$549.3	\$550.1
Adjustments <sup>(3)</sup> (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 <sup>(4)</sup> (d)	301.3	339.5	372.0	406.6	453.0	484.2
Debt Service Coverage <sup>(5)</sup> (e)	120.5	135.8	148.8	162.6	181.2	193.7
Total Coverage Expenses (f = c + d + e)	708.1	765.8	811.4	859.9	924.8	968.5
<b>Bond Coverage Surplus / (Deficit) (a + b - f)</b>	<b>(\$121.1)</b>	<b>(\$168.4)</b>	<b>(\$215.4)</b>	<b>(\$265.1)</b>	<b>(\$329.3)</b>	<b>(\$372.2)</b>

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 0.4 times debt service, which is what is needed to achieve 1.4x 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 minimum 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) <sup>(2)</sup> (a)	\$413.6	\$199.4	(\$61.6)	(\$365.0)	(\$692.5)	(\$1,041.9)
Annual O&M Expense <sup>(3)</sup> (b)	286.3	290.6	290.6	290.6	290.7	290.7
Target Cash Balance <sup>(4)</sup> (c = b * 300 / 365)	235.3	238.8	238.9	238.9	238.9	238.9
<b>Above / (Below) Target (a - c)</b>	<b>\$178.3</b>	<b>(\$39.4)</b>	<b>(\$300.4)</b>	<b>(\$603.8)</b>	<b>(\$931.4)</b>	<b>(\$1,280.8)</b>

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.

1.3.5 Recommended Revenue Increases

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

July 1, 2021	20.0 percent	April 1, 2024	6.0 percent
April 1, 2022	18.5 percent	April 1, 2025	6.0 percent
April 1, 2023	6.0 percent	April 1, 2026	4.5 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) <sup>(1)</sup>

Description	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Costs <sup>(2)</sup>	\$290.6	\$290.6	\$290.6	\$290.7	\$290.7
Capital Costs <sup>(3)</sup>	445.0	494.7	536.7	562.4	586.1
<b>Total Revenue Requirement</b>	<b>\$735.6</b>	<b>\$785.3</b>	<b>\$827.3</b>	<b>\$853.1</b>	<b>\$876.8</b>
<b>Revenue Requirement Adjustments:</b>					
Sewer Service Penalties <sup>(4)</sup>	(5.6)	(7.9)	(8.4)	(8.9)	(9.5)
Other Wastewater Op Revenue (Non-rate) <sup>(4)</sup>	(1.5)	(1.5)	(1.5)	(1.5)	(1.5)
Impact Fee Revenue <sup>(4)</sup>	(20.6)	(21.2)	(22.0)	(22.7)	(23.5)
Non-op Wastewater Revenue (Non-rate) <sup>(4)</sup>	(6.6)	(6.6)	(6.6)	(6.6)	(6.6)
Interest	(4.1)	(3.3)	(3.0)	(2.8)	(2.8)
Additions / (Subtractions) from Cash Balance	47.1	44.3	50.4	75.9	93.3
<b>Rate Revenue Requirement</b>	<b>\$744.3</b>	<b>\$789.0</b>	<b>\$836.3</b>	<b>\$886.5</b>	<b>\$926.4</b>
Pre-Increase Rate Revenues	\$523.4	\$744.3	\$789.0	\$836.3	\$886.5
July 1 Revenue Adjustment (full year)	\$104.7	\$0.0	\$0.0	\$0.0	\$0.0
<b>JULY 1 REVENUE ADJUSTMENT</b>	<b>20.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
April 1 Revenue Adjustment (full year)	\$116.2	\$44.7	\$47.3	\$50.2	\$39.9
<b>APRIL 1 REVENUE ADJUSTMENT</b>	<b>18.5%</b>	<b>6.0%</b>	<b>6.0%</b>	<b>6.0%</b>	<b>4.5%</b>

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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues <sup>(2)</sup> (a)	\$1,161.3	\$1,188.0	\$1,186.0	\$1,188.3	\$1,188.0	\$1,194.6
Adjustments <sup>(3)</sup> (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 <sup>(4)</sup> (d)	542.2	621.9	703.3	775.7	853.7	918.9
Debt Service Coverage <sup>(5)</sup> (e)	216.9	248.8	281.3	310.3	341.5	367.5
Total Coverage Expenses (f = c + d + e)	1,336.6	1,455.9	1,573.0	1,680.6	1,794.0	1,899.3
<b>Bond Coverage Surplus / (Deficit)</b> <b>(a + b - f)</b>	<b>(\$105.0)</b>	<b>(\$197.9)</b>	<b>(\$317.0)</b>	<b>(\$423.5)</b>	<b>(\$537.2)</b>	<b>(\$638.4)</b>
<b>Debt Service Coverage Ratio</b> <b>[(a + b - c) / d]</b>	<b>1.21 x</b>	<b>1.08 x</b>	<b>0.95 x</b>	<b>0.85 x</b>	<b>0.77 x</b>	<b>0.71 x</b>

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 0.4 times debt service, which is what is needed to achieve 1.4x 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 minimum 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) <sup>(2)</sup> (a)	\$931.6	\$588.1	\$156.5	(\$353.9)	(\$948.7)	(\$1,617.2)
Annual O&M Expense <sup>(3)</sup> (b)	577.6	585.2	588.4	594.6	598.8	612.9
Target Cash Balance <sup>(4)</sup> (c = b * 300 / 365)	474.7	481.0	483.6	488.7	492.2	503.8
<b>Above / (Below) Target (a - c)</b>	<b>\$456.8</b>	<b>\$107.1</b>	<b>(\$327.1)</b>	<b>(\$842.6)</b>	<b>(\$1,440.9)</b>	<b>(\$2,121.0)</b>
<b>Ending Days of O&amp;M (a * 365 / b)</b>	<b>589</b>	<b>367</b>	<b>97</b>	<b>(217)</b>	<b>(578)</b>	<b>(963)</b>

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.

## 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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Allowable Revenues <sup>(2)</sup> (a)	\$1,161.3	\$1,390.0	\$1,535.4	\$1,636.4	\$1,731.3	\$1,833.4
Adjustments <sup>(3)</sup> (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 <sup>(4)</sup> (d)	542.2	621.9	703.3	775.7	853.7	918.9
Debt Service Coverage <sup>(5)</sup> (e)	216.9	248.8	281.3	310.3	341.5	367.5
Total Coverage Expenses (f = c + d + e)	1,336.6	1,455.9	1,573.0	1,680.6	1,794.0	1,899.3
Bond Coverage Surplus / (Deficit) (a + b - f)	(\$105.0)	\$4.1	\$32.3	\$24.5	\$6.1	\$0.4
Debt Service Coverage Ratio [(a + b - c) / d]	1.21 x	1.41 x	1.45 x	1.43 x	1.41 x	1.40 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 0.4 times debt service, which is what is needed to achieve 1.4x 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.

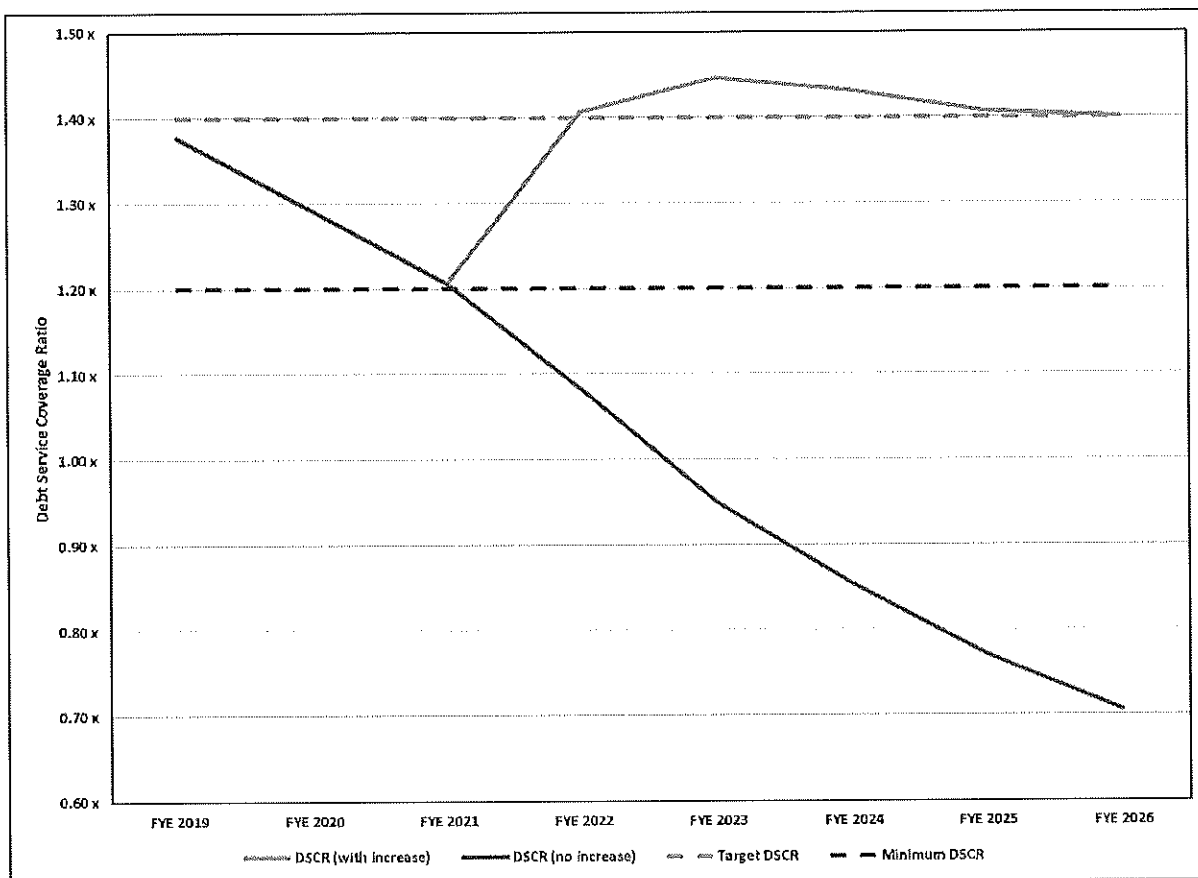


Figure 1.1 Projected Debt Service Coverage Ratio

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) <sup>(1)</sup>

Description	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Ending Cash Balance (June 30) (a)	\$931.6	\$790.1	\$707.8	\$645.5	\$594.0	\$564.2
Annual O&M Expense <sup>(2)</sup> (b)	577.6	585.2	588.4	594.6	598.8	612.9
Target Cash Balance <sup>(3)</sup> (c = b * 300 / 365)	474.7	481.0	483.6	488.7	492.2	503.8
<b>Above / (Below) Target (a - c)</b>	<b>\$456.8</b>	<b>\$309.1</b>	<b>\$224.2</b>	<b>\$156.8</b>	<b>\$101.8</b>	<b>\$60.4</b>
<b>Ending Days of O&amp;M (a * 365 / b)</b>	<b>589</b>	<b>493</b>	<b>439</b>	<b>396</b>	<b>362</b>	<b>336</b>

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.



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.

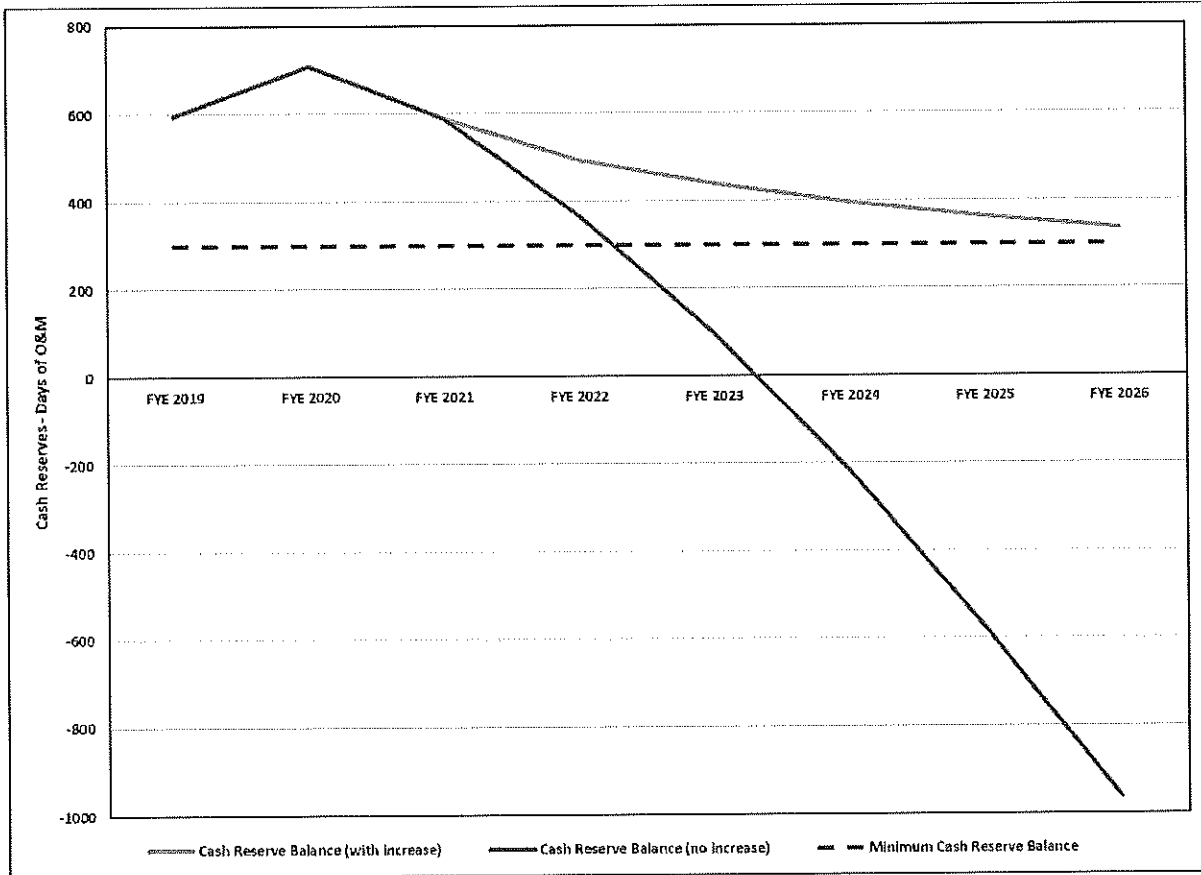


Figure 1.2 Projected Cash Balance (Days of O&M)

## 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.

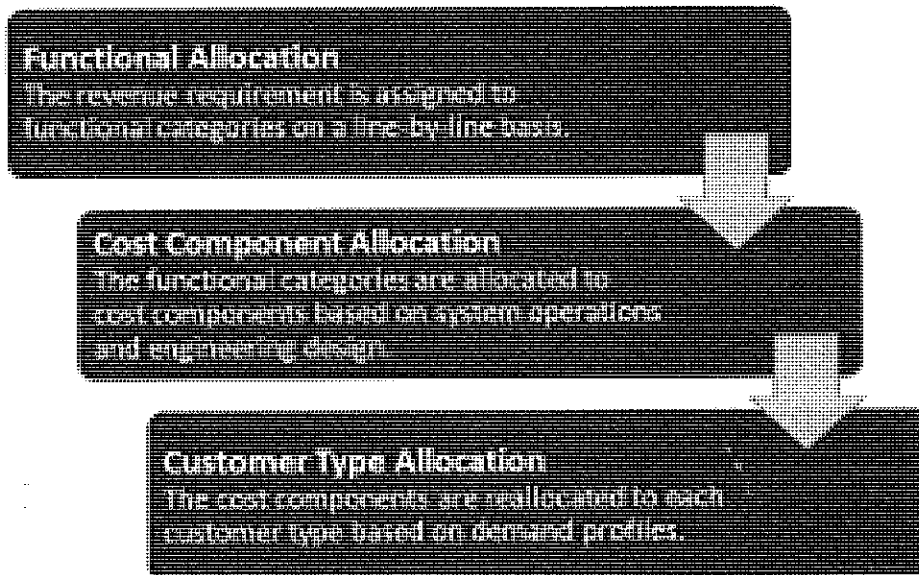


Figure 2.1 Three-step Cost Allocation Approach

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) <sup>(1)</sup>

Description	Value <sup>(1)</sup>	Percent Allocation (%)														
		Retail and Contract – No Capital		Retail Only				General								
		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 <sup>(2)</sup>	\$216.8	49.2	17.5	33.3												
Distribution Mains <sup>(3)</sup>	\$1,786.8				46.7	16.6	31.7	5.0								
Transmission Mains <sup>(4)</sup>	\$1,417.1	73.8	26.3													
Land & Site	\$35.0															100.0
Meters & Services	\$74.1															100.0
SCADA System <sup>(4)</sup>	\$29.3	73.8	26.3													
Pumps <sup>(2)</sup>	\$3.0	49.2	17.5	33.3												
Fuel Tanks	\$1.1															100.0
Chemical Tanks <sup>(4)</sup>	\$15.1	73.8	26.3													
Ground Storage Tanks <sup>(2)</sup>	\$166.4	49.2	17.5	33.3												
Elevated Storage Tank <sup>(2)</sup>	\$35.7	49.2	17.5	33.3												
<b>Subtotal Allocation (\$)</b>	<b>\$4,755.1</b>	<b>\$1,424.5</b>	<b>\$457.4</b>	<b>\$140.6</b>	<b>\$834.6</b>	<b>\$297.0</b>	<b>\$565.8</b>	<b>\$89.3</b>	<b>\$74.1</b>	<b>\$871.6</b>						
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)						
<b>Total Allocated Assets (\$)</b>	<b>\$4,755.1</b>	<b>\$1,744.2</b>	<b>\$560.1</b>	<b>\$172.2</b>	<b>\$1,021.9</b>	<b>\$363.7</b>	<b>\$692.8</b>	<b>\$109.4</b>	<b>\$90.8</b>							
<b>Total Allocated Assets (%)</b>		<b>36.7%</b>	<b>11.8%</b>	<b>3.6%</b>	<b>21.5%</b>	<b>7.6%</b>	<b>14.6%</b>	<b>2.3%</b>	<b>1.9%</b>							

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	Supply		Percent Allocation (%)																					
	Unlimited	Limited	Supply - Unlimited	Supply - Limited	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	TCEO Fees	General		
<b>Drinking Water Operations:</b>																								
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					81.1	4.6	7.4	6.9				
40012 - DWO Regulatory and Compliance	\$5.6																							
TCEO Fee	\$2.6																						100.0	
40013 - DWO Ground Water Operations	\$24.0				40.0																			
40014 - DWO East WPP	\$29.1						100.0																	
40015 - DWO Technical Services G&A	\$5.8	4.0	6.0			35.0																		
Cust. Complaints / Water System Maint.	\$2.1	3.6	5.4			31.5																		
Source Water Protection	\$2.1	3.6	5.4			31.5																		
40016 - DWO Water Maintenance	\$13.8									100.0														100.0
PIB DS	\$2.5																							
40017 - DWO Southeast WPP	\$12.1								100.0															
40018 - DWO Northeast WPP	\$15.9																							
40019 - DWO System Maint. - North	\$19.0																							
40020 - DWO System Maint. - South	\$18.9																							
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	34.5					46.7			18.7														
CWA Debt Service (95" line)	\$4.0	18.5								81.5														
<b>Operation Services (G&amp;A):</b>																								
40021 - OPS Fin & Supp Op Svcs G&A	\$2.9																100.0							
40022 (HWPP) - HW Planning	\$1.6	2.0	3.0		5.0	15.0											50.0							
40023 - OPS Maint Op Svcs - Restoration	\$5.1																							
40024 - OPS Maint Op Svcs - COS/DIS	\$1.4																							
40025 - HW GIS Services	\$1.7																							
40026 - OPS Executive Support	\$1.3																							
40027 - OPS Support Services	\$1.1																							
40028 - HW Infrastructure Planning	\$1.1				10.0	30.0																		
40029 - HW Utility Analysis	\$3.0	2.0	3.0		5.0	15.0																		



Description	5-YEAR AVE (%)	Percent Allocation (%)													General													
		Supply - Unreated	Supply - Treated	Pumping	Transmission	Production - EWWP	Production - NEWPP	Production - Expansion NEWPP	Production - SEWPP	Production - Other	Storage	Distribution	Meters	Fire Protection		Customer Billing	Administration	WA OH - EWWP	WA OH - NEWPP	Co-Part OH SEWPP	TCEO Fees							
<b>Other O&amp;M:</b>																												
30001-30009 - Director's Office	\$3.9																						91.6					
80001 - Information Technology	\$10.0																						91.6					
90001-90011 - Management Support	\$6.9																						91.6					
60005 & 60008 - Houston Water Planning	\$0.3	2.0	3.0	5.0	15.0																							
50002,05,06,30 - Fin Mgmt Svcs Support	\$18.8																						99.5					
Property and Terrorism Insurance	\$3.8									17.0	4.7												0.1	0.1	0.3	70.1		
Security	\$1.9									23.9	23.9																28.3	
10007-15, 25 - CAS Cust Acct Services	\$25.1																											
Deductions	(\$4.3)																											
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	\$17.5	\$1.0	\$1.4	\$1.6	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6	\$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%	0.8%	0.8%	0.8%	0.8%	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	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6	\$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%	0.8%	0.8%	0.8%	0.8%	0.8%	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 TCEO fees because that category only includes the fees charged by TCEO to the City.



Table 2.3 Allocation of Water O&M Budget to Cost Components (\$ millions) <sup>a1</sup>

Description	5-yr Avg <sup>a2</sup>	Raw Water	Percent Allocation (%)														
			Retail and Contract – No Capital			Retail Only			Meter			Billing	EWPP WAs	NEWPP WAs	SEWPP C/s	TCEQ Fees	General
			Base	Max Day	MbM Hr	Base	Max Day	Max Hr	Fire	Base	Max Day						
Source of Supply – Untreated	\$21.9	100.0															
Source of Supply – Treated	\$12.5																
Pumping <sup>a3</sup>	\$13.4				33.3												
Transmission <sup>a3</sup>	\$6.0																
Production – EWPP <sup>a4</sup>	\$49.6											17.0					
Production – NEWPP <sup>a5</sup>	\$17.6												54.4				
Production – NEWPP Expansion <sup>a5</sup>	\$13.8												86.0				
Production – SEWPP <sup>a5</sup>	\$24.0													56.5			
Production – Other <sup>a6</sup>	\$13.8																
Storage <sup>a2</sup>	\$6.9																
Distribution <sup>a6</sup>	\$62.6										5.0						
Meters	\$15.8										100.0						
Fire Protection	\$2.9										100.0						
Customer Billing	\$15.8											100.0					
Admin	\$22.0																
WA OH – EWPP	\$1.0													100.0			
WA OH – NEWPP	\$1.4																
Co-part OH – SEWPP	\$1.6																
TCEQ Fees	\$2.6																
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	\$7.2%
Total Allocation (%)			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 their sales as a percentage of production. The remainder is allocated between Base and Maximum Hour 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 among Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity based on the system maximum day and maximum hour peaking factors.
- (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) <sup>(1)</sup>

Description	5-yr Avg <sup>(2)</sup>	Raw Water	Retail and Contract - No Capital		Retail Only		Meter	Billing	EWPP WAs	NEWPP WAs	SEWPP CPs	TCEO Fees	General		
			Base	Max Day	Max Hr	Max Day								Max Hr	
<b>Operating Costs <sup>(3)</sup></b>	\$305.4	\$21.9	\$82.5	\$24.9	\$6.8	\$79.3	\$10.4	\$19.8	\$6.0	\$15.8	\$9.4	\$22.8	\$15.2	\$2.6	\$22.0
<b>Capital Costs:</b>															
Debt Service <sup>(4)</sup>	402.1	0.0	147.5	47.4	14.6	86.4	30.8	58.6	9.2	7.7	0.0	0.0	0.0	0.0	0.0
TRALake Livingston Debt <sup>(5)</sup>	1.8	0.6	0.6	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 <sup>(6)</sup>	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	15.0
Rate-funded Capital (PAYGO) <sup>(7)</sup>	108.2	0.0	39.7	12.7	3.9	23.2	8.3	15.8	2.5	2.1	0.0	0.0	0.0	0.0	0.0
Water Service Penalties <sup>(8)</sup>	(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	(6.9)
Other Water Operating Revenue (Non-rate) <sup>(9)</sup>	(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	(1.0)
Impact Fee Revenue <sup>(10)</sup>	(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	(26.0)
Non-operating Water Revenue (Non-rate) <sup>(11)</sup>	(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	(8.4)
Interest <sup>(12)</sup>	(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	(4.1)
Additions / (Subtractions) from Cash Balance <sup>(13)</sup>	26.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
<b>Subtotal Allocation (\$)</b>	\$812.2	\$22.6	\$270.3	\$85.2	\$25.2	\$138.9	\$49.4	\$94.2	\$17.8	\$25.4	\$15.6	\$22.8	\$15.4	\$2.6	\$17.1
<b>Subtotal Allocation (%)</b>	100.0%	2.8%	33.3%	10.5%	3.1%	17.1%	6.1%	11.6%	2.2%	3.1%	1.9%	2.8%	1.9%	0.3%	2.1%
<b>Reallocation of "General" <sup>(14)</sup></b>		\$0.5	\$6.2	\$2.0	\$0.6	\$3.2	\$1.1	\$2.2	\$0.4	\$0.6	\$0.4				(\$17.1)
<b>Total Allocated Revenue Requirement (\$)</b>	\$812.2	\$23.1	\$276.5	\$87.2	\$25.8	\$142.1	\$50.6	\$96.3	\$18.2	\$25.9	\$9.6	\$22.8	\$15.4	\$2.6	\$0.0
<b>Total Allocated Revenue Requirement (%)</b>		2.8%	34.1%	10.7%	3.2%	17.5%	6.2%	11.9%	2.2%	3.2%	2.0%	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 based on 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 (1.9%) and Billing & Collecting (0.9%) 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.  
 (9) General category is reallocated to other cost components based on direct allocation of revenue requirements. General is also not reallocated to TCEO fees because that category only includes the fees charged by TCEO to the City.

Table 2.5 Allocation of FYE 2022 Water Revenue Requirements to Cost Components (\$ millions)<sup>(1)</sup>

Description	FYE 2022 <sup>(2)</sup>	Raw Water		Retail and Contract—No Capital		Retail Only		Meter	Billing	EWPP WAS	NEWPP WAS	SEWPP CPS	TCEQ Fees			
		Base	Max Day	Base	Max Day	Base	Max Day							Max Hr	Max Day	Max Hr
<b>Operating Costs</b>	\$294.7	\$23.0	\$27.3	\$90.4	\$27.3	\$7.6	\$33.8	\$12.0	\$22.9	\$6.7	\$15.8	\$16.5	\$9.5	\$12.6	\$15.3	\$2.6
<b>Capital Costs:</b>																
Debt Service	318.3	0.0	116.8	37.5	11.5	68.4	24.3	46.4	7.3	6.1	0.0	0.0	0.0	0.0	0.0	0.0
TRAILake Livingston Debt	1.8	0.6	0.2	0.0	0.0	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	0.0
Rate-funded Capital (PAYGO)	110.8	0.0	40.6	13.0	4.0	23.8	8.5	16.1	2.5	2.1	0.0	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)	(0.2)	(0.2)	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)	(0.2)	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)	(0.4)	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)	(0.2)	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)	(0.1)	0.0	0.0	0.0	0.0
Additions / (Subtractions) from Cash Balance <sup>(3)</sup>	(35.2)	(1.1)	(12.8)	(4.0)	(1.2)	(6.6)	(2.3)	(4.5)	(0.8)	(1.2)	(0.7)	(0.7)	0.0	0.0	0.0	0.0
<b>Total Allocated Revenue Requirement (\$)</b>	\$661.3	\$21.7	\$225.2	\$70.8	\$21.0	\$114.1	\$40.6	\$77.4	\$15.0	\$22.7	\$15.0	\$12.6	\$9.6	\$15.5	\$15.5	\$2.6
<b>Total Allocated Revenue Requirement (%)</b>	100.0%	3.3%	34.1%	10.7%	3.2%	17.3%	6.1%	11.7%	2.3%	3.4%	2.3%	1.9%	1.5%	2.3%	2.3%	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 July 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	Units	Raw Water			Retail and Contract - No Capital			Retail Only			Meter	Billing	EMPP WAS	NEWPP WAS	SEWPP CPs	TCEO Fees
		kgal	Base	Max Day <sup>(1)</sup>	Max Hr <sup>(2)</sup>	kgal/day	Base	Max Day <sup>(1)</sup>	Max Hr <sup>(2)</sup>	kgal/day						
<b>Retail:</b>																
Single Family Residential		23,340,203	47,423	30,899	47,423	23,340,203	30,899	47,423	503,912	4,947,559					410,045	
Multifamily Residential		25,815,307	47,934	25,140	47,934	25,815,307	25,140	47,934	43,417	161,408					573,968	
Commercial / Industrial <sup>(3)</sup>		26,090,759	60,555	49,629	60,555	26,090,759	49,629	60,555	100,366	424,443					47,945	
Irrigation		2,409,002	6,667	6,733	6,667	2,409,002	6,733	6,667	13,680	70,384					469	
Transient		384,573	2,003	2,953	2,003	384,573	2,953	2,003	2,867	7,708					643	
Resale		8,798	26	29	26	8,798	29	26	17	12					2	
Emergency Backup		11,907	338	643	338	11,907	643	338	694	165					17	
Metered Fire		12,976	462	462	462	12,976	462	462	11,947	3,368					32	
Unmetered Fire									216,735	63,161						
<b>Wholesale:</b>																
Contract Treated w/Airgap		10,470,163		13,973						435					92	
Contract Treated w/o Airgap		1,351,009	2,685	1,669	2,685				50	181					38	
GRP Participants		2,520,573	14,713	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	
Contract Treated - NEWPP Water Authorities															8	
<b>Total</b>		<b>78,971,731</b>	<b>97,415,220</b>	<b>146,843</b>	<b>186,661</b>	<b>78,073,526</b>	<b>116,489</b>	<b>165,194</b>	<b>893,636</b>	<b>5,681,563</b>	<b>12,996,195</b>	<b>9,365,481</b>	<b>19,538,357</b>	<b>1,033,575</b>		

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) <sup>(1)</sup>

Description	Raw Water	Retail and Contract - No Capital			Retail Only			Meter	Billing	EMPP WAS	NEWPP WAS	SEWPP CPs	TCEO Fees
		Base	Max Day <sup>(1)</sup>	Max Hr <sup>(2)</sup>	Base	Max Day <sup>(1)</sup>	Max Hr <sup>(2)</sup>						
Allocated Revenue Requirements <sup>(1)</sup>	\$21.7	\$725.2	\$70.8	\$21.0	\$114.1	\$40.6	\$77.4	\$15.0	\$22.7	\$9.6	\$12.6	\$15.5	\$2.6
Total Units <sup>(2)</sup>	78,971,731	97,415,220	146,843	186,661	78,073,526	116,489	165,194	893,636	894,236	12,996,195	9,365,481	19,538,357	1,033,575
Unit Cost	50.27	\$2.44	\$481.85	\$112.49	\$1.46	\$348.69	\$468.42	\$16.80	\$25.33	\$0.74	\$1.35	\$0.79	\$2.49
Units	kgal	kgal	kgal/day	kgal/day	kgal	kgal/day	kgal/day	MEU	MEU	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		Meters	Billing	EWPP WAS	NEWPP WAS	SEWPPCPs	TCED Fees
	Base	Max/Day	Base	Max/Day	Base	Max/Day						
<b>Retail:</b>												
Single Family Residential	0.0%	25.3%	21.0%	25.4%	29.9%	26.5%	28.7%	56.4%	87.1%	0.0%	0.0%	39.7%
Multi-Family Residential	0.0%	27.9%	17.1%	25.7%	33.1%	21.6%	29.0%	4.9%	2.8%	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%	7.5%	0.0%	0.0%	4.6%
Irrigation	0.0%	2.6%	4.6%	3.6%	3.1%	5.8%	4.0%	1.5%	1.2%	0.0%	0.0%	0.0%
Transient	0.0%	0.4%	2.0%	1.3%	0.5%	2.5%	1.2%	0.3%	0.1%	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%
Emergency Backup	0.0%	0.0%	0.4%	0.2%	0.0%	0.6%	0.2%	0.1%	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%	0.1%	0.0%	0.0%	0.0%
Unmetered Fire	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.3%	1.1%	0.0%	0.0%	0.0%
<b>Wholesaler:</b>												
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%
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%
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%
Contract Unreated	100.0%	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%	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%	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%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

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



Table 2.9 Water FYE 2022 Revenue Requirement Allocation by Customer Type (5 millions).<sup>(1)</sup>

Customer Type	FYE 2022	Raw Water		Retail and Contract - No Capital		Retail Only		Meter	Billing	EWPP WAS	NEWPP WAS	SEWPP CPS	TCEG Fees		
		Base	Max Day	Max Hr	Base	Max Day	Max Hr							Base	Max Day
<b>Retail:</b>															
Single Family Residential	\$179.5	\$0.0	\$56.9	\$14.9	\$5.3	\$34.1	\$10.8	\$22.2	\$8.5	\$12.8	\$13.1	\$0.0	\$0.0	\$1.0	
Multifamily Residential	153.1	0.0	62.9	12.1	5.4	37.7	8.8	22.5	0.7	1.1	0.4	0.0	0.0	1.4	
Commercial / Industrial <sup>(2)</sup>	183.6	0.0	63.6	23.9	6.8	38.1	17.3	28.4	1.7	2.5	1.1	0.0	0.0	0.1	
Irrigation	19.6	0.0	5.9	3.2	0.7	3.5	2.3	3.1	0.2	0.3	0.2	0.0	0.0	0.0	
Transient	5.3	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	
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	
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	
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	
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	
<b>Wholesale:</b>															
Contract Treated w/Airgap	32.3	0.0	25.5	6.7	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	
GRP Participants	15.3	0.0	6.1	7.1	2.1	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	
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	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	
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	
<b>Total</b>	<b>\$663.8</b>	<b>\$21.7</b>	<b>\$225.2</b>	<b>\$70.8</b>	<b>\$21.0</b>	<b>\$124.1</b>	<b>\$40.6</b>	<b>\$77.4</b>	<b>\$15.0</b>	<b>\$22.7</b>	<b>\$15.0</b>	<b>\$9.6</b>	<b>\$12.6</b>	<b>\$15.5</b>	<b>\$2.6</b>

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) <sup>(1)</sup>

Description	Value <sup>(1)</sup>	Percent Allocation (%)						
		Flow – Retail	Flow – Retail + 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
<b>Subtotal Allocation (\$)</b>	<b>\$5,999.7</b>	<b>\$2,120.3</b>	<b>\$1,875.7</b>	<b>\$445.5</b>	<b>\$334.1</b>	<b>\$334.1</b>	<b>\$0.0</b>	<b>\$890.0</b>
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)
<b>Total Allocation (\$)</b>	<b>\$5,999.7</b>	<b>\$2,489.6</b>	<b>\$2,202.4</b>	<b>\$523.0</b>	<b>\$392.3</b>	<b>\$392.3</b>	<b>\$0.0</b>	
<b>Total Allocation (%)</b>		<b>41.5%</b>	<b>36.7%</b>	<b>8.7%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>0.0%</b>	

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) <sup>(1)</sup>

Description	5-yr Avg <sup>(1)</sup>	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	Administration	Treatment Collection General
<b>Wastewater Operations:</b>														
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					100.0
40005 – WWO Technical Services G&A	\$17.3													
40006 – WWO Plant Operations	\$54.5	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	5.0				
40007 – WWO Electrical & Automation	\$10.0	5.0	2.5	2.5	20.0			5.0	2.0	60.0				
40008 – WWO Contract Management	\$5.3	1.0	1.0	1.0						2.0				
40009 – WWO Construction 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									45.0			50.0	
40031 – WWO EPA Compliance	\$34.5									100.0				
<b>Operation Services (G&amp;A):</b>														
40021 – OPS Fin & Supp Op Svcs G&A	\$2.9									45.0			100.0	
40022 (HWP) – HW Planning	\$1.6									100.0				
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									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									45.0			50.0	
40029 – HW Utility Analysis	\$3.0									45.0			50.0	
<b>Other O&amp;M:</b>														
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)													
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
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%
Reallocation of General <sup>(2)</sup>		\$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
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 2.2.2 Allocation of Wastewater O&M Budget to Cost Components (\$ millions)<sup>(1)</sup>

Description	5-yr Avg <sup>(1)</sup>	Percent Allocation (%)							Customer	General
		Flow-Retail	Flow-Retail + Cat. V Whsl	Flow-All	BOD	TSS	Ammonia	Industrial WW Program		
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						10.0		
Customer Billing	\$29.1									100.0
Administration	\$17.0									
Treatment + Collection General	\$20.1									100.0
<b>Total Allocation (\$)</b>	<b>\$290.6</b>	<b>\$42.6</b>	<b>\$65.5</b>	<b>\$48.2</b>	<b>\$8.1</b>	<b>\$40.5</b>	<b>\$7.5</b>	<b>\$3.6</b>	<b>\$7.5</b>	<b>\$37.1</b>
<b>Total Allocation (%)</b>		<b>14.7%</b>	<b>22.5%</b>	<b>16.6%</b>	<b>2.8%</b>	<b>14.0%</b>	<b>2.6%</b>	<b>1.2%</b>	<b>2.6%</b>	<b>12.8%</b>

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-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) <sup>(1)</sup>

Description	5-Yr Avg <sup>(2)</sup>	Flow - Retail	Flow - Retail + Cat. Y. Whtl	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial WWP Pgr.	Customer	General
<b>Operating Costs <sup>(3)</sup></b>	\$290.6	\$42.6	\$55.5	\$48.2	\$0.0	\$8.1	\$0.0	\$40.6	\$0.0	\$7.5	\$0.0	\$3.6	\$37.5	\$37.1
<b>Capital Costs:</b>														
Debt Service <sup>(4)</sup>	418.0	173.5	153.5	0.0	36.4	0.0	27.3	0.0	27.3	0.0	0.0	0.0	0.0	0.0
Bad Debt <sup>(5)</sup>	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1
Rate-Funded Capital (PAYGO) <sup>(6)</sup>	91.8	38.1	33.7	0.0	8.0	0.0	6.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0
Water Service Penalties <sup>(7)</sup>	(8.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(8.1)
Other Water Operating Revenue (Non-rate) <sup>(8)</sup>	(22.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.7)	(0.7)
Impact Fee Revenue <sup>(9)</sup>	(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)
Non-operating Water Revenue (Non-rate) <sup>(10)</sup>	(3.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(3.2)
Interest <sup>(11)</sup>	38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9
<b>Additions / (Subtractions) from Cash Balance <sup>(12)</sup></b>	\$813.2	\$254.2	\$252.7	\$48.2	\$44.4	\$8.1	\$33.3	\$40.6	\$33.3	\$7.5	\$0.0	\$3.6	\$36.7	\$50.6
Subtotal Allocation (\$)	100.0%	\$16.9	\$16.8	\$3.2	\$2.9	\$0.5	\$2.2	\$2.7	\$2.2	\$0.5	\$0.0	\$0.2	\$2.4	\$0.0
Subtotal Allocation (%)		33.3%	31.1%	5.9%	5.5%	1.0%	4.1%	5.0%	4.1%	0.9%	0.0%	0.4%	4.3%	6.2%
Reallocation of "General" <sup>(13)</sup>		\$271.1	\$269.5	\$51.4	\$47.4	\$8.6	\$35.5	\$43.2	\$35.5	\$8.0	\$0.0	\$3.8	\$39.2	\$0.0
<b>Total Allocated Revenue Requirement (\$)</b>		\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2	\$813.2
<b>Total Allocated Revenue Requirement (%)</b>		33.3%	33.3%	6.3%	5.8%	1.1%	4.4%	5.3%	4.4%	1.0%	0.0%	0.5%	4.8%	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 (\$0M) 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) <sup>(1)</sup>

Description	FYE 2022 (2)	Flow-Retail	Flow-Retail + Cst. Yr. Hst.	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	\$21.1	\$8.5	\$11.6	\$43.0	\$11.6	\$7.9	\$0.0	\$3.8	\$39.7
<b>Capital Costs:</b>													
Debt Service	345.3	143.3	128.8	0.0	30.1	0.0	22.6	0.0	22.6	0.0	0.0	0.0	0.0
Bad Debt	10.5	3.5	3.5	0.7	0.6	0.1	0.5	0.6	0.5	0.1	0.0	0.0	0.5
Rate-funded Capital (PAYGO)	89.2	37.0	32.8	0.0	7.8	0.0	5.8	0.0	5.8	0.0	0.0	0.0	0.0
Water Service Penalties	(5.6)	(1.9)	(1.8)	(0.4)	(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)	(0.2)	(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 <sup>(3)</sup>	(70.1)	(23.4)	(23.2)	(4.4)	(4.1)	(0.7)	(3.1)	(3.7)	(3.1)	(0.7)	0.0	(0.3)	(3.4)
<b>Total Allocated Revenue Requirement (\$)</b>	<b>\$627.2</b>	<b>\$203.3</b>	<b>\$705.7</b>	<b>\$44.9</b>	<b>\$34.4</b>	<b>\$7.5</b>	<b>\$25.8</b>	<b>\$37.8</b>	<b>\$75.8</b>	<b>\$7.0</b>	<b>\$0.0</b>	<b>\$3.4</b>	<b>\$34.3</b>
<b>Total Allocated Revenue Requirement (%)</b>	<b>100.0%</b>	<b>32.4%</b>	<b>32.8%</b>	<b>7.2%</b>	<b>5.5%</b>	<b>1.2%</b>	<b>4.1%</b>	<b>6.0%</b>	<b>4.1%</b>	<b>1.1%</b>	<b>0.0%</b>	<b>0.5%</b>	<b>5.5%</b>

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 requirement for July 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.

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

**Capacity:** Allocated based on average daily flow.

**Customer:** Allocated based on the number of bills.

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

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

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

*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	Units	Flow - Retail	Flow - Retail + Cat. / Whsl	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial WW Pgm	Customer
		kgal	kgal	kgal	kgal/day	lbs	lbs	lbs	lbs	lbs	lbs	ind. bills	bills
<b>Retail:</b>													
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
<b>Wholesale:</b>													
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
<b>Total</b>		<b>70,257,074</b>	<b>70,636,923</b>	<b>73,559,236</b>	<b>193,526</b>	<b>77,103,821</b>	<b>74,383,126</b>	<b>190,351,460</b>	<b>182,092,703</b>	<b>11,040,642</b>	<b>10,566,468</b>	<b>3,229</b>	<b>5,203,703</b>

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) (2)

Description	Flow - Retail	Flow - Retail + Cat. / Whsl	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial WW Pgm	Customer
	kgal	kgal	kgal	kgal/day	lbs	lbs	lbs	lbs	lbs	lbs	ind. bills	bills
Allocated Revenue Requirements (1)	\$208.3	\$205.7	\$44.9	\$34.4	\$7.5	\$25.8	\$37.8	\$25.8	\$7.0	\$0.0	\$3.4	\$34.3
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
<b>Unit Cost</b>	<b>\$2.89</b>	<b>\$2.91</b>	<b>\$0.61</b>	<b>\$177.53</b>	<b>\$0.10</b>	<b>\$0.35</b>	<b>\$0.20</b>	<b>\$0.14</b>	<b>\$0.63</b>	<b>\$0.00</b>	<b>\$1,040.44</b>	<b>\$6.58</b>

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 2018 Revenue Requirement Allocation by Customer Type (%)

Customer Type	Flow - Retail	Flow - Retail Cap. M/MSI	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial WW Fgm.	Customer
<b>Retail:</b>												
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%
<b>Wholesale:</b>												
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%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

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 * Gas. V/Whol.	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial WW Fgm.	Customer
<b>Retail:</b>													
Single Family Residential	\$213.4	\$64.5	\$65.1	\$13.6	\$10.9	\$1.8	\$6.3	\$11.0	\$7.8	\$2.0	\$0.0	\$0.0	\$30.3
Multifamily Residential	210.6	72.8	73.3	15.4	12.2	2.2	7.8	13.7	9.7	2.5	0.0	0.0	1.0
Commercial / Industrial (2)	170.6	59.5	59.9	12.6	10.0	1.6	5.6	9.8	7.0	1.8	0.0	0.0	2.8
Industrial with Surcharges	28.5	6.2	6.2	1.3	1.0	1.6	5.8	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
<b>Wholesale:</b>													
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	0.9	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
<b>Total</b>	<b>\$629.7</b>	<b>\$203.3</b>	<b>\$205.7</b>	<b>\$44.9</b>	<b>\$34.4</b>	<b>\$7.5</b>	<b>\$25.8</b>	<b>\$37.8</b>	<b>\$25.8</b>	<b>\$7.0</b>	<b>\$0.0</b>	<b>\$3.4</b>	<b>\$34.3</b>

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 FYE 2022 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 (FYE 2022)

Meter Size	MEU Multiplier <sup>(1)</sup>	Customer (Billing & Collecting)	Capacity (Meter Charges) <sup>(2)</sup>	Fire Protection <sup>(3)</sup>	Cost-of-Service Monthly Meter Charge <sup>(4)</sup>
<i>Unit Cost per MEU per bill<sup>(2)</sup></i>		\$2.619	\$2.100	\$1.397	
5/8"	1.0	\$2.619	\$2.100	\$1.397	\$6.12
3/4"	1.0	2.619	2.100	1.397	6.12
1"	1.7	2.619	3.569	2.374	8.57
1½"	2.7	2.619	5.669	3.771	12.06
2"	3.3	2.619	6.929	4.609	14.16
3"	8.3	2.619	17.427	11.592	31.64
4"	16.7	2.619	35.063	23.323	61.01
6"	40.0	2.619	83.983	55.863	142.47
8"	50.0	2.619	104.979	69.829	177.43
10"	66.7	2.619	140.042	93.152	235.82
12"	93.3	2.619	195.891	130.301	328.82

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 July 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 July 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 <sup>(1)</sup>

Meter Size	Existing				Proposed						
	SFR <sup>(2)</sup>	MFR <sup>(3)</sup>	Com/Ind	Irrigation	EBS <sup>(4)</sup>	FYE 2021	April 2022	April 2023	April 2024	April 2025	FYE 2026
Month of Adjustment											
Charges											
5/8"	\$5.82	\$6.05	\$6.05	\$30.10	\$8.68	\$6.25	+\$0.32	+\$0.25	+\$0.14	+\$0.11	+\$0.03
3/4"	5.82	6.24	6.24	30.10	8.68	6.25	+0.32	+0.25	+0.14	+0.11	+0.03
1"	7.21	7.50	7.50	33.74	12.34	8.80	+0.41	+0.39	+0.24	+0.21	+0.11
1½"	10.92	11.35	11.35	89.57	18.20	12.43	+0.54	+0.60	+0.39	+0.36	+0.20
2"	12.86	13.36	13.36	138.44	24.22	14.61	+0.62	+0.73	+0.47	+0.45	+0.26
3"	12.86	35.35	35.35	300.56	50.73	32.76	+1.29	+1.77	+1.18	+1.20	+0.77
4"	---	48.19	48.19	508.83	80.53	63.27	+2.40	+3.52	+2.38	+2.46	+1.62
6"	---	82.59	82.59	1,047.84	155.57	147.88	+5.50	+8.36	+5.71	+5.95	+3.97
8"	---	215.64	215.64	1,515.30	230.44	184.20	+6.83	+10.44	+7.13	+7.45	+4.98
10"	---	215.64	215.64	1,515.30	238.54	244.84	+9.05	+13.91	+9.52	+9.95	+6.67
12"	---	215.64	215.64	1,515.30	238.54	341.44	+12.59	+19.44	+13.31	+13.94	+9.35

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 July 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
	<i>Month of Adjustment</i>	<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
	<i>Charges</i>		<i>Future Adjustments</i>				
<b>Transient:</b>							
1-inch	\$20.17	\$95.00	+\$11.96	+\$10.33	+\$10.30	+\$10.28	+\$10.27
2-inch	26.90	185.00	+20.00	+20.00	+20.00	+20.00	+20.00
3-inch	33.62	460.00	+51.36	+50.24	+50.31	+50.37	+50.40
<b>Resale:</b>							
5/8-inch and 3/4-inch	\$22.83	\$24.05	+\$0.20	+\$0.10	+\$0.06	+\$0.02	+\$0.00
1-inch	26.47	39.00	+0.27	+0.13	+0.10	+0.07	+0.04
1½-inch	65.31	60.40	+0.31	+0.20	+0.16	+0.12	+0.11
2-inch	99.60	73.25	+0.33	+0.23	+0.20	+0.16	+0.15
3-inch	215.61	180.00	+0.83	+0.52	+0.49	+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	+2.91	+3.00	+3.08	+3.13

Meter Size	Existing	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Adjustment		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		Charges		Future Adjustments			
<b>Metered Fire</b>							
5/8-inch	\$6.05	\$4.70	+\$0.23	+\$0.12	+\$0.07	+\$0.03	+\$0.01
3/4-inch	6.24	4.70	+0.23	+0.12	+0.07	+0.03	+0.01
1-inch	7.50	6.15	+0.27	+0.17	+0.13	+0.08	+0.07
1 1/2-inch	11.35	8.20	+0.35	+0.24	+0.20	+0.17	+0.14
2-inch	13.36	9.45	+0.38	+0.29	+0.24	+0.21	+0.19
3-inch	35.35	20.00	+0.48	+0.66	+0.62	+0.58	+0.58
4-inch	48.19	37.00	+1.37	+1.28	+1.25	+1.23	+1.21
6-inch	82.59	85.00	+3.00	+3.00	+3.00	+3.00	+3.00
8-inch	215.64	105.00	+4.30	+3.74	+3.75	+3.76	+3.77
10-inch	215.64	140.00	+4.87	+4.98	+5.00	+5.03	+5.05
<b>Unmetered Fire <sup>(1)</sup>:</b>							
5/8- and 3/4-inch	\$15.83	\$6.70	+\$0.21	+\$0.09	+\$0.05	+\$0.00	+\$0.00
1-inch	15.83	9.55	+0.23	+0.12	+0.09	+0.04	+0.02
1 1/2-inch	63.05	13.60	+0.29	+0.17	+0.13	+0.10	+0.07
2-inch	93.00	16.05	+0.30	+0.20	+0.16	+0.13	+0.10
3-inch	93.00	36.00	+0.87	+0.45	+0.41	+0.38	+0.37
4-inch	93.00	70.00	+1.35	+0.86	+0.84	+0.81	+0.79
6-inch	103.59	165.00	+2.00	+2.00	+2.00	+2.00	+2.00
8-inch	176.82	205.00	+3.05	+2.49	+2.50	+2.51	+2.52
10-inch	238.53	275.00	+1.60	+3.31	+3.34	+3.36	+3.38
12-inch	238.53	380.00	+5.79	+4.61	+4.67	+4.73	+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 July 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	July 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	July 2021
Single Family Residential Revenue Requirement (a)	\$179,751,417
Less Projected Monthly Meter Charge Revenue (b)	(33,827,185)
Less Projected TCEQ Fee Revenue (c)	<u>(1,033,315)</u>
Net Single Family Residential Revenue Requirement (d = a - b - c)	\$144,890,918
Projected Single Family Residential Usage (kgal) (e)	23,340,203
<b>Cost-of-Service Uniform Rate (\$/kgal) (d / e)</b>	<b>\$6.21</b>

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 July 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

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

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 July 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	July 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	+\$0.25	+\$0.14	+\$0.11
1,000 gallons	5.98	7.46	+0.52	+0.40	+0.29	+0.26
2,000 gallons	13.63	8.46	+0.72	+0.55	+0.44	+0.41
3,000 gallons	14.08	9.46	+0.92	+0.70	+0.59	+0.56
4,000 gallons	26.64	28.46	+2.72	+2.25	+1.94	+2.11
5,000 gallons	31.93	33.96	+3.32	+2.75	+2.39	+2.61
6,000 gallons	37.22	39.46	+3.92	+3.25	+2.84	+3.11

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.

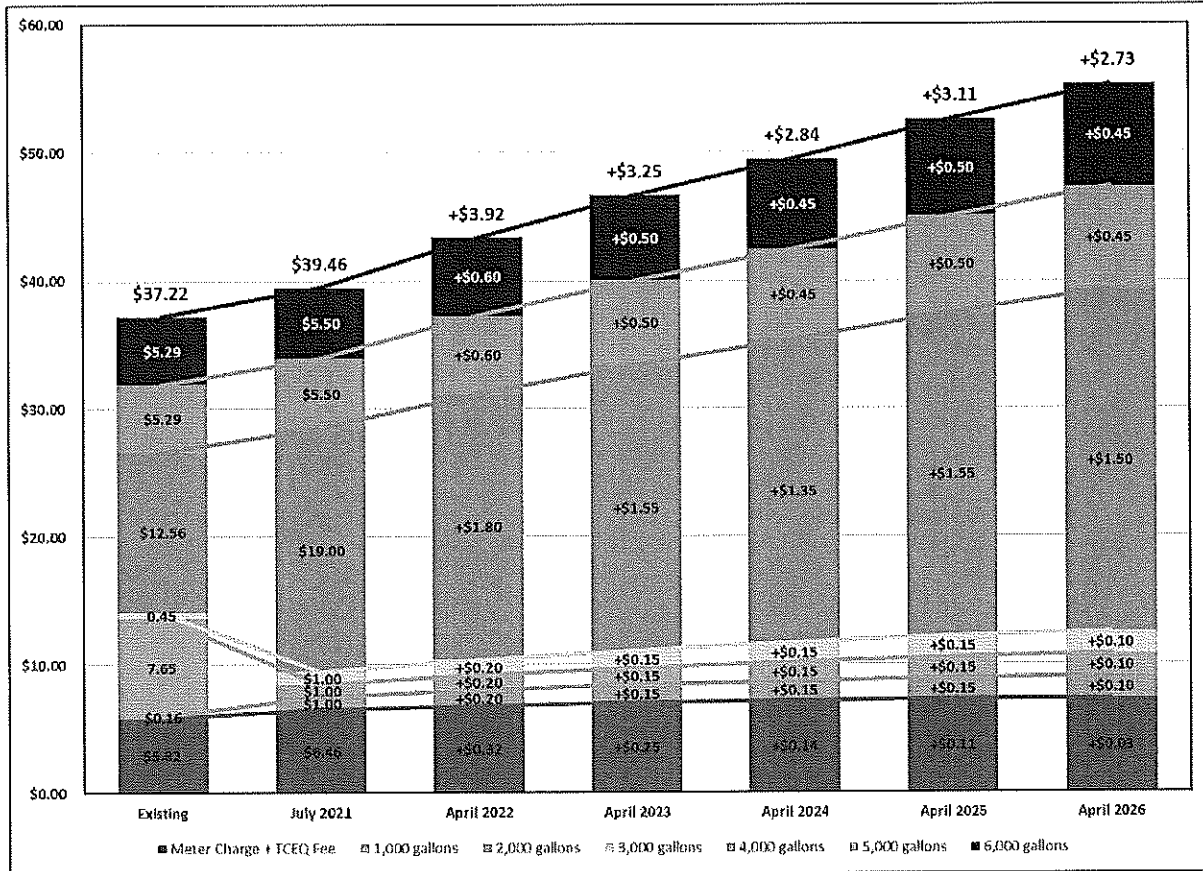


Figure 3.1 Existing and Proposed Single Family Residential Water Rates and Bills

*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
<i>Month of Adjustment</i>	<i>July 2021</i>
Multifamily Residential Revenue Requirement (a)	\$153,467,832
Less Projected Monthly Meter Charge Revenue (b)	(2,191,926)
Less Projected TCEQ Fee Revenue (c)	(1,446,400)
Net Multifamily Residential Revenue Requirement (d = a - b - c)	\$149,829,506
Projected Multifamily Residential Usage (kgal) (e)	25,815,307
Cost-of-Service Uniform Rate (\$/kgal) (d / e)	\$5.81

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 July 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
<i>Month of Adjustment</i>		<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>	
		<i>Rates</i>		<i>Future Adjustments</i>				
Multifamily Residential	All Usage	\$4.65	\$5.45	+\$0.49	+\$0.45	+\$0.40	+\$0.47	+\$0.38
Commercial/Industrial	All Usage	4.77	5.55	+0.60	+0.55	+0.50	+0.57	+0.47
Irrigation <sup>(1)</sup>	Block 1	3.50	---	---	---	---	---	---
	Block 2	8.06	---	---	---	---	---	---
	All Usage	---	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Transient	All Usage	5.35	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Resale	All Usage	5.73	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Emergency Backup	All Usage	8.85	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Metered Fire	All Usage	4.77	10.00	+0.45	+0.42	+0.35	+0.44	+0.34

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 July 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		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026	
		Rates		Future Adjustments				
Contract w/Airgap	Minimum	\$3.31	\$3.35	+\$0.35	+\$0.05	+\$0.10	+\$0.15	+\$0.10
	Excess	0.82	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
Contract w/o Airgap	Minimum	4.04	4.05	+0.15	+0.05	+0.05	+0.15	+0.15
	Excess	0.82	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
GRP Areas 1 & 2	All Usage	3.23	2.68	+0.28	+0.04	+0.08	+0.12	+0.08
GRP Area 3	All Usage	1.21	1.01	+0.11	+1.14	+0.06	+0.09	+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 FYE 2022 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 (FYE 2022)

Meter Size	MEU Multiplier <sup>(1)</sup>	Customer	Capacity <sup>(3)</sup>	Cost-of-Service Monthly Meter Charge <sup>(4)</sup>
<i>Unit Cost per MEU per bill<sup>(2)</sup></i>		\$6.512	\$4.451	
5/8"	1.0	\$6.512	\$4.451	\$10.97
3/4"	1.0	6.512	4.451	10.97
1"	1.7	6.512	7.566	14.08
1½"	2.7	6.512	12.017	18.53
2"	3.3	6.512	14.687	21.20
3"	8.3	6.512	36.941	43.46
4"	16.7	6.512	74.327	80.84
6"	40.0	6.512	178.029	184.55
8"	50.0	6.512	222.536	229.05
10"	66.7	6.512	296.863	303.38
12"	93.3	6.512	415.252	421.77
16"	229.2	6.512	1,020.104	1,026.62

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 July 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 July 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	April 2022	April 2023	FYE 2023	April 2024	FYE 2024	April 2025	FYE 2025	April 2026
Charges												
			Month of Adjustment	July 2021	April 2022	April 2023	April 2023	April 2024	April 2024	April 2025	April 2025	April 2026
Future Adjustments												
5/8"	\$12.37	\$10.64	\$17.98	\$10.00	+\$1.50	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.75	+\$0.75	+\$0.62
3/4"	12.37	10.64	17.98	10.00	+1.50	+1.50	+1.50	+0.75	+0.75	+0.75	+0.75	+0.62
1"	13.00	11.17	17.98	12.45	+1.79	+2.57	+2.57	+1.24	+1.24	+1.13	+1.13	+0.93
1 1/2"	15.06	12.96	17.98	15.93	+2.23	+4.08	+4.08	+1.95	+1.95	+1.66	+1.66	+1.40
2"	15.69	13.49	17.98	18.03	+2.47	+5.00	+5.00	+2.38	+2.38	+1.97	+1.97	+1.69
3"	28.11	24.17	23.95	35.46	+4.60	+12.60	+12.60	+5.92	+5.92	+4.63	+4.63	+4.03
4"	---	27.37	27.37	64.76	+8.16	+25.37	+25.37	+11.87	+11.87	+9.09	+9.09	+7.97
6"	---	39.12	39.12	146.02	+18.05	+60.80	+60.80	+28.36	+28.36	+21.47	+21.47	+18.89
8"	---	95.00	95.00	180.90	+22.29	+76.01	+76.01	+35.43	+35.43	+26.79	+26.79	+23.58
10"	---	115.47	115.47	239.14	+29.38	+101.40	+101.40	+47.26	+47.26	+35.66	+35.66	+31.40
12"	---	115.47	115.47	331.92	+40.65	+141.85	+141.85	+66.09	+66.09	+49.79	+49.79	+43.87
16"	---	115.47	115.47	805.89	+98.31	+348.49	+348.49	+162.30	+162.30	+122.00	+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 July 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 July 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		July 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<b>Industrial with Surcharge:</b>							
Industrial Program	---	\$100.00	+\$200.00	+\$300.00	+\$200.00	+\$200.00	+\$200.00
<b>Sewer Only:</b>							
Single Family Res.	\$30.51	\$36.00	+\$7.00	+\$5.00	+\$4.00	+\$4.00	+\$4.00
Duplex	64.71	72.00	+14.00	+10.00	+8.00	+8.00	+8.00
Multifamily Res.	37.85	36.00	+7.00	+5.00	+4.00	+4.00	+4.00
Commercial	71.41	72.00	+14.00	+10.00	+8.00	+8.00	+8.00
Industrial	71.39	72.00	+14.00	+10.00	+8.00	+8.00	+8.00

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
	July 2021
Single Family Residential Revenue Requirement (a)	\$212,759,418
Less Projected Monthly Meter Charge Revenue (b)	(50,522,620)
Net Single Family Residential Revenue Requirement (c = a – b)	\$162,236,798
Projected Single Family Residential Usage (kgal) (d)	22,344,168
<b>Cost-of-Service Uniform Rate (\$/kgal) (c / d)</b>	<b>\$7.27</b>

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 July 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	July 2021	April 2022	April 2023	April 2024	April 2025	April 2026	April 2026
	Rates			Future Adjustments			
First 1 kgal	\$0.20	\$4.00	+\$1.10	+\$0.30	+\$0.60	+\$0.55	+\$0.45
Next 1 kgal	0.41						
Next 1 kgal	0.33	10.50	+1.60	+0.15	+0.25	+0.50	+0.35
Next 1 kgal	17.20						
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 July 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	July 2021	April 2022	April 2022	April 2023	April 2024	April 2025	April 2026
	Bills		Incremental Bill Amounts				
Meter Charge only	\$12.37	\$10.00	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.62
1,000 gallons	12.57	14.00	+2.60	+1.80	+1.35	+1.30	+1.07
2,000 gallons	12.98	18.00	+3.70	+2.10	+1.95	+1.85	+1.52
3,000 gallons	13.31	22.00	+4.80	+2.40	+2.55	+2.40	+1.97
4,000 gallons	30.51	32.50	+6.40	+2.55	+2.80	+2.90	+2.32
5,000 gallons	36.73	43.00	+8.00	+2.70	+3.05	+3.40	+2.67
6,000 gallons	45.78	53.50	+9.60	+2.85	+3.30	+3.90	+3.02

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.

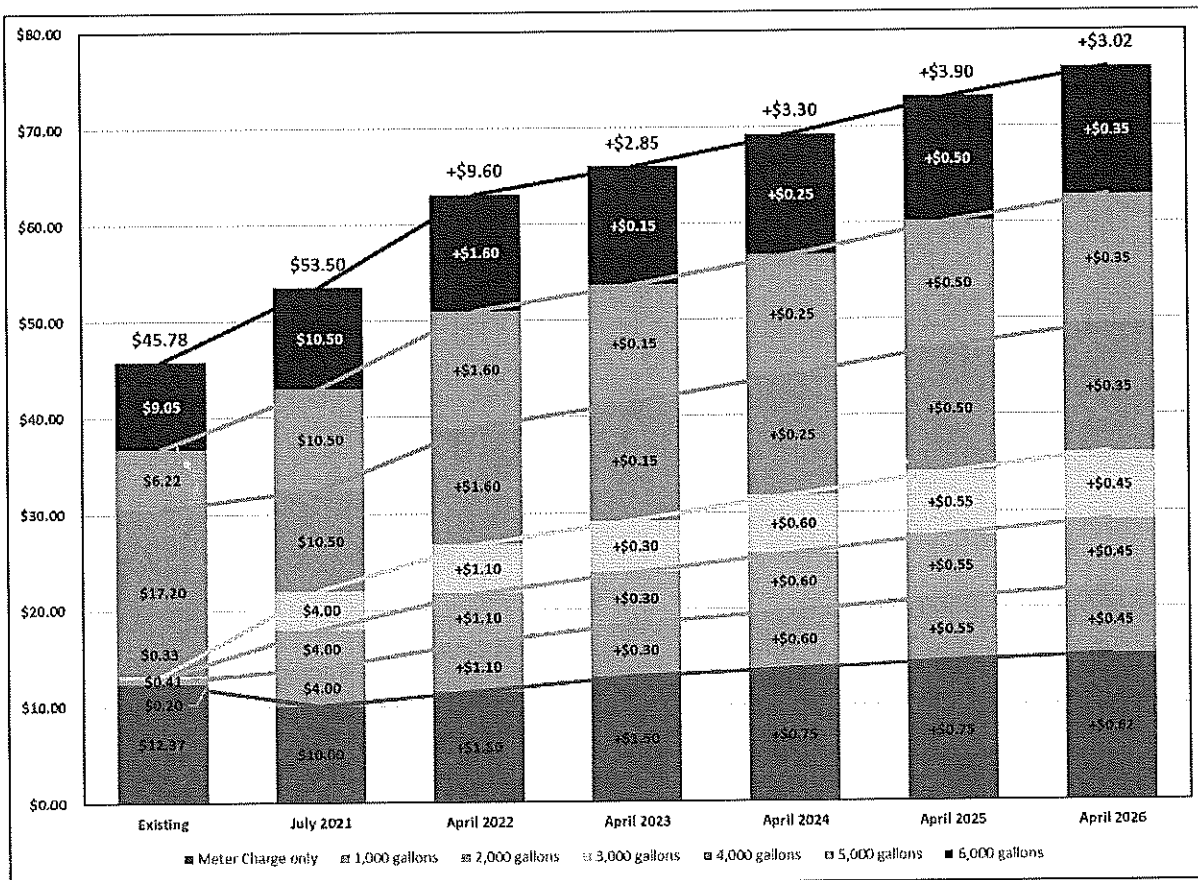


Figure 3.2 Existing and Proposed Single Family Residential Wastewater Rates and Bills

*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
<i>Month of Adjustment</i>	<i>July 2021</i>
Multifamily Residential Revenue Requirement (a)	\$210,196,871
Less Projected Monthly Meter Charge Revenue (b)	(13,662,756)
Net Multifamily Residential Revenue Requirement (d = a – b – c)	\$196,534,115
Projected Multifamily Residential Usage (kgal) (e)	25,155,956
<b>Cost-of-Service Uniform Rate (\$/kgal) (d / e)</b>	<b>\$7.82</b>

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 July 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
			<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
		<i>Rates</i>			<i>Future Adjustments</i>			
Multifamily Residential	All Flow	\$6.76	\$7.40	+\$1.40	+\$0.22	+\$0.46	+\$0.52	+\$0.40
Commercial	All Flow	6.76	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial (no surcharge)	First 2 kgal	4.16	---	---	---	---	---	---
	Over 2 kgal	7.40	---	---	---	---	---	---
	All Usage	---	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial with Surcharge	All Flow	4.90	8.00	+1.26	+0.02	+0.15	+0.28	+0.14
	BOD <sup>(1)</sup>	0.8440	0.4441	+0.0842	+0.0382	+0.0394	+0.0387	+0.0309
	TSS <sup>(1)</sup>	0.3331	0.3395	+0.0603	+0.0151	+0.0171	+0.0211	+0.0161
	Ammonia <sup>(1)</sup>	---	0.6290	+0.1033	(0.0019)	+0.0040	+0.0210	+0.0137

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 July 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	
			<i>Month of Adjustment</i>	<i>July 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
			<i>Rates</i>			<i>Future Adjustments</i>			
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	+0.23	+0.01	+0.01	+0.02	+0.03	
No Capital w/Collection System	All Flow	6.25	6.25	+0.23	+0.36	+0.38	+0.41	+0.31	
Connection-based	All Connections	8.86/ 24.71	25.00	+2.01	+1.54	+1.64	+1.77	+1.40	



### 3.3.3 Customer Bill Impacts

Figure 3.3 illustrates the impact of the recommended July 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.

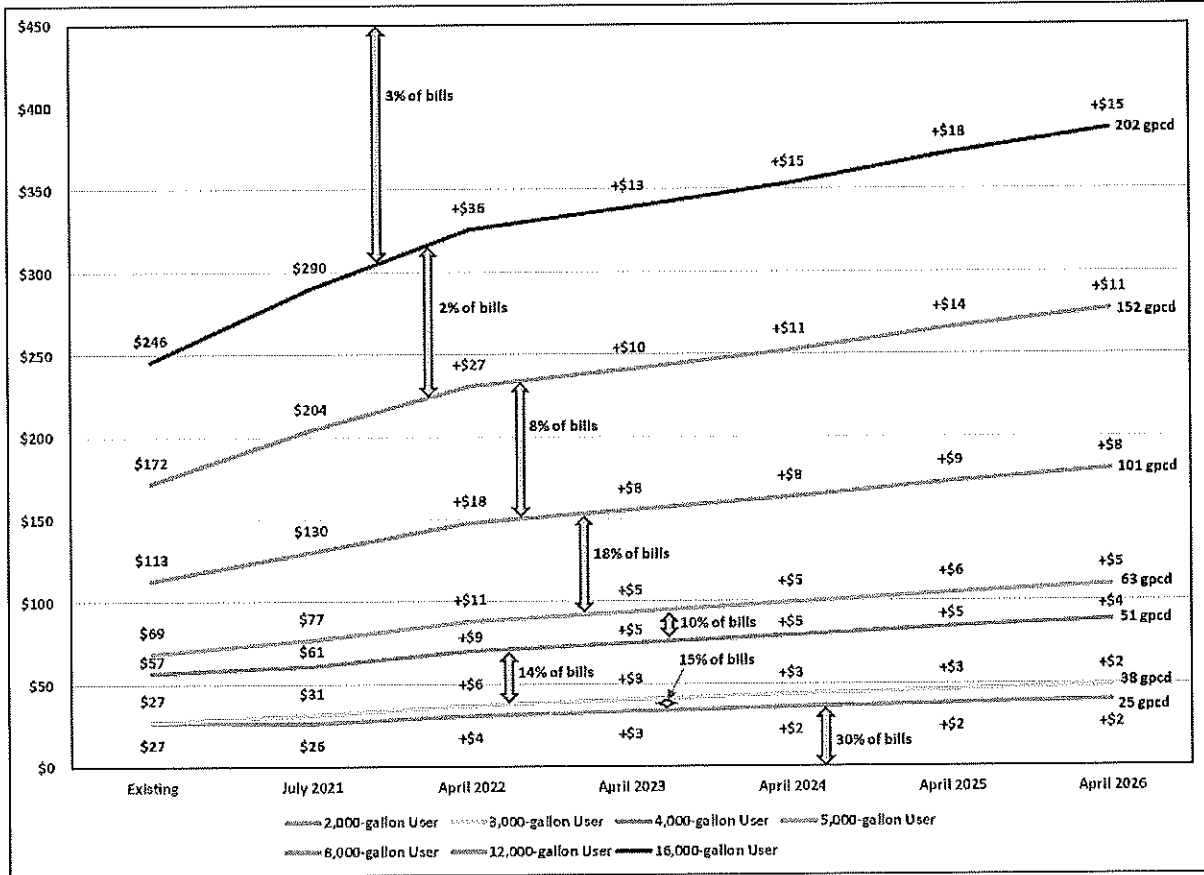


Figure 3.3 Single Family Residential Monthly Combined Bill Impact

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.

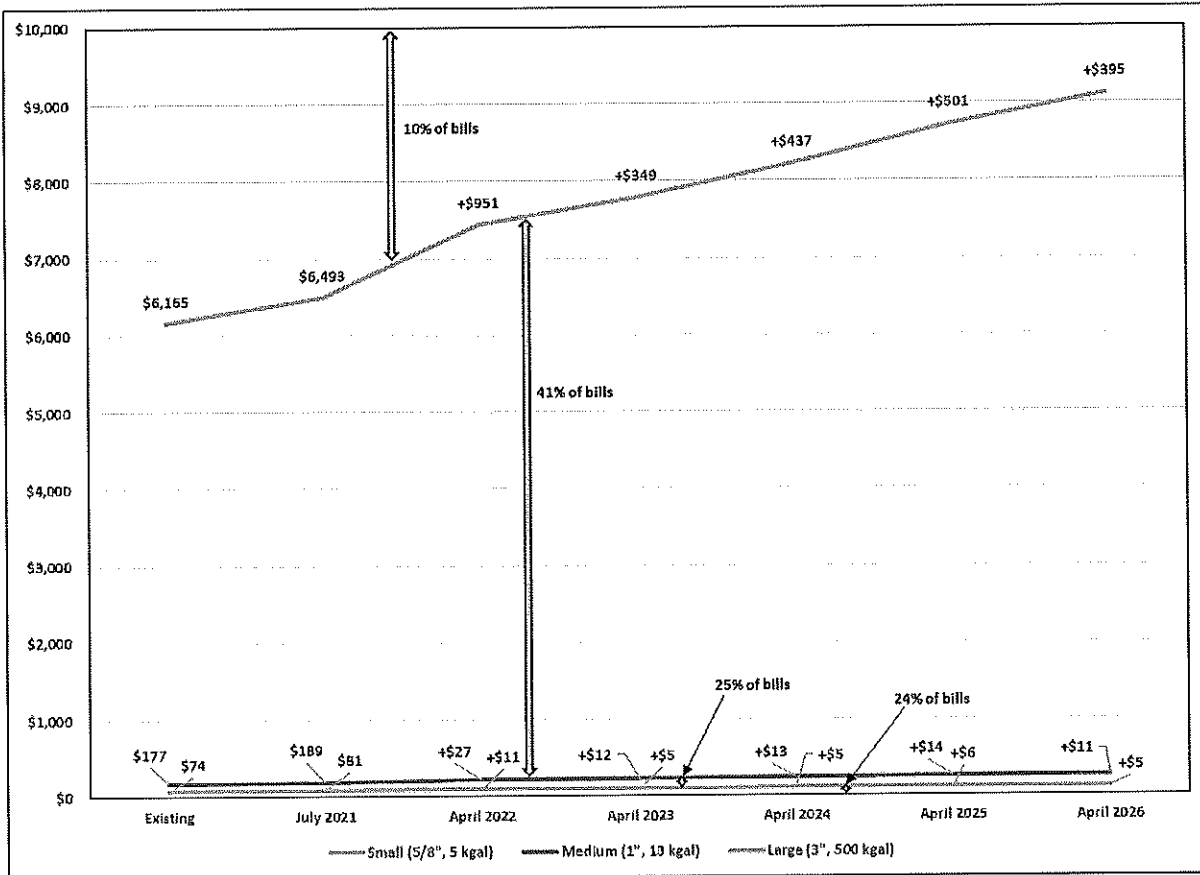


Figure 3.4 Multifamily Residential Monthly Combined Bill Impact

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.

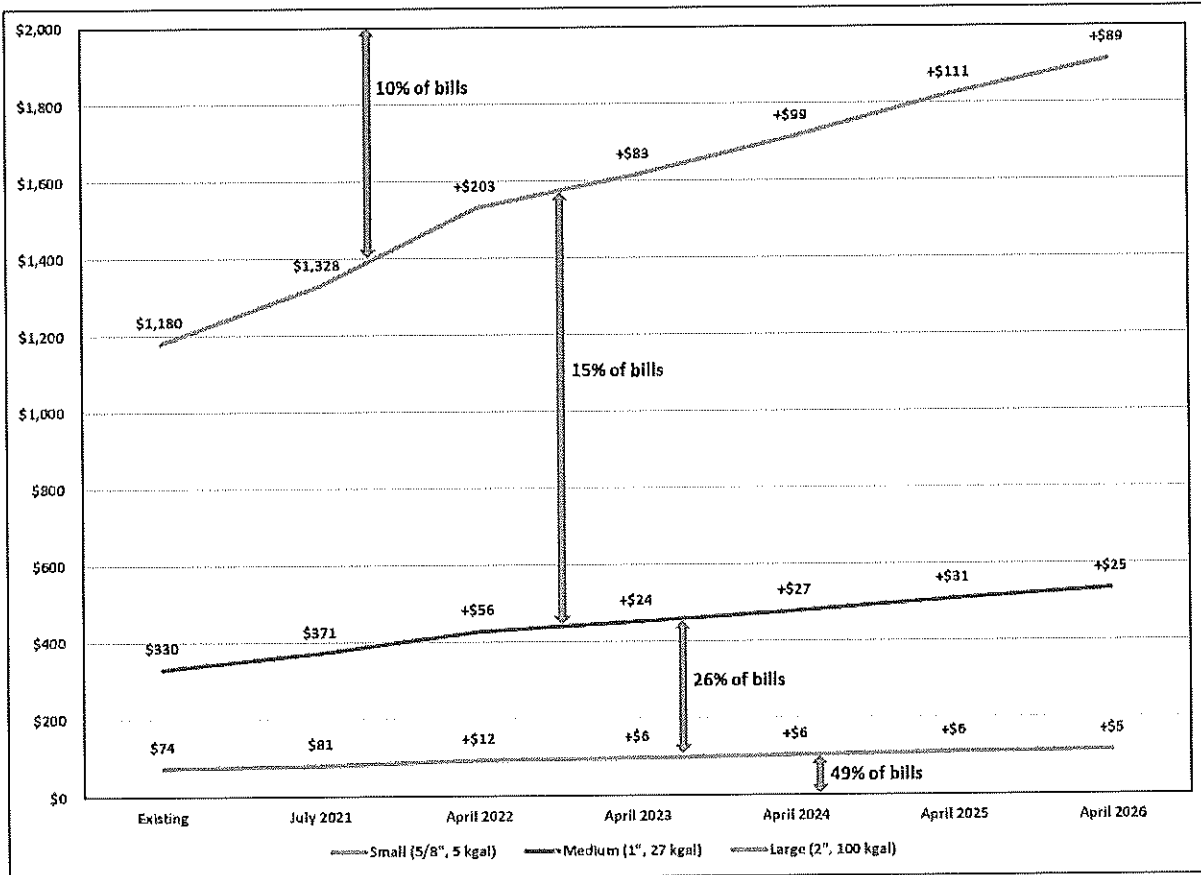


Figure 3.5 Commercial/Industrial Monthly Combined Bill Impact

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

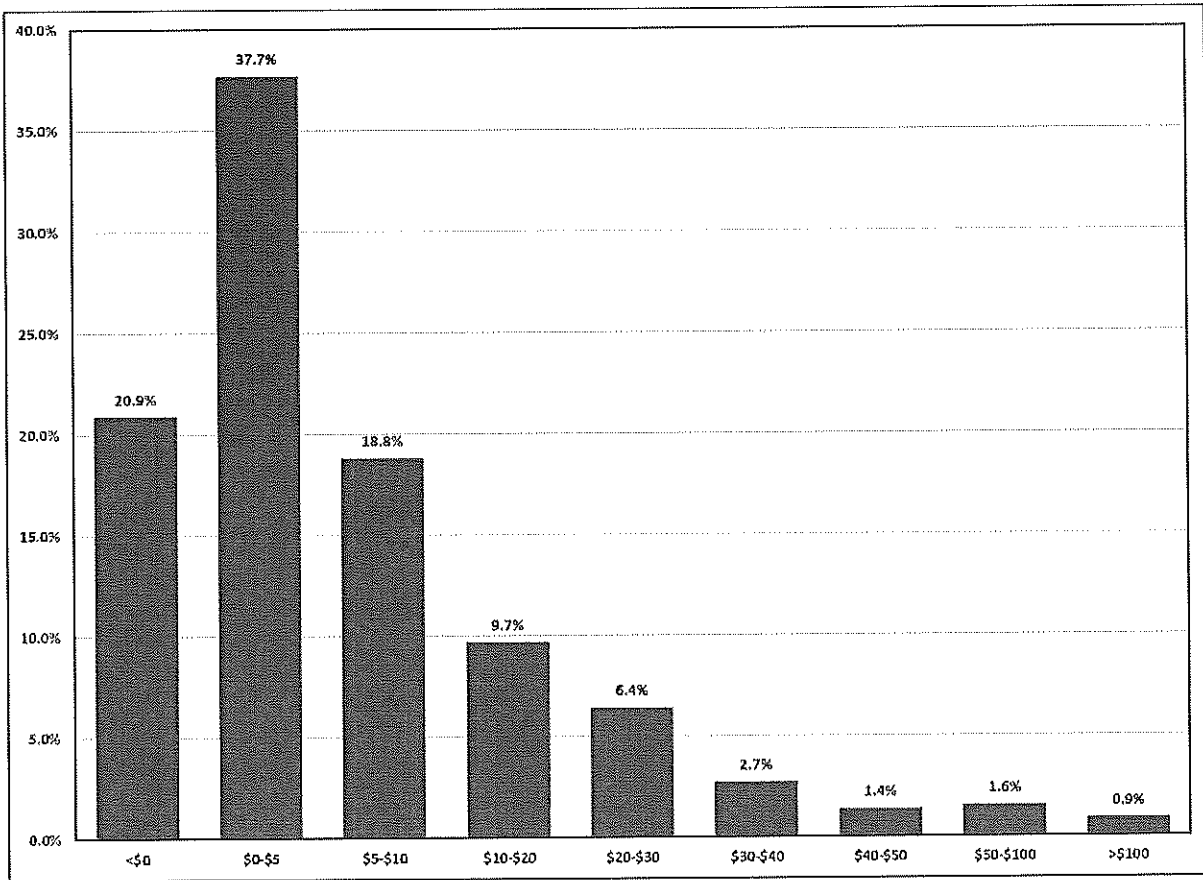


Figure 3.6 Distribution of July 2021 Monthly Combined Bill Impacts for Single Family Residential Customers

## 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 July 1, 2021, by 7.5 percent on April 1, 2022, and April 1, 2023, and by 6.0 percent on April 1, 2024, April 1, 2025, and April 1, 2026.
- Wastewater user charge revenue increases by 20.0 percent on July 1, 2021, by 18.5 percent on April 1, 2022, and by 6.0 percent on April 1, 2023, April 1, 2024, and April 1, 2025, and by 4.5 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.

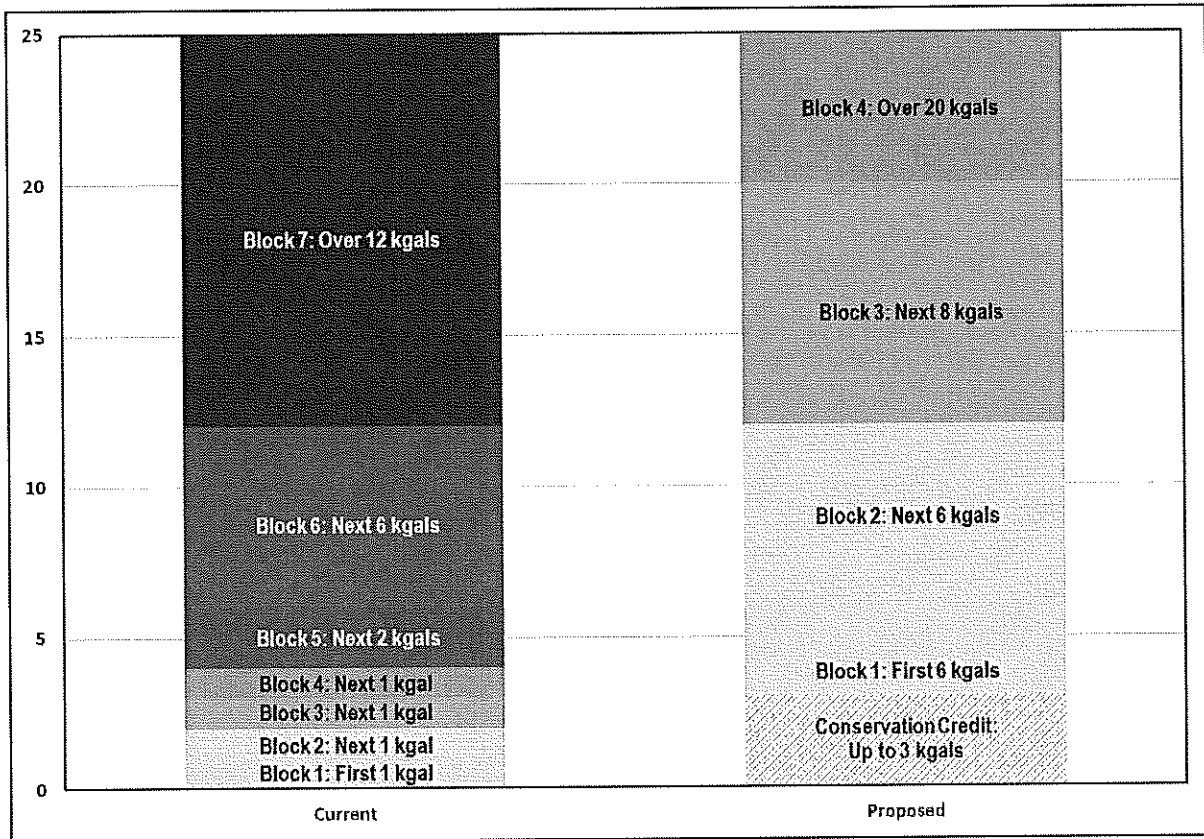


Figure 4.1 Existing and Proposed Single Family Residential Volume Water Rate Structures

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.

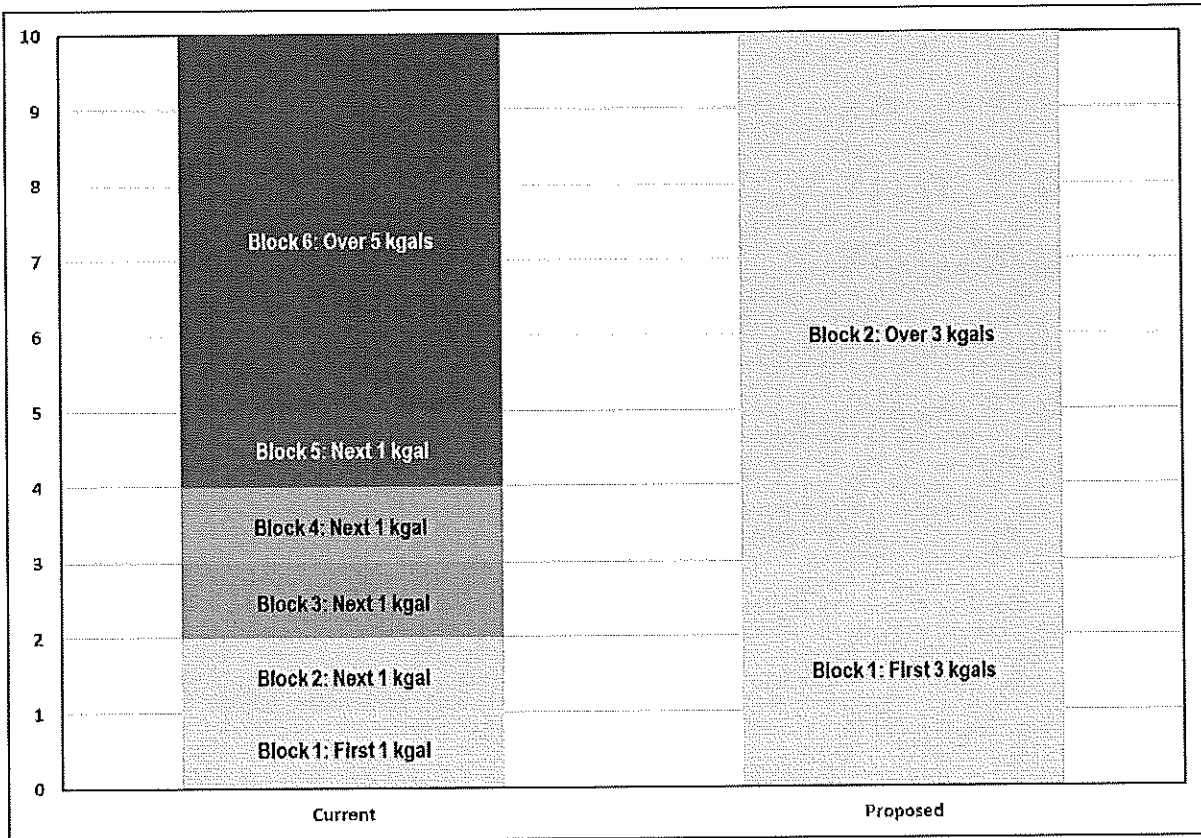


Figure 4.2 Existing and Proposed Single Family Residential Volume Wastewater Rate Structures

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

Current Budget Forecasted

Line No.	Cost Center	5-Year Average	Forecasted					FYE 2026
			FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	
38	456235 Lock Device Damage	\$ 51	\$ 50	\$ 51	\$ 51	\$ 51	\$ 51	
39	456240 Submeter Application	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
40	456245 Evap Cr. Process Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
41	456250 Sewage Disposal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
42	456255 Misc Operating Revenue	\$ -	\$ 2,510	\$ -	\$ -	\$ -	\$ -	
43	456260 Oper Recov & Refunds	\$ 2,547	\$ 25,096	\$ 2,547	\$ 2,547	\$ 2,547	\$ 2,547	
44	456265 MSD Application Fee	\$ 25,472	\$ -	\$ 25,472	\$ 25,472	\$ 25,472	\$ 25,472	
45	<b>Other Water Operating Revenue (Non rate) Subtotal</b>	<b>\$ 3,245,463</b>	<b>\$ 3,197,501</b>	<b>\$ 3,245,463</b>	<b>\$ 3,245,463</b>	<b>\$ 3,245,463</b>	<b>\$ 3,245,463</b>	
46	Impact Fee Revenue	\$ 26,000,495	\$ -	\$ 20,608,310	\$ 21,406,537	\$ 26,682,879	\$ 27,716,430	
47	Water Allocation	\$ -	\$ 9,935,341	\$ -	\$ -	\$ -	\$ 33,588,319	
48	<b>Other Non Operating Water Revenue (Non rate)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	
49	421280 Other Licenses & Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
50	421630 Admin Fee-Lic/Prmts	\$ 254,721	\$ 250,957	\$ 254,721	\$ 254,721	\$ 254,721	\$ 254,721	
51	421530 Special Event Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
52	434205 Sale Of Scrap Metal	\$ 38,208	\$ 37,643	\$ 38,208	\$ 38,208	\$ 38,208	\$ 38,208	
53	434225 Sale of Non-Capital Equipment and M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
54	434235 Sale of Other Assets	\$ 25,472	\$ 25,096	\$ 25,472	\$ 25,472	\$ 25,472	\$ 25,472	
55	434240 Sale of Land/Street	\$ 1,018,884	\$ 1,003,826	\$ 1,018,884	\$ 1,018,884	\$ 1,018,884	\$ 1,018,884	
56	434245 Sale Cap-Vehicles	\$ 101,888	\$ 100,383	\$ 101,888	\$ 101,888	\$ 101,888	\$ 101,888	
57	424110 Other Interfund Services	\$ 295,680	\$ 291,310	\$ 295,680	\$ 295,680	\$ 295,680	\$ 295,680	
58	424120 Intfd Vehicle Fuel	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
59	424170 Intfd Vehicle Repair	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
60	424510 Prior Yr Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
61	426090 Demolition Fees	\$ 51	\$ 50	\$ 51	\$ 51	\$ 51	\$ 51	
62	426320 City Map & Related Items	\$ 50,944	\$ 50,181	\$ 50,944	\$ 50,944	\$ 50,944	\$ 50,944	
63	426370 Training Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
64	426420 Bldg Space Rental Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
65	426430 Facility Rental Fees	\$ -	\$ 1,180,098	\$ -	\$ -	\$ -	\$ -	
66	428030 Release Of Liens	\$ 611	\$ 602	\$ 611	\$ 611	\$ 611	\$ 611	
67	428060 Other Interest Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
68	428080 Returned Check Charges	\$ 509	\$ 502	\$ 509	\$ 509	\$ 509	\$ 509	
69	428090 Misc Fines & Forfeit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
70	429095 Medicare Part D Distribution	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
71	434305 Jugments & Claims	\$ 509	\$ 502	\$ 509	\$ 509	\$ 509	\$ 509	
72	434335 Recoveries Damage Infrastructure	\$ 7,642	\$ 7,529	\$ 7,642	\$ 7,642	\$ 7,642	\$ 7,642	
73	434340 Cashier Overage	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
74	434345 Adjustments to Allowances	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
75	434505 Prior Yr Exp Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
76	434510 Prior Year Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
77	445050 Cell Tower Revenue	\$ 15,793	\$ 15,559	\$ 15,793	\$ 15,793	\$ 15,793	\$ 15,793	



Houston Combined Utility System  
**Water Operations & Maintenance**

Line No.	Cost Center	Forecasted	Current Budget					FYE-2026
			FYE-2021	FYE-2022	FYE-2023	FYE-2024	FYE-2025	
			5-Year Average					
			101,888	101,888	101,888	101,888	101,888	
78	452020 Recoveries & Refunds	No Inflation	\$ 100,383	\$ 101,888	\$ 101,888	\$ 101,888	\$ 101,888	
79	452030 Miscellaneous Revenues	No Inflation	\$ 60,230	\$ 61,133	\$ 61,133	\$ 61,133	\$ 61,133	
80	456105 Oil and Gas Well Permits	No Inflation	\$ 2,547	\$ 2,547	\$ 2,547	\$ 2,547	\$ 2,547	
81	456120 Development Permits	No Inflation	\$ 200,765	\$ 203,777	\$ 203,777	\$ 203,777	\$ 203,777	
82	456185 Contract Revenues from Water Authority	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	\$ 3,081,596	\$ 3,127,820	\$ 3,127,820	\$ 3,127,820	\$ 3,127,820	
89	<b>Other Non Operating Water Revenue (Non rate)</b>		<b>\$ 6,434,877</b>	<b>\$ 6,531,350</b>	<b>\$ 6,531,350</b>	<b>\$ 6,531,350</b>	<b>\$ 6,531,350</b>	
90	Interest							
91	432010 Interest on Investment		\$ 5,665,595	\$ 5,179,208	\$ 4,561,471	\$ 4,031,557	\$ 3,659,802	
92	<b>Interest Subtotal</b>		<b>\$ 5,665,595</b>	<b>\$ 5,179,208</b>	<b>\$ 4,561,471</b>	<b>\$ 4,031,557</b>	<b>\$ 3,659,802</b>	
93	<b>TOTAL WATER REVENUE</b>		<b>\$ 798,152,502</b>	<b>\$ 648,850,561</b>	<b>\$ 754,362,961</b>	<b>\$ 813,005,750</b>	<b>\$ 860,018,417</b>	



Houston Combined Utility System  
Water Operations & Maintenance

Current Budget Forecasted

Line No.	Cost Center	5-Year Average					Forecasted				
		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026				

EXPENSES Drinking Water Operations

		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
40011 DWO Executive Support G&A							
40011 Personnel	No Inflation	1,578,992	1,602,677	1,602,677	1,602,677	1,602,677	1,602,677
40011 Supplies	No Inflation	23,244	23,244	23,244	23,244	23,244	23,244
40011 Other Services and Charges	No Inflation	1,062,502	1,062,502	1,062,502	1,062,502	1,062,502	1,062,502
DWO Water Maintenance	No Inflation	10,925,000	11,088,875	11,088,875	11,088,875	11,088,875	11,088,875
40011 Salary Recovery	No Inflation	-	-	-	-	-	-
40011 Pension DS	No Inflation	2,829,817	2,849,069	2,868,126	2,888,732	2,910,436	2,931,269
40011 Non-Capital Equipment	No Inflation	1,500	1,523	1,523	1,523	1,523	1,523
40011 Capital Equipment	No Inflation	-	-	-	-	-	-
40011 Subtotal		16,405,009	16,627,889	16,646,946	16,657,552	16,689,256	16,710,089

40012 DWO Regulatory and Compliance

40012 Personnel	No Inflation	3,852,008	3,909,789	3,909,789	3,909,789	3,909,789	3,909,789
40012 Supplies	No Inflation	319,700	324,496	324,496	324,496	324,496	324,496
40012 Other Services and Charges	No Inflation	1,106,300	1,122,895	1,122,895	1,122,895	1,122,895	1,122,895
TCEQ Fee	No Inflation	2,553,436	2,553,436	2,553,436	2,553,436	2,553,436	2,553,436
40012 Salary Recovery	No Inflation	11,500	11,673	11,673	11,673	11,673	11,673
40012 Non-Capital Equipment	No Inflation	189,000	191,835	191,835	191,835	191,835	191,835
40012 Capital Equipment	No Inflation	-	-	-	-	-	-
40012 Subtotal		7,994,209	8,114,122	8,114,122	8,114,122	8,114,122	8,114,122

40013 DWO Ground Water Operations

40013 Personnel	No Inflation	8,119,869	8,241,667	8,241,667	8,241,667	8,241,667	8,241,667
40013 Supplies	No Inflation	1,746,200	1,772,393	1,772,393	1,772,393	1,772,393	1,772,393
40013 Other Services and Charges	No Inflation	3,373,966	13,944,035	13,944,035	13,944,035	13,944,035	13,944,035
40013 Salary Recovery	No Inflation	-	-	-	-	-	-
40013 Non-Capital Equipment	No Inflation	23,800	24,157	24,157	24,157	24,157	24,157
40013 Capital Equipment	No Inflation	37,828	38,396	38,396	38,396	38,396	38,396
40013 Subtotal		23,665,663	24,020,648	24,020,648	24,020,648	24,020,648	24,020,648

40014 DWO East Water Purification Plant

40014 Personnel	No Inflation	7,157,231	7,264,589	7,264,589	7,264,589	7,264,589	7,264,589
40014 Supplies	No Inflation	11,998,100	12,178,072	12,178,072	12,178,072	12,178,072	12,178,072
40014 Other Services and Charges	No Inflation	8,637,500	8,767,063	8,767,063	8,767,063	8,767,063	8,767,063
40014 Salary Recovery	No Inflation	-	-	-	-	-	-
40014 Non-Capital Equipment	No Inflation	82,500	83,738	83,738	83,738	83,738	83,738
40014 Capital Equipment	No Inflation	777,865	789,533	789,533	789,533	789,533	789,533



Houston Combined Utility System  
Water Operations & Maintenance

Current Budget Forecasted

Line No.	Cost Center	5-Year Average	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026
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	\$ 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	\$ 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	\$ 481,988	\$ 474,865	\$ 481,988	\$ 481,988	\$ 481,988	\$ 481,988	\$ 481,988
41	40015 Supplies	\$ 61,052	\$ 60,150	\$ 61,052	\$ 61,052	\$ 61,052	\$ 61,052	\$ 61,052
42	Cust. Complaints and Water System	\$ 135,858	\$ 133,850	\$ 135,858	\$ 135,858	\$ 135,858	\$ 135,858	\$ 135,858
43	Source Water Protection	\$ 6,293	\$ 6,200	\$ 6,293	\$ 6,293	\$ 6,293	\$ 6,293	\$ 6,293
44	40015 Other Services and Charges	\$ 2,857,200	\$ 2,834,975	\$ 2,857,200	\$ 2,857,200	\$ 2,857,200	\$ 2,857,200	\$ 2,857,200
45	Cust. Complaints and Water System	\$ 65,482	\$ 64,514	\$ 65,482	\$ 65,482	\$ 65,482	\$ 65,482	\$ 65,482
46	Source Water Protection	\$ 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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
48	40015 Non-Capital Equipment	\$ 11,673	\$ 11,500	\$ 11,673	\$ 11,673	\$ 11,673	\$ 11,673	\$ 11,673
49	Cust. Complaints and Water System	\$ 192,952	\$ 190,100	\$ 192,952	\$ 192,952	\$ 192,952	\$ 192,952	\$ 192,952
50	Source Water Protection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
51	40015 Capital Equipment	\$ 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	\$ 2,773,445	\$ 1,260,600	\$ 1,578,532	\$ 1,578,532	\$ 2,142,032	\$ 2,856,043	\$ 5,712,086
55	40016 Supplies	\$ 6,179,382	\$ -	\$ 43,200	\$ 192,837	\$ 578,071	\$ 771,328	\$ 15,416,856
56	40016 Other Services and Charges	\$ 4,342,984	\$ 172,100	\$ 190,900	\$ 1,345,251	\$ 4,035,754	\$ 5,381,005	\$ 10,762,010
57	40016 PIB D5	\$ 2,541,291	\$ 5,049,600	\$ 3,805,697	\$ 3,805,542	\$ 2,548,047	\$ 2,547,168	\$ -
58	40016 Non-Capital Equipment	\$ 86,146	\$ -	\$ 47,100	\$ 47,100	\$ 67,306	\$ 89,741	\$ 179,482
59	40016 Capital Equipment	\$ 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	\$ 3,408,120	\$ 3,357,754	\$ 3,408,120	\$ 3,408,120	\$ 3,408,120	\$ 3,408,120	\$ 3,408,120
63	40017 Supplies	\$ 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	\$ 5,419,765	\$ 5,339,570	\$ 5,419,765	\$ 5,419,765	\$ 5,419,765	\$ 5,419,765	\$ 5,419,765
65	40017 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
66	40017 Non-Capital Equipment	\$ 104,444	\$ 102,900	\$ 104,444	\$ 104,444	\$ 104,444	\$ 104,444	\$ 104,444
67	40017 Capital Equipment	\$ 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	\$ 3,623,166	\$ 3,599,622	\$ 3,623,166	\$ 3,623,166	\$ 3,623,166	\$ 3,623,166	\$ 3,623,166
71	40018 Supplies	\$ 4,917,066	\$ 4,844,400	\$ 4,917,066	\$ 4,917,066	\$ 4,917,066	\$ 4,917,066	\$ 4,917,066
72	40018 Other Services and Charges	\$ 7,151,456	\$ 7,045,770	\$ 7,151,456	\$ 7,151,456	\$ 7,151,456	\$ 7,151,456	\$ 7,151,456



# Houston Combined Utility System Water Operations & Maintenance

Line No.	Cost Center	5-Year Average	Forecasted						
			FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
73	40018 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
74	40018 Non-Capital Equipment	\$ 85,057	\$ 85,057	\$ 85,057	\$ 85,057	\$ 85,057	\$ 85,057	\$ 85,057	\$ 85,057
75	40018 Capital Equipment	\$ 77,445	\$ 77,445	\$ 77,445	\$ 77,445	\$ 77,445	\$ 77,445	\$ 77,445	\$ 77,445
76	40018 Subtotal	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190	\$ 15,854,190
77	40019 DWO System Maintenance - North								
78	40019 Personnel	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190	\$ 13,115,190
79	40019 Supplies	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737	\$ 2,025,737
80	40019 Other Services and Charges	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461	\$ 2,169,461
81	40019 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
82	40019 Non-Capital Equipment	\$ 14,921	\$ 14,921	\$ 14,921	\$ 14,921	\$ 14,921	\$ 14,921	\$ 14,921	\$ 14,921
83	40019 Capital Equipment	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829	\$ 1,718,829
84	40019 Subtotal	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137	\$ 19,044,137
85	40020 DWO System Maintenance - South								
86	40020 Personnel	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333	\$ 11,157,333
87	40020 Supplies	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679	\$ 1,764,679
88	40020 Other Services and Charges	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546	\$ 5,876,546
89	40020 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
90	40020 Non-Capital Equipment	\$ 20,300	\$ 20,300	\$ 20,300	\$ 20,300	\$ 20,300	\$ 20,300	\$ 20,300	\$ 20,300
91	40020 Capital Equipment	\$ 44,412	\$ 44,412	\$ 44,412	\$ 44,412	\$ 44,412	\$ 44,412	\$ 44,412	\$ 44,412
92	40020 Subtotal	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270	\$ 18,863,270
River Authority Contributed Debt Service									
93	RACDS Personnel	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
94	RACDS Supplies	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
95	RACDS River Authority Contracts	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304	\$ 13,567,304
96	CWA O&M Trinity River	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845	\$ 21,937,845
97	TRA O&M	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625	\$ 4,815,625
98	RACDS CWA Debt Service (1993A-H & 2004	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792	\$ 2,482,792
99	RACDS CWA Debt Service (96" line)	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889	\$ 4,011,889
100	RACDS DS for Wallisville and Aliens' Creek	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558	\$ 1,857,558
101	RACDS Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
102	RACDS Non-Capital Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
103	RACDS Capital Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
104	RACDS Subtotal	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012	\$ 48,673,012
105	DWO Total	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259	\$ 218,764,259



Houston Combined Utility System  
Water Operations & Maintenance

Current Budget Forecasted

Line No.	Cost Center	5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
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EXPENSES Operation Services - Houston Water G&A

108	40021 OPS Financial & Support Operation Services G&A							
109	40021 Personnel	\$ 1,284,278	\$ 1,285,299	\$ 1,284,278	\$ 1,284,278	\$ 1,284,278	\$ 1,284,278	\$ 1,284,278
110	40021 Supplies	\$ 26,797	\$ 26,401	\$ 26,797	\$ 26,797	\$ 26,797	\$ 26,797	\$ 26,797
111	40021 Other Services and Charges	\$ 1,582,224	\$ 1,558,842	\$ 1,582,224	\$ 1,582,224	\$ 1,582,224	\$ 1,582,224	\$ 1,582,224
112	40021 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
113	40021 Non-Capital Equipment	\$ 1,987	\$ 1,957	\$ 1,987	\$ 1,987	\$ 1,987	\$ 1,987	\$ 1,987
114	40021 Capital Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
115	40021 Subtotal	\$ 2,895,286	\$ 2,852,499	\$ 2,895,286	\$ 2,895,286	\$ 2,895,286	\$ 2,895,286	\$ 2,895,286

116	40022 HW Planning							
117	40022 Personnel	\$ 874,133	\$ 851,215	\$ 874,133	\$ 874,133	\$ 874,133	\$ 874,133	\$ 874,133
118	40022 Supplies	\$ 16,863	\$ 16,613	\$ 16,863	\$ 16,863	\$ 16,863	\$ 16,863	\$ 16,863
119	40022 Other Services and Charges	\$ 730,998	\$ 720,195	\$ 730,998	\$ 730,998	\$ 730,998	\$ 730,998	\$ 730,998
120	40022 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
121	40022 Non-Capital Equipment	\$ 2,140	\$ 2,108	\$ 2,140	\$ 2,140	\$ 2,140	\$ 2,140	\$ 2,140
122	40022 Capital Equipment	\$ 24,453	\$ 24,092	\$ 24,453	\$ 24,453	\$ 24,453	\$ 24,453	\$ 24,453
123	40022 Subtotal	\$ 1,648,587	\$ 1,624,223	\$ 1,648,587	\$ 1,648,587	\$ 1,648,587	\$ 1,648,587	\$ 1,648,587

124	40023 OPS Maintenance Operation Services - Restoration							
125	40023 Personnel	\$ 3,421,037	\$ 3,370,480	\$ 3,421,037	\$ 3,421,037	\$ 3,421,037	\$ 3,421,037	\$ 3,421,037
126	40023 Supplies	\$ 804,358	\$ 782,471	\$ 804,358	\$ 804,358	\$ 804,358	\$ 804,358	\$ 804,358
127	40023 Other Services and Charges	\$ 1,853,095	\$ 1,825,709	\$ 1,853,095	\$ 1,853,095	\$ 1,853,095	\$ 1,853,095	\$ 1,853,095
128	40023 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
129	40023 Non-Capital Equipment	\$ 4,381	\$ 4,316	\$ 4,381	\$ 4,381	\$ 4,381	\$ 4,381	\$ 4,381
130	40023 Capital Equipment	\$ 2,292	\$ 2,259	\$ 2,292	\$ 2,292	\$ 2,292	\$ 2,292	\$ 2,292
131	40023 Capital Equipment-CP Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
132	40023 Subtotal	\$ 6,085,163	\$ 5,995,234	\$ 6,085,163	\$ 6,085,163	\$ 6,085,163	\$ 6,085,163	\$ 6,085,163

133	40024 OPS Maintenance Operation Services-COS/DIS							
134	40024 Personnel	\$ 1,202,010	\$ 1,184,246	\$ 1,202,010	\$ 1,202,010	\$ 1,202,010	\$ 1,202,010	\$ 1,202,010
135	40024 Supplies	\$ 4,330	\$ 4,266	\$ 4,330	\$ 4,330	\$ 4,330	\$ 4,330	\$ 4,330
136	40024 Other Services and Charges	\$ 178,916	\$ 176,272	\$ 178,916	\$ 178,916	\$ 178,916	\$ 178,916	\$ 178,916
137	40024 Salary Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
138	40024 Non-Capital Equipment	\$ 6,928	\$ 6,826	\$ 6,928	\$ 6,928	\$ 6,928	\$ 6,928	\$ 6,928
139	40024 Capital Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
140	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

Current Budget Forecasted

Line No.	Cost Center	5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
179	40029 Non-Capital Equipment		48,334 \$	49,059 \$	49,059 \$	49,059 \$	49,059 \$	49,059 \$
180	40029 Capital Equipment		45,172 \$	45,850 \$	45,850 \$	45,850 \$	45,850 \$	45,850 \$
181	40029 Subtotal		2,976,343 \$	2,976,343 \$	2,976,343 \$	2,976,343 \$	2,976,343 \$	2,976,343 \$
182	OPS Subtotal		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		225,899,173 \$	228,321,678 \$	231,451,525 \$	237,624,633 \$	241,792,910 \$	255,870,791 \$
184								

EXPENSES Other O&M

185	30001-30009 Director's Office							
186	30001-30009 Personnel		3,664,346 \$	3,664,346 \$	3,664,346 \$	3,664,346 \$	3,664,346 \$	3,664,346 \$
187	30001-30009 Supplies		24,759 \$	24,759 \$	24,759 \$	24,759 \$	24,759 \$	24,759 \$
188	30001-30009 Other Services and Charges		242,494 \$	242,494 \$	242,494 \$	242,494 \$	242,494 \$	242,494 \$
189	30001-30009 Indirect Cost Recovery		- \$	- \$	- \$	- \$	- \$	- \$
190	30001-30009 Non-Capital Equipment		10,749 \$	10,749 \$	10,749 \$	10,749 \$	10,749 \$	10,749 \$
191	30001-30009 Capital Equipment		- \$	- \$	- \$	- \$	- \$	- \$
192	30001-30009 Subtotal		3,884,087 \$	3,942,348 \$	3,942,348 \$	3,942,348 \$	3,942,348 \$	3,942,348 \$
193								
194	80001 Information Technology							
195	80001 Personnel		4,241,846 \$	4,241,846 \$	4,241,846 \$	4,241,846 \$	4,241,846 \$	4,241,846 \$
196	80001 Supplies		153,087 \$	153,087 \$	153,087 \$	153,087 \$	153,087 \$	153,087 \$
197	80001 Other Services and Charges		4,692,265 \$	4,692,265 \$	4,692,265 \$	4,692,265 \$	4,692,265 \$	4,692,265 \$
198	80001 Indirect Cost Recovery		- \$	- \$	- \$	- \$	- \$	- \$
199	80001 Non-Capital Equipment		387,278 \$	387,278 \$	387,278 \$	387,278 \$	387,278 \$	387,278 \$
200	80001 Capital Equipment		523,961 \$	523,961 \$	523,961 \$	523,961 \$	523,961 \$	523,961 \$
201	80001 Subtotal		9,998,437 \$	9,998,437 \$	9,998,437 \$	9,998,437 \$	9,998,437 \$	9,998,437 \$
202	90001-90011 Management Support							
203	90001-90011 Personnel		1,770,393 \$	1,770,393 \$	1,770,393 \$	1,770,393 \$	1,770,393 \$	1,770,393 \$
204	90001-90011 Supplies		119,923 \$	119,923 \$	119,923 \$	119,923 \$	119,923 \$	119,923 \$
205	90001-90011 Other Services and Charges		4,662,511 \$	4,662,511 \$	4,662,511 \$	4,662,511 \$	4,662,511 \$	4,662,511 \$
206	90001-90011 Salary Recovery		- \$	- \$	- \$	- \$	- \$	- \$
207	90001-90011 Non-Capital Equipment		107,288 \$	107,288 \$	107,288 \$	107,288 \$	107,288 \$	107,288 \$
208	90001-90011 Capital Equipment		195,371 \$	195,371 \$	195,371 \$	195,371 \$	195,371 \$	195,371 \$
209	90001-90011 Subtotal		6,855,485 \$	6,855,485 \$	6,855,485 \$	6,855,485 \$	6,855,485 \$	6,855,485 \$
210	60005 & 60008 Houston Water - Planning							



# Water Operations & Maintenance

Houston Combined Utility System

Current Budget Forecasted

Line No.	5-Year Average	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
211	\$ 114,688	\$ 112,993	\$ 114,688	\$ 114,688	\$ 114,688	\$ 114,688	\$ 114,688
212	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
213	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
214	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
215	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
216	\$ 152,833	\$ 150,574	\$ 152,833	\$ 152,833	\$ 152,833	\$ 152,833	\$ 152,833
217	\$ 267,521	\$ 263,567	\$ 267,521	\$ 267,521	\$ 267,521	\$ 267,521	\$ 267,521
<b>50002,50005,5</b>							
218	\$ 6,436,576	\$ 6,341,454	\$ 6,436,576	\$ 6,436,576	\$ 6,436,576	\$ 6,436,576	\$ 6,436,576
219	\$ 428,237	\$ 421,908	\$ 428,237	\$ 428,237	\$ 428,237	\$ 428,237	\$ 428,237
220	\$ 5,451,078	\$ 5,370,521	\$ 5,451,078	\$ 5,451,078	\$ 5,451,078	\$ 5,451,078	\$ 5,451,078
221	\$ 4,841,022	\$ 4,769,480	\$ 4,841,022	\$ 4,841,022	\$ 4,841,022	\$ 4,841,022	\$ 4,841,022
222	\$ 124,364	\$ 122,526	\$ 124,364	\$ 124,364	\$ 124,364	\$ 124,364	\$ 124,364
223	\$ 3,784,427	\$ 3,728,499	\$ 3,784,427	\$ 3,784,427	\$ 3,784,427	\$ 3,784,427	\$ 3,784,427
224	\$ 1,874,444	\$ 1,846,742	\$ 1,874,444	\$ 1,874,444	\$ 1,874,444	\$ 1,874,444	\$ 1,874,444
225	\$ 1,243,107	\$ 1,217,419	\$ 1,243,107	\$ 1,243,107	\$ 1,243,107	\$ 1,243,107	\$ 1,243,107
226	\$ 36,221	\$ 35,686	\$ 36,221	\$ 36,221	\$ 36,221	\$ 36,221	\$ 36,221
227	\$ 242,698	\$ 239,111	\$ 242,698	\$ 242,698	\$ 242,698	\$ 242,698	\$ 242,698
228	\$ 24,462,179	\$ 24,093,347	\$ 24,444,768	\$ 24,452,967	\$ 24,461,832	\$ 24,471,169	\$ 24,480,132
229	\$ 24,462,179	\$ 24,093,347	\$ 24,444,768	\$ 24,452,967	\$ 24,461,832	\$ 24,471,169	\$ 24,480,132
<b>100007-15, 100025 CAS - Customer Account Services</b>							
230	\$ 15,600,980	\$ 15,370,424	\$ 15,600,980	\$ 15,600,980	\$ 15,600,980	\$ 15,600,980	\$ 15,600,980
231	\$ 1,730,625	\$ 1,705,049	\$ 1,730,625	\$ 1,730,625	\$ 1,730,625	\$ 1,730,625	\$ 1,730,625
232	\$ 4,795,987	\$ 4,725,131	\$ 4,795,987	\$ 4,795,987	\$ 4,795,987	\$ 4,795,987	\$ 4,795,987
233	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
234	\$ 93,788	\$ 92,402	\$ 93,788	\$ 93,788	\$ 93,788	\$ 93,788	\$ 93,788
235	\$ 2,926,641	\$ 2,883,300	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641
236	\$ 2,926,641	\$ 2,883,300	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641	\$ 2,926,641
237	\$ 25,148,022	\$ 24,776,376	\$ 25,148,022	\$ 25,148,022	\$ 25,148,022	\$ 25,148,022	\$ 25,148,022
<b>Deductions Deductions</b>							
238	\$ (3,127,820)	\$ (3,081,596)	\$ (3,127,820)	\$ (3,127,820)	\$ (3,127,820)	\$ (3,127,820)	\$ (3,127,820)
239	\$ (1,197,800)	\$ (1,180,098)	\$ (1,197,800)	\$ (1,197,800)	\$ (1,197,800)	\$ (1,197,800)	\$ (1,197,800)
240	\$ (4,325,620)	\$ (4,261,694)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)
241	\$ (4,325,620)	\$ (4,261,694)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)



Houston Combined Utility System

# Water Operations & Maintenance

Line No.	Cost Center	Current Budget					Forecasted		
		5-YEAR AVERAGE	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
242		\$ 66,348,367	\$ 65,360,532	\$ 66,330,961	\$ 66,339,160	\$ 66,348,025	\$ 66,357,362	\$ 66,366,325	
	Other Subtotal								
243		\$ 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	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
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**REVENUES Wastewater**

**Operating**

3	Wastewater Revenues						
4	Wastewater system user charges	\$ 755,883,905	\$ 573,414,275	\$ 744,295,100	\$ 788,852,805	\$ 836,289,974	\$ 886,467,372
5	455010 Sewer Service Penalties	8,061,916	5,582,500	7,938,315	8,414,614	8,919,491	9,454,660
6	Wastewater Revenues Subtotal	\$ 763,945,821	\$ 579,996,775	\$ 752,233,415	\$ 797,267,419	\$ 845,209,465	\$ 895,922,032

**Impact Fee Revenue**

7	Wastewater Allocation	\$ 21,992,238	\$ 20,550,106	\$ 21,247,105	\$ 21,967,828	\$ 22,712,879	\$ 23,468,270
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**Other Wastewater Revenue (Non rate)**

9	431020 Contributions from Others	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	455040 Utility Service Penalties	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	425030 Indirect Cost Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12	426270 Utility District Appl Review	\$ 31,345	\$ 31,345	\$ 31,345	\$ 31,345	\$ 31,345	\$ 31,345
13	426330 Miscellaneous Copies Fees	\$ 6,002	\$ 6,002	\$ 6,002	\$ 6,002	\$ 6,002	\$ 6,002
14	456110 Storm Water Quality Management Permit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15	456115 Industrial Waste Discharge Permits	\$ 7,308	\$ 7,308	\$ 7,308	\$ 7,308	\$ 7,308	\$ 7,308
16	456125 Fire Sprinkler Fees	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	456130 Water Meter Rental Fees	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18	456135 Delinquent Reconnection Fees	\$ 202,223	\$ 202,223	\$ 202,223	\$ 202,223	\$ 202,223	\$ 202,223
19	456140 Tap Installation Fees	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011
20	456145 Meter Installation Fees	\$ 505,558	\$ 505,558	\$ 505,558	\$ 505,558	\$ 505,558	\$ 505,558
21	456150 Engineering Inspection Fees	\$ 252,779	\$ 252,779	\$ 252,779	\$ 252,779	\$ 252,779	\$ 252,779
22	456155 Meter Testing Fees	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,011
23	456160 Transient Meter Relocation Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24	456165 New Customer Fees	\$ 126,390	\$ 126,390	\$ 126,390	\$ 126,390	\$ 126,390	\$ 126,390
25	456170 Account Record Fees	\$ 506	\$ 506	\$ 506	\$ 506	\$ 506	\$ 506
26	456175 Disposal Fees	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
27	456180 Fertilizers Sales	\$ 152,250	\$ 152,250	\$ 152,250	\$ 152,250	\$ 152,250	\$ 152,250
28	456185 Contract Revenues: River Authorities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
29	456195 Water Connection Violation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
30	456200 Failure to Connect Sewer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
31	456210 Mised Appointment	\$ 7,583	\$ 7,583	\$ 7,583	\$ 7,583	\$ 7,583	\$ 7,583
32	456220 Tenant Notice	\$ 5,056	\$ 5,056	\$ 5,056	\$ 5,056	\$ 5,056	\$ 5,056
33	456225 Failure to Apply	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278
34	456230 Illegal Turn on Water	\$ 506	\$ 506	\$ 506	\$ 506	\$ 506	\$ 506
35	456235 Lock Device Damage	\$ 51	\$ 51	\$ 51	\$ 51	\$ 51	\$ 51
36	456240 Submeter Application	\$ 15,225	\$ 15,225	\$ 15,225	\$ 15,225	\$ 15,225	\$ 15,225
37	456245 Evap Cr. Process Fee	\$ 203,000	\$ 203,000	\$ 203,000	\$ 203,000	\$ 203,000	\$ 203,000
38	456250 Sewage Disposal	\$ 10,150	\$ 10,150	\$ 10,150	\$ 10,150	\$ 10,150	\$ 10,150
39	456255 Misc Operating Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
40		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



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
41	456260 Oper Recov & Refunds	\$ 2,528	\$ 2,490	\$ 2,528	\$ 2,528	\$ 2,528	\$ 2,528
42	456265 MSD Application Fee	\$ 25,278	\$ 24,904	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278
43	<b>Other Wastewater Revenue (Non rate) Subtotal</b>	<b>\$ 1,581,036</b>	<b>\$ 1,557,671</b>	<b>\$ 1,581,036</b>	<b>\$ 1,581,036</b>	<b>\$ 1,581,036</b>	<b>\$ 1,581,036</b>
44	<b>Other Wastewater Revenues (Non rate)</b>						
45	421280 Other Licenses & Permits	\$ 252,779	\$ 245,043	\$ 252,779	\$ 252,779	\$ 252,779	\$ 252,779
46	421530 Admin Fee-Lic/Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
47	434205 Special Event Permits	\$ 37,917	\$ 37,357	\$ 37,917	\$ 37,917	\$ 37,917	\$ 37,917
48	434205 Sale Of Scrap Metal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
49	434225 Sale of Non-Capital Equipment and Merchandise	\$ 25,278	\$ 24,904	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278
50	434235 Sale of Other Assets	\$ 1,011,116	\$ 995,174	\$ 1,011,116	\$ 1,011,116	\$ 1,011,116	\$ 1,011,116
51	434240 Sale of Land/Street	\$ 101,112	\$ 99,617	\$ 101,112	\$ 101,112	\$ 101,112	\$ 101,112
52	434245 Sale Cap-Vehicles	\$ 293,426	\$ 289,090	\$ 293,426	\$ 293,426	\$ 293,426	\$ 293,426
53	424120 Intfd Vehicle Fuel	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
54	424170 Intfd Vehicle Repair	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
55	424510 Prior Yr Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
56	426090 Demolition Fees	\$ 51	\$ 50	\$ 51	\$ 51	\$ 51	\$ 51
57	426520 City Map & Related Items	\$ 50,556	\$ 49,809	\$ 50,556	\$ 50,556	\$ 50,556	\$ 50,556
58	426570 Training Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
59	426420 Bldg Space Rental Fee	\$ 1,188,668	\$ 1,171,102	\$ 1,188,668	\$ 1,188,668	\$ 1,188,668	\$ 1,188,668
60	426430 Facility Rental Fees	\$ 607	\$ 598	\$ 607	\$ 607	\$ 607	\$ 607
61	428030 Release Of Liens	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
62	428060 Other Interest Income	\$ 25,278	\$ 24,904	\$ 25,278	\$ 25,278	\$ 25,278	\$ 25,278
63	428080 Returned Check Charges	\$ 506	\$ 498	\$ 506	\$ 506	\$ 506	\$ 506
64	428090 Misc Fines & Forfeit	\$ 506	\$ 498	\$ 506	\$ 506	\$ 506	\$ 506
65	434305 Judgments & Claims	\$ 7,583	\$ 7,471	\$ 7,583	\$ 7,583	\$ 7,583	\$ 7,583
66	434335 Recoveries Damage Infrastructure	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67	434340 Cashier Overage	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
68	434345 Adjustments to Allowances	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
69	434505 Prior Yr Exp Recovery	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
70	434510 Prior Year Revenue	\$ 15,672	\$ 15,441	\$ 15,672	\$ 15,672	\$ 15,672	\$ 15,672
71	445050 Call Tower Revenue	\$ 101,112	\$ 99,617	\$ 101,112	\$ 101,112	\$ 101,112	\$ 101,112
72	452020 Recoveries & Refunds	\$ 60,667	\$ 59,770	\$ 60,667	\$ 60,667	\$ 60,667	\$ 60,667
73	452030 Miscellaneous Revenues	\$ 2,528	\$ 2,490	\$ 2,528	\$ 2,528	\$ 2,528	\$ 2,528
74	456105 Oil and Gas Well Permits	\$ 202,223	\$ 199,235	\$ 202,223	\$ 202,223	\$ 202,223	\$ 202,223
75	456120 Development Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
76	456185 Contract Revenues from Water Authorities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
77	456235 Lock Device Damage/Repair	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
78	457020 Intfd Comm Equip Repair	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
79	457040 Intfd Fleet Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
80	457080 Intfd Employee Training Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
81	490040 Transfer from Water and Sewer Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Houston Combined Utility System  
**Wastewater Operations & Maintenance**

Proposed Budget Forecasted

Line No.	Cost Center	FY 2021	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
82	425120 PWE Allocated Cost Recovery	\$ 3,103,976	\$ 3,028,104	\$ 3,103,976	\$ 3,103,976	\$ 3,103,976	\$ 3,103,976	\$ 3,103,976
			No inflation					
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
84	Interest							
85	432010 Interest on Investment	\$ 3,219,188	\$ 5,622,405	\$ 4,136,460	\$ 3,339,940	\$ 3,046,828	\$ 2,795,507	\$ 2,771,252
86	Interest Subtotal	\$ 3,219,188	\$ 5,622,405	\$ 4,136,460	\$ 3,339,940	\$ 3,046,828	\$ 2,795,507	\$ 2,771,252
87	<b>TOTAL WASTEWATER REVENUE</b>	\$ 797,219,852	\$ 549,809,596	\$ 561,745,937	\$ 784,883,055	\$ 830,444,671	\$ 878,780,446	\$ 930,245,149



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
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**EXPENSES Wastewater Operations**

1								
2	40001 WWO Executive Support G&A							
3	40001 Personnel	\$	2,167,836	2,167,836	2,167,836	2,167,836	2,167,836	2,167,836
4	40001 Supplies	\$	427,315	427,315	427,315	427,315	427,315	427,315
5	40001 Other Services and Charges	\$	895,332	895,332	895,332	895,332	895,332	895,332
6	40001 Salary Recovery	\$	-	-	-	-	-	-
7	40001 Pension DS	\$	2,849,069	2,849,069	2,849,069	2,849,069	2,849,069	2,849,069
8	40001 Non-Capital Equipment	\$	-	-	-	-	-	-
9	40001 Capital Equipment	\$	-	-	-	-	-	-
10	40001 Subtotal	\$	6,339,551	6,339,551	6,339,551	6,339,551	6,339,551	6,339,551

**40002 WWO Collection System Analysis**

11	40002 Personnel	\$	3,090,384	3,090,384	3,090,384	3,090,384	3,090,384	3,090,384
12	40002 Supplies	\$	33,394	33,394	33,394	33,394	33,394	33,394
13	40002 Other Services and Charges	\$	1,246,522	1,246,522	1,246,522	1,246,522	1,246,522	1,246,522
14	40002 Salary Recovery	\$	-	-	-	-	-	-
15	40002 Non-Capital Equipment	\$	-	-	-	-	-	-
16	40002 Capital Equipment	\$	-	-	-	-	-	-
17	40002 Subtotal	\$	4,370,299	4,370,299	4,370,299	4,370,299	4,370,299	4,370,299

**40003 WWO Collection System Repairs**

19	40003 Personnel	\$	10,794,009	10,794,009	10,794,009	10,794,009	10,794,009	10,794,009
20	40003 Supplies	\$	705,831	705,831	705,831	705,831	705,831	705,831
21	40003 Other Services and Charges	\$	2,376,623	2,376,623	2,376,623	2,376,623	2,376,623	2,376,623
22	40003 Salary Recovery	\$	-	-	-	-	-	-
23	40003 Non-Capital Equipment	\$	15,225	15,225	15,225	15,225	15,225	15,225
24	40003 Capital Equipment	\$	568,400	568,400	568,400	568,400	568,400	568,400
25	40003 Subtotal	\$	14,460,088	14,460,088	14,460,088	14,460,088	14,460,088	14,460,088

**40004 WWO Regulatory and Compliance**

27	40004 Personnel	\$	5,879,955	5,879,955	5,879,955	5,879,955	5,879,955	5,879,955
28	40004 Supplies	\$	353,220	353,220	353,220	353,220	353,220	353,220
29	40004 Other Services and Charges	\$	3,564,274	3,564,274	3,564,274	3,564,274	3,564,274	3,564,274
30	40004 Salary Recovery	\$	-	-	-	-	-	-
31	40004 Non-Capital Equipment	\$	-	-	-	-	-	-
32	40004 Capital Equipment	\$	356,537	356,537	356,537	356,537	356,537	356,537
33	40004 Subtotal	\$	10,153,986	10,153,986	10,153,986	10,153,986	10,153,986	10,153,986

**40005 WWO Technical Services G&A**

35	40005 Personnel	\$	2,106,393	2,106,393	2,106,393	2,106,393	2,106,393	2,106,393
36	40005 Supplies	\$	13,566,998	13,566,998	13,566,998	13,566,998	13,566,998	13,566,998
37	40005 Other Services and Charges	\$	1,634,658	1,634,658	1,634,658	1,634,658	1,634,658	1,634,658
38	40005 Salary Recovery	\$	-	-	-	-	-	-
39	40005 Non-Capital Equipment	\$	-	-	-	-	-	-
40	40005 Capital Equipment	\$	-	-	-	-	-	-











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
157	40028 Supplies	No Inflation	2,892 \$	2,892 \$	2,892 \$	2,892 \$	2,892 \$	2,892 \$
158	40028 Other Services and Charges	No Inflation	45,096 \$	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 \$	43,781 \$	43,781 \$	43,781 \$	43,781 \$	43,781 \$
161	40028 Capital Equipment	No Inflation	14,459 \$	14,459 \$	14,459 \$	14,459 \$	14,459 \$	14,459 \$
162	40028 Subtotal		1,082,824 \$	1,082,824 \$	1,082,824 \$	1,082,824 \$	1,082,824 \$	1,082,824 \$
163	40029 HW Utility Analysis	No Inflation	2,646,476 \$	2,646,476 \$	2,646,476 \$	2,646,476 \$	2,646,476 \$	2,646,476 \$
164	40029 Personnel	No Inflation	6,269 \$	6,269 \$	6,269 \$	6,269 \$	6,269 \$	6,269 \$
165	40029 Supplies	No Inflation	206,723 \$	206,723 \$	206,723 \$	206,723 \$	206,723 \$	206,723 \$
166	40029 Other Services and Charges	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
167	40029 Salary Recovery	No Inflation	48,685 \$	48,685 \$	48,685 \$	48,685 \$	48,685 \$	48,685 \$
168	40029 Non-Capital Equipment	No Inflation	45,500 \$	45,500 \$	45,500 \$	45,500 \$	45,500 \$	45,500 \$
169	40029 Capital Equipment	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
170	40029 Subtotal		2,953,653 \$	2,953,653 \$	2,953,653 \$	2,953,653 \$	2,953,653 \$	2,953,653 \$
171	OPS Subtotal		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 \$	224,749,184 \$	224,768,241 \$	224,788,848 \$	224,810,551 \$	224,831,385 \$
173								

EXPENSES Other O&M

174	30001-30009 Director's Office	No Inflation	3,636,411 \$	3,636,411 \$	3,636,411 \$	3,636,411 \$	3,636,411 \$	3,636,411 \$
175	30001-30009 Personnel	No Inflation	24,570 \$	24,570 \$	24,570 \$	24,570 \$	24,570 \$	24,570 \$
176	30001-30009 Supplies	No Inflation	240,646 \$	240,646 \$	240,646 \$	240,646 \$	240,646 \$	240,646 \$
177	30001-30009 Other Services and Charges	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
178	30001-30009 Indirect Cost Recovery	No Inflation	10,667 \$	10,667 \$	10,667 \$	10,667 \$	10,667 \$	10,667 \$
179	30001-30009 Non-Capital Equipment	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
180	30001-30009 Capital Equipment	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
181	30001-30009 Subtotal		3,912,294 \$	3,912,294 \$	3,912,294 \$	3,912,294 \$	3,912,294 \$	3,912,294 \$
182								
183	80001 Information Technology	No Inflation	4,209,509 \$	4,209,509 \$	4,209,509 \$	4,209,509 \$	4,209,509 \$	4,209,509 \$
184	80001 Personnel	No Inflation	151,920 \$	151,920 \$	151,920 \$	151,920 \$	151,920 \$	151,920 \$
185	80001 Supplies	No Inflation	4,656,494 \$	4,656,494 \$	4,656,494 \$	4,656,494 \$	4,656,494 \$	4,656,494 \$
186	80001 Other Services and Charges	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
187	80001 Indirect Cost Recovery	No Inflation	384,325 \$	384,325 \$	384,325 \$	384,325 \$	384,325 \$	384,325 \$
188	80001 Non-Capital Equipment	No Inflation	519,967 \$	519,967 \$	519,967 \$	519,967 \$	519,967 \$	519,967 \$
189	80001 Capital Equipment	No Inflation	- \$	- \$	- \$	- \$	- \$	- \$
190	80001 Subtotal		9,922,216 \$	9,922,216 \$	9,922,216 \$	9,922,216 \$	9,922,216 \$	9,922,216 \$
191	90001-90011 Management Support	No Inflation	1,756,897 \$	1,756,897 \$	1,756,897 \$	1,756,897 \$	1,756,897 \$	1,756,897 \$
192	90001-90011 Personnel	No Inflation	119,008 \$	119,008 \$	119,008 \$	119,008 \$	119,008 \$	119,008 \$
193	90001-90011 Supplies	No Inflation	4,626,967 \$	4,626,967 \$	4,626,967 \$	4,626,967 \$	4,626,967 \$	4,626,967 \$
194	90001-90011 Other Services and Charges	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 2025
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200		\$ 290,632,714	\$ 286,317,888	\$ 290,574,483	\$ 290,601,677	\$ 290,631,081	\$ 290,662,050	\$ 290,691,778
	<b>TOTAL O&amp;M, CAPITAL EXPENSES</b>							

## Appendix C

# WATER REVENUE REQUIREMENTS



Houston Combined Utility System  
**Water Revenue Requirements**

Line No.	FYE 2024	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
<b>1 Water Revenue Requirements</b>						
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3						
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<b>6 Cash Flow / Reserves Test</b>						
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Houston Combined Utility System  
**Water Revenue Requirements**

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
31	\$ -	\$ -	\$ 13,271,200	\$ 22,848,511	\$ 22,848,511	\$ 22,848,511
32	\$ 1,813,585	\$ 1,813,585	\$ 1,813,585	\$ 1,813,585	\$ 1,813,585	\$ 1,813,585
33	\$ 22,817,930	\$ 24,224,844	\$ 24,209,476	\$ 24,199,938	\$ 24,185,621	\$ 24,180,953
34	\$ 4,278,954	\$ 4,829,498	\$ 5,527,270	\$ 6,273,797	\$ 7,316,090	\$ 8,365,596
35	\$ 3,995,962	\$ 4,720,735	\$ 6,028,048	\$ 4,332,670	\$ 5,707,946	\$ 6,374,330
36	\$ 1,750,000	\$ 2,100,000	\$ 2,100,000	\$ 2,450,000	\$ 2,450,000	\$ 2,450,000
37	\$ 11,974,458	\$ 12,154,075	\$ 14,241,537	\$ 15,309,652	\$ 16,228,231	\$ 17,201,925
38	\$ -	\$ 110,765,130	\$ 97,673,290	\$ 94,087,788	\$ 115,237,599	\$ 123,075,976
39	\$ 287,568,653	\$ 443,030,333	\$ 482,887,694	\$ 517,608,827	\$ 573,718,165	\$ 618,155,615
40	\$ 578,828,358	\$ 737,682,972	\$ 780,678,379	\$ 821,581,485	\$ 881,868,437	\$ 940,392,731
41	\$ 578,828,358	\$ 737,682,972	\$ 780,678,379	\$ 821,581,485	\$ 881,868,437	\$ 940,392,731
42	\$ 50,627,794	\$ (88,832,411)	\$ (26,315,418)	\$ (8,575,735)	\$ (21,850,021)	\$ (25,867,911)
43	\$ 326,846,272	\$ 57,658,463	\$ 118,339,516	\$ 95,746,443	\$ 28,588,751	\$ (40,765,955)

**Debt Coverage Test**

45	\$ 619,520,811	\$ 628,242,251	\$ 732,956,424	\$ 786,322,871	\$ 832,301,987	\$ 880,936,502
46	\$ (291,259,705)	\$ (294,652,640)	\$ (297,790,685)	\$ (303,972,658)	\$ (308,150,272)	\$ (322,237,116)
47	\$ (11,974,458)	\$ (12,154,075)	\$ (14,241,537)	\$ (15,309,652)	\$ (16,228,231)	\$ (17,201,925)
48	\$ 10,318,158	\$ 10,472,930	\$ 10,472,930	\$ 10,472,930	\$ 10,472,930	\$ 10,472,930
49	\$ 1,421,518	\$ 1,442,841	\$ 1,442,841	\$ 1,442,841	\$ 1,442,841	\$ 1,442,841
50	\$ 5,049,600	\$ 3,805,697	\$ 3,805,542	\$ 2,548,047	\$ 2,547,168	\$ -
51	\$ 1,912,097	\$ 1,912,097	\$ 1,843,880	\$ 1,843,646	\$ 1,841,391	\$ 1,846,774
52	\$ 4,047,235	\$ 4,074,770	\$ 4,102,026	\$ 4,131,497	\$ 4,162,538	\$ 4,192,335
51	\$ 6,398,700	\$ 6,494,681	\$ 6,494,681	\$ 6,494,681	\$ 6,494,681	\$ 6,494,681
52	\$ (4,261,694)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)	\$ (4,325,620)
53	\$ 341,172,262	\$ 345,312,983	\$ 444,760,482	\$ 489,648,584	\$ 530,559,412	\$ 561,621,401
54	\$ 9,902,764	\$ 6,841,990	\$ 7,666,299	\$ 8,400,001	\$ 7,951,382	\$ 8,024,310
55	\$ 327,308,393	\$ 335,734,147	\$ 434,027,663	\$ 477,888,582	\$ 519,427,477	\$ 550,387,367
56	\$ 34,451x	\$ 50,471x	\$ 58,021x	\$ 66,731x	\$ 69,991x	\$ 69,991x

57	\$ 341,172,262	\$ 345,312,983	\$ 444,760,482	\$ 489,648,584	\$ 530,559,412	\$ 561,621,401
58	\$ (9,902,764)	\$ (6,841,990)	\$ (7,666,299)	\$ (8,400,001)	\$ (7,951,382)	\$ (8,024,310)
59	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Houston Combined Utility System

## Water Revenue Requirements

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
60	\$ 9,935,341	\$ 20,608,310	\$ 21,406,537	\$ 26,682,879	\$ 27,716,430	\$ 33,588,319
61	\$ 341,204,839	\$ 359,079,253	\$ 458,500,720	\$ 507,931,462	\$ 550,324,460	\$ 587,185,410
62	\$ 231,035,002	\$ 275,580,478	\$ 323,628,190	\$ 360,741,396	\$ 392,827,912	\$ 426,668,939
63	1.48x	1.30x	1.42x	1.41x	1.40x	1.38x
64	\$ 17,755,837	\$ (26,733,416)	\$ 5,421,254	\$ 2,893,507	\$ 365,383	\$ (10,151,105)
65	<b>Second Lien</b>					
66	\$ 341,204,839	\$ 359,079,253	\$ 458,500,720	\$ 507,931,462	\$ 550,324,460	\$ 587,185,410
67	\$ (231,035,002)	\$ (275,580,478)	\$ (323,628,190)	\$ (360,741,396)	\$ (392,827,912)	\$ (426,668,939)
68	Plus: Restricted Revenues					
69	\$ 110,169,838	\$ 83,498,775	\$ 134,872,530	\$ 147,190,065	\$ 157,496,548	\$ 160,516,470
70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
71	<b>Second Lien Coverage</b>					
72	\$ 110,169,838	\$ 83,498,775	\$ 134,872,530	\$ 147,190,065	\$ 157,496,548	\$ 160,516,470
73	<b>Total Debt Coverage</b>					
74	\$ 341,172,262	\$ 345,312,933	\$ 444,760,482	\$ 489,648,584	\$ 530,559,412	\$ 561,621,401
75	\$ 9,935,341	\$ 20,608,310	\$ 21,406,537	\$ 26,682,879	\$ 27,716,430	\$ 33,588,319
76	\$ 351,107,603	\$ 365,921,243	\$ 466,167,019	\$ 516,331,463	\$ 558,275,842	\$ 595,209,720
77	\$ 9,902,764	\$ 6,841,990	\$ 7,666,299	\$ 8,400,001	\$ 7,951,382	\$ 8,024,310
78	\$ 231,035,002	\$ 275,580,478	\$ 310,356,990	\$ 337,892,886	\$ 369,979,401	\$ 403,820,428
79	\$ -	\$ -	\$ 13,271,200	\$ 22,848,511	\$ 22,848,511	\$ 22,848,511
80	\$ 5,745,962	\$ 6,820,735	\$ 8,128,048	\$ 6,782,670	\$ 8,157,946	\$ 8,824,330
81	\$ 29,008,980	\$ 30,966,438	\$ 31,580,626	\$ 32,317,381	\$ 33,343,102	\$ 34,393,324
82	\$ 13,165,296	\$ 11,921,708	\$ 11,918,845	\$ 10,470,616	\$ 10,647,987	\$ 8,342,042
83	\$ 288,858,003	\$ 332,131,348	\$ 382,922,008	\$ 418,712,065	\$ 452,928,329	\$ 486,252,945
84	1.46x	1.30x	1.41x	1.40x	1.39x	1.37x
85	\$ 13,794,732	\$ (29,470,212)	\$ 2,354,734	\$ (466,494)	\$ (2,815,170)	\$ (13,360,829)
86	1.46x	1.30x	1.41x	1.40x	1.39x	1.37x
87	\$ 13,794,732	\$ (29,470,212)	\$ 20,934,414	\$ 31,521,421	\$ 29,172,746	\$ 18,627,086



Houston Combined Utility System  
**Water Revenue Requirements**

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
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**Revenue Requirement Calculation**

88	Surplus (Shortfall) - Pre Increase	\$ 13,794,732	\$ (29,470,212)	\$ 2,354,734	\$ (466,494)	\$ (2,815,170)	\$ (40,765,955)
89	Month of Revenue Adjustment 1						
91	Rate Revenue before Increase 1	\$ 598,722,887	\$ 607,703,730	\$ 712,076,846	\$ 765,482,609	\$ 811,411,566	\$ 860,096,260
92	Calculated Revenue Increase	0.0%	5.0%	0.0%	1.0%	2.0%	19.0%
93	Revenue Increase 1 Override	1.5%	9.0%	7.5%	5.0%	5.0%	5.0%
94	Utilized Revenue Increase 1	1.5%	9.0%	7.5%	6.0%	6.0%	6.0%

**Resulting Cash Flows following Revenue Adjustment 1**

95	Revenues before rate adjustment 1	\$ 598,722,887	\$ 607,703,730	\$ 712,076,846	\$ 765,482,609	\$ 811,411,566	\$ 860,096,260
96	Revenues from revenue adjustment 1	\$ 8,980,843	\$ 54,693,336	\$ 53,405,763	\$ 45,928,957	\$ 48,684,694	\$ 51,605,776
97	Less: Revenue Increase Delay	\$ (6,670,072)	\$ -	\$ (39,664,461)	\$ (34,111,436)	\$ (36,158,122)	\$ (38,327,610)
98	Other revenues	\$ 30,733,265	\$ 41,146,831	\$ 42,286,115	\$ 47,523,141	\$ 48,606,851	\$ 54,428,560
99	Less Expenditures (from Cash Flow)	\$ (578,828,358)	\$ (737,682,972)	\$ (780,678,379)	\$ (821,581,485)	\$ (881,868,437)	\$ (940,392,731)
100	Cash Flow	\$ 52,938,565	\$ (34,139,076)	\$ (12,574,115)	\$ 3,241,785	\$ (9,323,449)	\$ (12,589,745)
101	First Lien Coverage	1.467x	1.489x	1.449x	1.431x	1.424x	1.400x
102	Month of COS Revenue Adjustment						
103	Rate Revenue before Increase 2	\$ 601,033,658	\$ 662,397,066	\$ 725,818,149	\$ 777,300,130	\$ 823,938,138	\$ 873,374,426
104	Calculated Revenue Increase	0.0%	0.0%	0.0%	0.0%	0.0%	13.0%
105	Revenue Increase 2 Override	0.0%	7.5%	0.0%	0.0%	0.0%	0.0%
106	Utilized Revenue Increase 2	0.0%	7.5%	0.0%	0.0%	0.0%	0.0%
107	Cumulative Increase	1.5%	18.9%	27.9%	35.5%	43.7%	52.3%

**Resulting Cash Flows following Revenue Adjustment 2**

109	Revenues before revenue adjustment 2	\$ 601,033,658	\$ 662,397,066	\$ 725,818,149	\$ 777,300,130	\$ 823,938,138	\$ 873,374,426
110	Revenues from revenue adjustment 2	\$ -	\$ 49,679,780	\$ -	\$ -	\$ -	\$ -
111	Less: Revenue Increase Delay	\$ -	\$ (36,897,173)	\$ -	\$ -	\$ -	\$ -
112	Other revenues	\$ 30,733,265	\$ 41,146,831	\$ 42,286,115	\$ 47,523,141	\$ 48,606,851	\$ 54,428,560



Houston Combined Utility System  
**Water Revenue Requirements**

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
114	\$ (578,828,358)	\$ (737,682,972)	\$ (780,678,379)	\$ (821,581,485)	\$ (881,868,437)	\$ (940,392,731)
115	\$ 52,938,565	\$ (21,356,468)	\$ (12,574,115)	\$ 3,241,785	\$ (9,323,449)	\$ (12,589,745)
116	1.22x	1.30x	1.25x	1.26x	1.26x	1.25x
117	1.467x	1.535x	1.449x	1.431x	1.424x	1.400x
118	1.467x	1.535x	1.449x	1.431x	1.424x	1.400x
119	607,703,730	662,397,066	765,482,609	811,411,566	860,096,260	911,702,036
120	607,703,730	712,076,846	765,482,609	811,411,566	860,096,260	911,702,036

Annualized Rate Revenue Requirements for Adjustment 1  
 Annualized Rate Revenue Requirements for Adjustment 2

## 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	<b>Wastewater Revenue Requirements</b>						
		50%	50%	50%	50%	50%	50%
2	CUS Fund Balances						
3	Beginning Fund Balance	\$ 1,010,798,945	\$ 931,566,827	\$ 790,141,105	\$ 707,838,535	\$ 645,530,931	\$ 593,964,696
4	Ending Fund Balance	\$ 931,566,827	\$ 790,141,105	\$ 707,838,535	\$ 645,530,931	\$ 593,964,696	\$ 564,210,178
5	<b>CUS Fund Balance Applied to Wastewater</b>	<b>\$ 413,646,040</b>	<b>\$ 333,994,036</b>	<b>\$ 304,682,831</b>	<b>\$ 279,550,692</b>	<b>\$ 277,725,155</b>	<b>\$ 300,977,632</b>
6	<b>Cash Flow Test</b>						
7	<b>Revenues</b>						
8	Operating						
9	Wastewater system user charges	\$ 515,679,089	\$ 523,414,275	\$ 744,295,100	\$ 788,952,805	\$ 836,289,974	\$ 886,467,372
10	Sewer Service Penalties	\$ 5,500,000	\$ 5,582,500	\$ 7,938,315	\$ 8,414,614	\$ 8,919,491	\$ 9,454,660
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	<b>Total Operating Revenues</b>	<b>\$ 522,647,190</b>	<b>\$ 530,486,898</b>	<b>\$ 753,723,537</b>	<b>\$ 798,857,542</b>	<b>\$ 846,699,587</b>	<b>\$ 897,412,155</b>
13	<b>Non Operating</b>						
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	\$ 3,339,940	\$ 3,046,828	\$ 2,795,507	\$ 2,777,252
18	<b>Total Non-Operating Revenues</b>	<b>\$ 27,162,407</b>	<b>\$ 31,259,040</b>	<b>\$ 31,159,518</b>	<b>\$ 31,587,129</b>	<b>\$ 32,080,859</b>	<b>\$ 32,832,994</b>
19	<b>Total Revenues</b>	<b>\$ 549,809,596</b>	<b>\$ 561,745,937</b>	<b>\$ 784,883,055</b>	<b>\$ 830,444,671</b>	<b>\$ 878,780,446</b>	<b>\$ 930,245,149</b>
20	<b>Expenses</b>						
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
26	<b>Total Operating Expenses</b>	<b>\$ 286,312,888</b>	<b>\$ 290,574,483</b>	<b>\$ 290,601,677</b>	<b>\$ 290,631,081</b>	<b>\$ 290,662,050</b>	<b>\$ 290,691,778</b>
27	<b>Non-Operating</b>						



Houston Combined Utility System

# Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
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	\$ 38,217,350	\$ 70,232,666	\$ 104,817,519	\$ 151,321,842	\$ 185,430,974	
31	Second Lien Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
32	Subordinate Lien	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
33	Commercial Paper Debt Service	\$ 3,504,038	\$ 3,716,765	\$ 3,346,952	\$ 5,979,830	\$ 5,542,054	\$ 4,875,670	
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	\$ 14,885,902	\$ 15,779,056	\$ 16,725,799	\$ 17,729,347	
36	Cash Funded CIP	\$ -	\$ 89,234,870	\$ 102,326,710	\$ 105,912,212	\$ 84,762,601	\$ 76,924,024	
37	<b>Total Non-Operating Expenses</b>	\$ 316,823,155	\$ 444,986,800	\$ 494,665,761	\$ 536,708,333	\$ 562,437,327	\$ 586,147,607	
38	<b>Total Expenses</b>	\$ 603,136,043	\$ 735,561,284	\$ 785,267,438	\$ 827,339,414	\$ 853,099,377	\$ 876,839,385	
39	<b>Total Expenditures for Cash Flow Test</b>	\$ 603,136,043	\$ 735,561,284	\$ 785,267,438	\$ 827,339,414	\$ 853,099,377	\$ 876,839,385	
40	Cash Flow Surplus (Deficit)	\$ (53,326,446)	\$ (173,815,346)	\$ (384,383)	\$ 3,105,257	\$ 25,681,069	\$ 53,405,764	
41	Cash Flow Surplus (Deficit) with Reserves	\$ 123,003,669	\$ (213,230,245)	\$ 53,957,327	\$ 31,601,235	\$ 51,595,265	\$ 105,194,684	
42	<b>Debt Coverage Test</b>							
43	Junior Lien							
44	Gross Revenues	\$ 534,744,937	\$ 541,195,831	\$ 763,635,950	\$ 808,476,843	\$ 856,067,567	\$ 906,761,879	
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)	\$ (14,885,902)	\$ (15,779,056)	\$ (16,725,799)	\$ (17,729,347)	
46	Plus: Total Capital Equipment included (8505)	\$ 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)	
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	<b>Net Revenue Available for Junior Lien</b>	\$ 283,577,394	\$ 286,260,775	\$ 504,283,278	\$ 548,231,016	\$ 594,874,997	\$ 644,565,761	
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	52.10x	51.70x	59.26x	63.63x	
55	Junior Lien Coverage Surplus / (Deficit)	\$ 266,074,263	\$ 274,167,561	\$ 490,733,096	\$ 533,384,018	\$ 580,820,932	\$ 630,382,796	



Houston Combined Utility System  
**Wastewater Revenue Requirements**

Line No.	FYE-2021	FYE-2022	FYE-2023	FYE-2024	FYE-2025	FYE-2026
<b>56 First Lien</b>						
Net Revenue Available	\$ 283,577,394	\$ 286,260,775	\$ 504,283,278	\$ 548,231,016	\$ 594,874,997	\$ 644,565,761
Less: Junior Lien Debt Service	\$ (12,502,236)	\$ (8,638,010)	\$ (9,678,701)	\$ (10,604,999)	\$ (10,038,618)	\$ (10,130,690)
Plus: Restricted Revenue	\$ 15,064,659	\$ 20,550,106	\$ 21,247,105	\$ 21,967,828	\$ 22,712,879	\$ 23,483,270
<b>Net Revenue Available for Junior Lien</b>	<b>\$ 286,139,817</b>	<b>\$ 298,172,871</b>	<b>\$ 515,851,682</b>	<b>\$ 559,593,845</b>	<b>\$ 607,549,258</b>	<b>\$ 657,918,341</b>
First Lien Debt Service	\$ 288,753,298	\$ 330,828,869	\$ 362,327,496	\$ 395,982,236	\$ 442,918,254	\$ 474,037,876
<b>First Lien Coverage</b>	<b>0.99x</b>	<b>0.90x</b>	<b>1.42x</b>	<b>1.41x</b>	<b>1.37x</b>	<b>1.39x</b>
<b>First Lien Coverage Surplus / (Deficit)</b>	<b>\$ (118,114,800)</b>	<b>\$ (164,987,546)</b>	<b>\$ 8,593,187</b>	<b>\$ 5,218,714</b>	<b>\$ (12,536,297)</b>	<b>\$ (5,734,685)</b>
<b>Total Debt Coverage</b>						
Net Revenue Available	\$ 283,577,394	\$ 286,260,775	\$ 504,283,278	\$ 548,231,016	\$ 594,874,997	\$ 644,565,761
Plus: Restricted Revenue	\$ 15,064,659	\$ 20,550,106	\$ 21,247,105	\$ 21,967,828	\$ 22,712,879	\$ 23,483,270
<b>Net Revenue Available</b>	<b>\$ 298,642,053</b>	<b>\$ 306,810,881</b>	<b>\$ 525,530,383</b>	<b>\$ 570,198,844</b>	<b>\$ 617,587,876</b>	<b>\$ 668,049,031</b>
Junior Lien Debt Service	\$ 12,502,236	\$ 8,638,010	\$ 9,678,701	\$ 10,604,999	\$ 10,038,618	\$ 10,130,690
First Lien Debt Service	\$ 288,753,298	\$ 330,828,869	\$ 362,327,496	\$ 395,982,236	\$ 442,918,254	\$ 474,037,876
Second Lien Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Third Lien Debt Service	\$ 5,254,038	\$ 5,816,765	\$ 5,446,952	\$ 8,429,830	\$ 7,992,054	\$ 7,325,670
Subordinate Lien Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Debt Service Payments	\$ 8,115,696	\$ 8,116,011	\$ 8,113,304	\$ 7,922,569	\$ 8,100,819	\$ 8,342,042
<b>Total Debt Service</b>	<b>\$ 314,625,268</b>	<b>\$ 353,399,656</b>	<b>\$ 385,566,453</b>	<b>\$ 422,939,634</b>	<b>\$ 469,049,745</b>	<b>\$ 499,836,277</b>
<b>Junior + First + Second Coverage Ratio (1.4x)</b>	<b>0.99x</b>	<b>0.90x</b>	<b>1.41x</b>	<b>1.40x</b>	<b>1.36x</b>	<b>1.38x</b>
<b>Second Lien Coverage Surplus / (Deficit)</b>	<b>\$ (123,115,695)</b>	<b>\$ (168,442,750)</b>	<b>\$ 4,721,707</b>	<b>\$ 976,715</b>	<b>\$ (16,551,744)</b>	<b>\$ (9,786,961)</b>
<b>Junior + First Coverage Ratio (1.4x)</b>	<b>0.99x</b>	<b>0.90x</b>	<b>1.41x</b>	<b>1.40x</b>	<b>1.36x</b>	<b>1.38x</b>
<b>First Lien Coverage Surplus / (Deficit)</b>	<b>\$ (123,115,695)</b>	<b>\$ (168,442,750)</b>	<b>\$ 4,721,707</b>	<b>\$ 976,715</b>	<b>\$ (16,551,744)</b>	<b>\$ (9,786,961)</b>
<b>Revenue Requirement Calculation</b>						
<b>Surplus (Shortfall) - Pre Increase</b>	<b>\$ (123,115,695)</b>	<b>\$ (213,230,245)</b>	<b>\$ 4,721,707</b>	<b>\$ 976,715</b>	<b>\$ (16,551,744)</b>	<b>\$ (9,786,961)</b>
	Need Additional Coverage	Need Cash Flow	Surplus	Surplus	Need Additional Coverage	Need Additional Coverage

79						
80						





Houston Combined Utility System  
**Wastewater Revenue Requirements**

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
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81	April	July	April	April	April	April
Month of Revenue Adjustment 1						
Rate Revenue before Increase 1	\$ 515,679,089	\$ 523,414,275	\$ 744,295,100	\$ 788,952,805	\$ 836,289,974	\$ 886,467,372
Calculated Revenue Increase	93.0%	41.0%	0.0%	0.0%	8.0%	5.0%
Revenue Increase 1 Override	1.5%	20.0%	6.0%	6.0%	6.0%	4.5%
Utilized Revenue Increase 1	1.5%	20.0%	6.0%	6.0%	6.0%	4.5%

**Resulting Cash Flows following Revenue Adjustment 1**

87	Revenues before revenue adjustment 1	\$ 515,679,089	\$ 523,414,275	\$ 744,295,100	\$ 788,952,805	\$ 836,289,974	\$ 886,467,372
88	Revenues from revenue adjustment 1	\$ 7,735,186	\$ 104,682,855	\$ 44,657,706	\$ 47,337,168	\$ 50,177,398	\$ 39,891,032
89	Less: Revenue increase Delay	\$ (5,744,923)	\$ -	\$ (33,167,278)	\$ (35,157,315)	\$ (37,266,754)	\$ (29,627,069)
90	Other revenues	\$ 34,130,507	\$ 38,331,662	\$ 40,587,956	\$ 41,491,865	\$ 42,490,472	\$ 43,777,777
91	Less Expenditures (from Cash Flow)	\$ (603,136,043)	\$ (735,561,284)	\$ (785,267,438)	\$ (827,339,414)	\$ (853,099,377)	\$ (876,839,385)
92	Cash Flow	\$ (51,336,183)	\$ (69,132,491)	\$ 11,106,045	\$ 15,285,111	\$ 38,591,714	\$ 63,669,726
93	First Lien Coverage	0.998x	1.212x	1.444x	1.432x	1.392x	1.401x

94	April	April	April	April	April	April
Month of Revenue Adjustment 2						
Rate Revenue before Increase 2	\$ 517,669,352	\$ 628,097,130	\$ 755,785,527	\$ 801,132,659	\$ 849,200,618	\$ 896,731,335
Calculated Revenue Increase	91.0%	68.0%	0.0%	0.0%	2.0%	0.0%
Revenue Increase 2 Override	0.0%	18.5%	0.0%	0.0%	0.0%	0.0%
Utilized Revenue Increase 2	0.0%	18.5%	0.0%	0.0%	0.0%	0.0%
Cumulative Increase	1.5%	44.3%	53.0%	62.2%	71.9%	79.6%

**Resulting Cash Flows following Revenue Adjustment 2**

101	Revenues before revenue adjustment 2	\$ 517,669,352	\$ 628,097,130	\$ 755,785,527	\$ 801,132,659	\$ 849,200,618	\$ 896,731,335
102	Revenues from revenue adjustment 2	\$ -	\$ 116,197,969	\$ -	\$ -	\$ -	\$ -
103	Less: Revenue Increase Delay	\$ -	\$ (86,300,232)	\$ -	\$ -	\$ -	\$ -
104	Other revenues	\$ 34,130,507	\$ 38,331,662	\$ 40,587,956	\$ 41,491,865	\$ 42,490,472	\$ 43,777,777
105	Less Expenditures (from Cash Flow)	\$ (603,136,043)	\$ (735,561,284)	\$ (785,267,438)	\$ (827,339,414)	\$ (853,099,377)	\$ (876,839,385)
106	Cash Flow	\$ (51,336,183)	\$ (89,234,753)	\$ 11,106,045	\$ 15,285,111	\$ 38,591,714	\$ 63,669,726
107	Total Coverage Ratio	0.96x	1.25x	1.39x	1.38x	1.34x	1.36x
108	First Lien Coverage	0.998x	1.300x	1.444x	1.432x	1.392x	1.401x



Houston Combined Utility System

# Wastewater Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
108	Second Lien Coverage	0.998x	1.300x	1.444x	1.432x	1.392x	1.401x
109	Annualized Rate Revenue Requirements for Adjustment 1	\$ 523,414,275	\$ 628,097,130	\$ 788,952,805	\$ 836,289,974	\$ 886,467,372	\$ 926,358,404
110	Annualized Rate Revenue Requirements for Adjustment 2	\$ 523,414,275	\$ 744,295,100	\$ 788,952,805	\$ 836,289,974	\$ 886,467,372	\$ 926,358,404

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
<b>Combined Revenue Requirements</b>						
1	50%	50%	50%	50%	50%	50%
2	CUS Fund Balance					
3	Beginning Fund Balance	\$1,010,798,945	\$931,566,827	\$790,141,105	\$707,838,535	\$593,964,696
4	Planned Fund Balance	\$931,566,827	\$790,141,105	\$707,838,535	\$645,530,931	\$564,210,178
5	CUS Fund Balance Applied to Water	\$ 517,970,787	\$ 456,147,069	\$ 403,155,704	\$ 365,980,239	\$ 316,239,540
6	CUS Fund Balance Applied to Wastewater	\$ 413,646,040	\$ 333,994,036	\$ 304,682,831	\$ 279,550,692	\$ 277,725,155
7	<b>Cash Flow Test</b>					
8	<b>Revenues</b>					
9	Operating					
10	Water Sales	\$ 598,722,887	\$ 607,703,730	\$ 712,076,846	\$ 765,482,609	\$ 811,411,566
11	Sewer system user charges	\$ 515,679,089	\$ 523,414,275	\$ 744,295,100	\$ 788,952,805	\$ 836,289,974
12	Penalties	\$ 11,000,000	\$ 11,165,000	\$ 14,479,609	\$ 15,446,505	\$ 16,373,296
13	Other Water Operating Revenue (Non rate)	\$ 2,802,072	\$ 2,844,103	\$ 2,844,103	\$ 2,844,103	\$ 2,844,103
14	<b>Total Operating Revenues</b>	\$ 1,128,204,048	\$ 1,145,127,109	\$ 1,473,695,658	\$ 1,572,726,023	\$ 1,666,918,939
15	Non-Operating					
16	Impact Fee Revenue	\$ 25,000,000	\$ 41,158,416	\$ 42,653,642	\$ 48,650,707	\$ 50,429,310
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
19	Interest	\$ 11,288,000	\$ 9,315,668	\$ 7,901,411	\$ 7,078,385	\$ 6,455,309
20	<b>Total Non-Operating Revenues</b>	\$ 51,061,700	\$ 65,469,390	\$ 65,550,359	\$ 70,724,398	\$ 71,879,924
21	<b>Total Revenues</b>	\$ 1,179,265,748	\$ 1,210,596,499	\$ 1,539,246,017	\$ 1,643,450,421	\$ 1,738,798,863
22	Debt Coverage Revenues	\$ 1,154,265,748	\$ 1,169,438,082	\$ 1,496,592,375	\$ 1,594,739,714	\$ 1,688,369,553
23	<b>Expenses</b>					
24	Operating					
25	EXPENSES Drinking Water Operations	\$ 157,914,660	\$ 159,346,079	\$ 162,544,143	\$ 168,717,484	\$ 172,888,017
26	River Authority Contributed Debt Service	\$ 48,035,697	\$ 48,727,551	\$ 48,659,334	\$ 48,659,100	\$ 48,656,845
27	EXPENSES Wastewater Operations	\$ 201,653,880	\$ 204,655,493	\$ 204,674,550	\$ 204,695,156	\$ 204,716,860
28	EXPENSES Operation Services - G&A	\$ 39,745,557	\$ 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
30	Additional Consent Decree O&M	\$ -	\$ -	\$ -	\$ -	\$ -
31	<b>Total Operating Expenses</b>	\$ 577,572,593	\$ 585,227,123	\$ 588,392,362	\$ 594,603,738	\$ 598,812,323
	<b>Total Operating Revenues</b>	\$ 1,738,798,863	\$ 1,844,769,969	\$ 1,738,798,863	\$ 1,688,369,553	\$ 1,787,698,381
	<b>Total Operating Expenses</b>	\$ 598,812,323	\$ 612,928,895	\$ 598,812,323	\$ 598,812,323	\$ 612,928,895



Houston Combined Utility System

# Combined Revenue Requirements

Line No.		FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
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	\$ 83,839,862	\$ 151,040,951	\$ 213,898,423	\$ 292,147,325	\$ 362,465,414
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	\$ 29,127,439	\$ 31,088,708	\$ 32,954,031	\$ 34,931,273
43	Cash Funded CIP	\$ -	\$ 200,000,000	\$ 200,000,000	\$ 200,000,000	\$ 200,000,000	\$ 200,000,000
44	<b>Total Non-Operating Expenses</b>	\$ 604,391,808	\$ 888,017,133	\$ 977,553,456	\$ 1,054,317,161	\$ 1,136,155,492	\$ 1,204,303,222
45	<b>Total Expenses</b>	\$ 1,181,964,400	\$ 1,473,244,256	\$ 1,565,945,817	\$ 1,648,920,999	\$ 1,734,967,815	\$ 1,817,232,116
46	<b>Total Expenditures for Cash Flow Test</b>	\$ 577,572,593	\$ 565,227,123	\$ 588,392,462	\$ 594,603,738	\$ 598,812,323	\$ 612,928,895
47	<b>Cash Flow Surplus (Deficit)</b>	\$ 1,181,964,400	\$ 1,473,244,256	\$ 1,565,945,817	\$ 1,648,920,999	\$ 1,734,967,815	\$ 1,817,232,116
48	<b>Cash Flow Surplus (Deficit) with Reserves</b>	\$ 449,849,940	\$ (135,571,782)	\$ (26,699,801)	\$ (5,470,478)	\$ 3,831,048	\$ 27,537,853
49	<b>Debt Coverage Test</b>						
50	Junior Lien						
51	Gross Revenues	\$ 1,154,265,748	\$ 1,169,438,082	\$ 1,496,592,375	\$ 1,594,799,714	\$ 1,688,369,553	\$ 1,787,698,381
52	Less: O&M	(577,572,593)	(585,227,123)	(588,392,362)	(594,603,738)	(598,812,323)	(612,928,895)
53	Less: Bad Debt	(22,288,040)	(22,622,360)	(29,127,439)	(31,088,708)	(32,954,031)	(34,931,273)
54	Plus: Total Capital Equipment Included (8305)	20,557,657	20,866,022	20,866,022	20,866,022	20,866,022	20,866,022
55	Plus: Total Service in 8305	2,832,200	2,874,683	2,874,683	2,874,683	2,874,683	2,874,683
56	Plus: PIB Debt	5,049,600	3,805,697	3,805,542	2,548,047	2,547,168	0
57	Plus: Wallisville & Allens' Creek DS	1,912,097	1,912,097	1,843,880	1,843,646	1,841,391	1,846,774
58	Plus: Pension DS	8,085,190	8,140,196	8,194,646	8,253,521	8,315,531	8,375,056
59	Plus: CWA Debt Service	6,398,700	6,494,681	6,494,681	6,494,681	6,494,681	6,494,681
60	Less: Deduction of Allocated recovery	(8,490,900)	(8,618,264)	(8,618,264)	(8,618,264)	(8,618,264)	(8,618,264)
61	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
62	<b>Revenues Available for Junior Lien</b>	\$ 624,749,656	\$ 631,573,708	\$ 949,043,760	\$ 1,037,879,600	\$ 1,125,434,409	\$ 1,206,187,163
63	Junior Lien Debt Service	\$ 22,405,000	\$ 15,480,000	\$ 17,345,000	\$ 19,005,000	\$ 17,990,000	\$ 18,155,000
64	<b>Junior Lien Coverage Ratio</b>	27.88x	40.80x	54.72x	54.61x	62.56x	66.44x



Houston Combined Utility System

## Combined Revenue Requirements

Line No.	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
63	Junior Lien Coverage Surplus / (Deficit)	\$ 593,382,656	\$ 609,901,708	\$ 924,760,760	\$ 1,011,272,600	\$ 1,100,248,409	\$ 1,180,770,163
64	<b>First Lien</b>						
65	Net Revenues Available	\$ 624,749,656	\$ 631,573,708	\$ 949,043,760	\$ 1,037,879,600	\$ 1,125,434,409	\$ 1,206,187,163
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	\$ 974,352,402	\$ 1,067,525,307	\$ 1,157,873,718	\$ 1,245,103,751
69	First Lien Debt Service	\$ 519,788,300	\$ 606,409,347	\$ 685,955,686	\$ 756,723,633	\$ 835,746,166	\$ 900,706,815
70	First Lien Coverage	1.21x	1.08x	1.42x	1.41x	1.39x	1.38x
71	First Lien Coverage Surplus / (Deficit)	\$ (131,725,963)	\$ (213,392,962)	\$ (10,268,559)	\$ (18,494,779)	\$ (37,356,914)	\$ (41,302,790)
72	<b>Second Lien</b>						
73	Net Revenues Available	\$ 627,344,656	\$ 657,252,124	\$ 974,352,402	\$ 1,067,525,307	\$ 1,157,873,718	\$ 1,245,103,751
74	Less: First Lien Debt Service	\$ (519,788,300)	\$ (606,409,347)	\$ (685,955,686)	\$ (756,723,633)	\$ (835,746,166)	\$ (900,706,815)
75	Plus: Restricted Revenues						
76	Revenues Available for Second Lien	\$ 107,556,357	\$ 50,842,777	\$ 288,396,716	\$ 310,801,674	\$ 322,127,552	\$ 344,396,936
77	Second Lien Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
78	Second Lien Coverage	NA	NA	NA	NA	NA	NA
79	Second Lien Coverage Surplus / (Deficit)	\$ 107,556,357	\$ 50,842,777	\$ 288,396,716	\$ 310,801,674	\$ 322,127,552	\$ 344,396,936
80	<b>Total Debt Coverage</b>						
81	Net Revenues Available	\$ 624,749,656	\$ 631,573,708	\$ 949,043,760	\$ 1,037,879,600	\$ 1,125,434,409	\$ 1,206,187,163
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	\$ 991,697,402	\$ 1,086,530,307	\$ 1,175,863,718	\$ 1,263,258,751
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	\$ 606,409,347	\$ 685,955,686	\$ 756,723,633	\$ 835,746,166	\$ 900,706,815
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	\$ 685,531,004	\$ 768,488,461	\$ 841,651,699	\$ 921,978,074	\$ 986,089,223
91	Total Coverage Ratio (First + Junior)	1.20x	1.08x	1.41x	1.40x	1.38x	1.37x
92	Total Coverage Surplus / (Deficit)	\$ (195,126,923)	\$ (287,011,281)	\$ (84,186,443)	\$ (91,782,072)	\$ (114,905,585)	\$ (117,266,161)



Houston Combined Utility System

# Combined Revenue Requirements

Line No. **FYE 2021** **FYE 2022** **FYE 2023** **FYE 2024** **FYE 2025** **FYE 2026**

## 93 Resulting Cash Flows After Revenue Adjustment 1

93	Revenues before rate adjustment 1	\$ 1,114,401,976	\$ 1,131,118,006	\$ 1,456,371,946	\$ 1,554,435,415	\$ 1,647,701,540	\$ 1,746,563,632
94	Revenues from revenue adjustment 1	\$ 16,716,030	\$ 159,376,191	\$ 98,063,469	\$ 93,266,125	\$ 98,862,092	\$ 91,496,807
95	Less: Revenue Increase Delay	\$ (12,414,995)	\$ -	\$ (72,831,739)	\$ (69,268,751)	\$ (73,424,876)	\$ (67,954,679)
96	Other revenues	\$ 64,863,772	\$ 79,478,493	\$ 82,874,071	\$ 89,015,006	\$ 91,097,323	\$ 98,206,337
97	Less Expenditures (from Cash Flow)	\$ (1,181,964,400)	\$ (1,473,244,256)	\$ (1,565,945,817)	\$ (1,648,920,899)	\$ (1,734,967,815)	\$ (1,817,232,116)
98	Cash Flow	\$ 1,602,382	\$ (103,271,566)	\$ (1,468,070)	\$ 18,526,896	\$ 29,268,265	\$ 51,079,982

## 100 Resulting Cash Flows After Revenue Adjustment 2

100	Revenues before rate adjustment 2	\$ 1,118,703,010	\$ 1,290,494,196	\$ 1,481,603,676	\$ 1,578,432,789	\$ 1,673,138,756	\$ 1,770,105,761
101	Revenues from revenue adjustment 2	\$ -	\$ 165,877,749	\$ -	\$ -	\$ -	\$ -
102	Less: Revenue Increase Delay	\$ -	\$ (123,197,404)	\$ -	\$ -	\$ -	\$ -
103	Other revenues	\$ 64,863,772	\$ 79,478,493	\$ 82,874,071	\$ 89,015,006	\$ 91,097,323	\$ 98,206,337
104	Less Expenditures (from Cash Flow)	\$ (1,181,964,400)	\$ (1,473,244,256)	\$ (1,565,945,817)	\$ (1,648,920,899)	\$ (1,734,967,815)	\$ (1,817,232,116)
105	Cash Flow	\$ 1,602,382	\$ (60,591,222)	\$ (1,468,070)	\$ 18,526,896	\$ 29,268,265	\$ 51,079,982

107	Junior + First + Second Coverage Ratio (1.4x)	1.21x	1.41x	1.45x	1.43x	1.41x	1.40x
108	Second Lien Coverage Surplus / (Deficit)	\$ (105,019,929)	\$ 4,143,574	\$ 32,308,172	\$ 24,507,595	\$ 6,070,303	\$ 394,338
109	Junior + First Coverage Ratio (1.4x)	1.21x	1.41x	1.45x	1.43x	1.41x	1.40x
110	First Lien Coverage Surplus / (Deficit)	\$ (105,019,929)	\$ 4,143,574	\$ 32,308,172	\$ 24,507,595	\$ 6,070,303	\$ 394,338
111	Total Coverage Ratio (1.2x)	1.08x	1.28x	1.32x	1.32x	1.30x	1.30x
112	Total Coverage Surplus / (Deficit)	\$ (190,825,889)	\$ (84,954,746)	\$ (58,954,712)	\$ (67,784,698)	\$ (89,468,368)	\$ (93,724,032)

113	Annualized Rate Revenue Requirements for Adjustment 1	\$ 1,131,118,006	\$ 1,290,494,196	\$ 1,554,435,415	\$ 1,647,701,540	\$ 1,746,563,632	\$ 1,838,060,440
114	Annualized Rate Revenue Requirements for Adjustment 2	\$ 1,131,118,006	\$ 1,456,371,946	\$ 1,554,435,415	\$ 1,647,701,540	\$ 1,746,563,632	\$ 1,838,060,440

## 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 <sup>(1)</sup>
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
<b>Total</b>	<b>429,705</b>	<b>14,232</b>	<b>37,398</b>	<b>6,162</b>	<b>867</b>	<b>1</b>	<b>14</b>	<b>279</b>	<b>5,232</b>

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 <sup>(1)</sup>
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
<b>Total</b>	---	<b>500,900</b>	<b>43,158</b>	<b>99,764</b>	<b>13,598</b>	<b>2,246</b>	<b>17</b>	<b>690</b>	<b>11,876</b>	<b>215,440</b>

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 <sup>(1)</sup>	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
<b>Total</b>	<b>381,338</b>	<b>13,211</b>	<b>35,338</b>	<b>268</b>

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 <sup>(1)</sup>	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
<b>Total</b>	<b>---</b>	<b>446,755</b>	<b>59,980</b>	<b>126,980</b>	<b>3,233</b>

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.

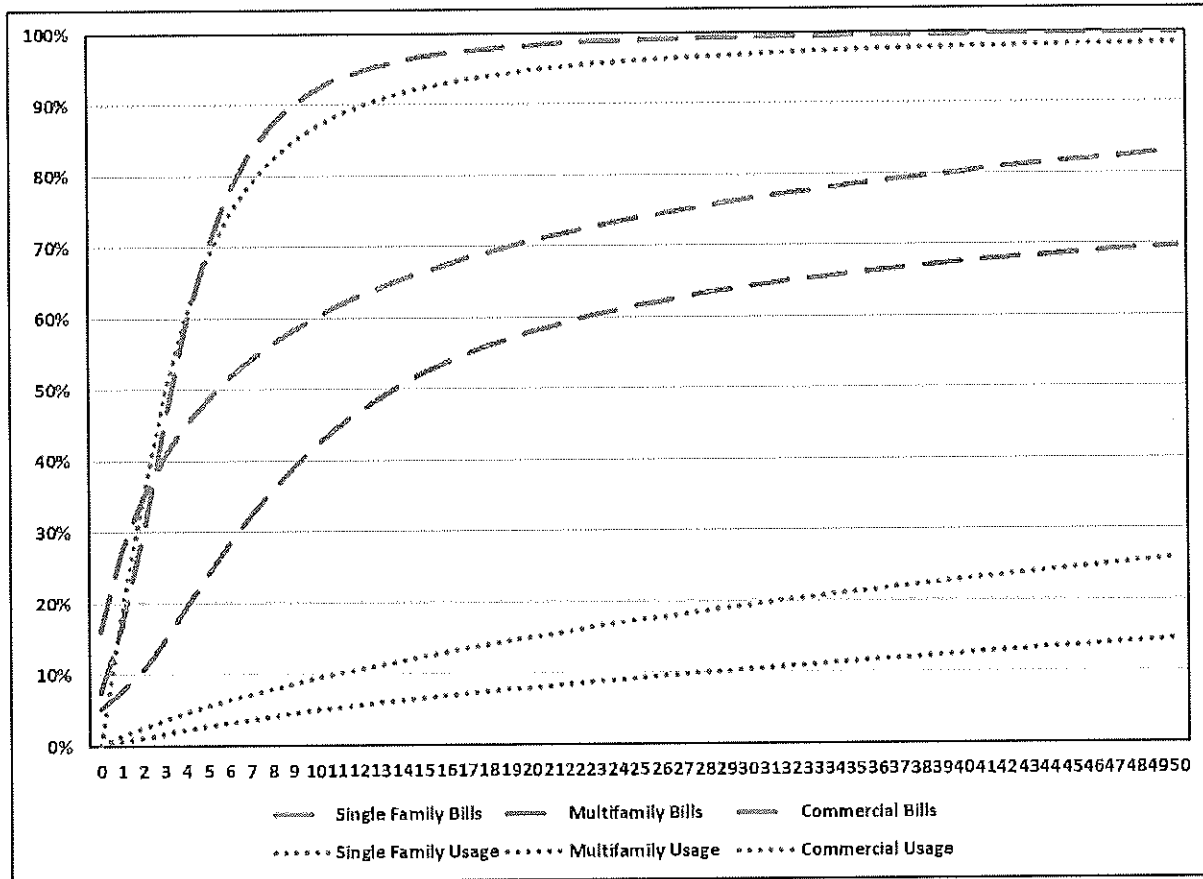


Figure F.3 Bill Frequency and Usage Analysis

## Appendix G

# WATER COST OF SERVICE ANALYSIS











Houston Combined Utility System  
Water System Customer Allocation - FYE 2022 July Increase

Line No.	Customer Type	Common to All				Common to Retail				Common to All						
		Base	Max Hour	Max Hour	Max Hour	Base	Max Hour	Max Hour	Max Hour	Water Charge	Billing & Collecting	Supp. Mat.	Supp. Cap. Inv.	TCO/Fps.	Total	
		kgal	kgal/day	kgal/day	kgal/day	kgal	kgal/day	kgal/day	kgal/day	MEU	MEU	MEU	kgal	kgal	kgal	Connections
1	Development of Unit Costs															
2	Single Family Residential	23,340,203	30,889	47,423	78,340,203	30,889	47,423	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	47,934	43,417	43,417	1,651,408	-	-	-	-	579,968
4	CI - Commercial	21,636,992	25,296	42,315	21,636,992	25,296	42,315	42,315	88,790	88,790	407,916	-	-	-	-	48,300
5	CI - Emergency Backup	11,907	643	338	11,907	643	338	338	694	694	165	-	-	-	-	17
6	CI - Extra Container	791	25	14	791	25	14	14	4	4	24	-	-	-	-	-
7	CI - Government	3,746,549	23,425	16,845	3,746,549	23,425	16,845	16,845	10,150	10,150	14,488	-	-	-	-	4,376
8	CI - Industrial Sewer Surcharges	686,428	882	1,381	686,428	882	1,381	1,381	1,422	1,422	2,015	-	-	-	-	269
9	CI - Retail	8,798	29	26	8,798	29	26	26	17	17	12	-	-	-	-	2
10	CI - Transient	384,573	2,953	2,003	384,573	2,953	2,003	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	6,667	13,600	13,600	70,384	-	-	-	-	489
12	Metered Fire	12,976	462	249	12,976	462	249	249	11,947	11,947	3,968	-	-	-	-	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	-	29,350	298	-	-	-	-	-	-	-	-	-	16
17	GRP Participants - Area 3	2,451,173	14,415	-	2,451,173	14,415	-	-	-	-	1,086	-	-	-	-	208
18	Contract Treated - STEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74
19	Contract Treated - EWPPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
20	Contract Treated - NEWPPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
21	Contract Treated with Airgap	10,470,163	13,973	-	10,470,163	13,973	-	-	120	120	485	-	-	-	-	92
22	Contract Treated without Airgap	1,351,009	1,669	2,685	1,351,009	1,669	2,685	2,685	50	50	181	-	-	-	-	38
23	Contract Water - Untreated	78,971,731	-	-	78,971,731	-	-	-	432	432	1,569	-	-	-	-	5
24	TOTAL	92,415,220	146,843	167,880	78,073,526	116,489	165,184	165,184	893,636	893,636	5,681,563	12,996,155	9,385,481	19,558,357	1,033,575	
25	Net Year Unit Cost	\$ 0.72	\$ 0.19	\$ 0.19	\$ 1.46	\$ 3.08	\$ 4.88	\$ 4.88	\$ 16.76	\$ 25.20	\$ 2.62	\$ 0.74	\$ 1.34	\$ 0.79	\$ 2.87	



Houston Combined Utility System

Water System Customer Allocation - FYE 2022 July Increase

Line No.	Customer Type	Commitment to Meter & Customer-Customers Mtr				Commitment to Billing & Collecting				IRWP MAs	SEWPP Capex	ICSG Fees	Total		
		Base	Inst/Day	Inst/Hour	Base	Inst/Day	Inst/Hour	Fltr	Meter Charges						
26	Single Family Residential	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$		
27	Multifamily Residential	56,783,446	14,865,490	5,933,208	34,102,040	10,767,769	21,200,072	8,445,666	12,896,070	12,955,240	1,013,013	1,417,982	159,487,832		
28	CI - Commercial	52,685,029	12,094,939	5,987,050	37,718,380	8,760,929	22,439,348	727,629	1,095,897	442,846	106,972	1,417,982	135,510,827		
29	CI - Emergency Backup	52,685,430	12,169,843	5,285,287	31,644,724	8,815,186	19,809,153	1,489,094	2,237,067	1,066,132	-	-	135,510,827		
30	CI - Extra Container	28,968	309,478	42,211	17,397	224,169	154,206	11,695	17,492	432	-	42	32,441		
31	CI - Government	9,114,828	1,155	1,714	8,812	8,428	7,885,693	170,098	255,721	65	10,811	564	44,486,221		
32	CI - Industrial Sewer Surcharge	1,659,984	11,269,844	2,103,883	5,474,029	8,163,275	646,633	23,833	35,630	37,936	-	-	4,489,344		
33	CI - Retail	935,613	1,420,713	3,294	12,854	9,982	12,346	232	423	52	-	-	74,403		
34	CI - Transient	5,860,766	3,239,217	892,666	3,159,759	2,346,316	3,120,818	229,263	344,667	201,894	1,588	1,588	19,578,629		
35	Irrigation	31,081	116,043	116,043	116,043	116,043	116,043	116,043	116,043	116,043	80	80	4,093,867		
36	Metered Fire	-	-	-	-	-	-	8,632,272	5,460,654	165,389	-	-	9,258,315		
37	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-		
38	Dialing Only	-	-	-	-	-	-	-	-	-	-	-	-		
39	GRP Participants - Areas 1 & 2	71,404	143,168	-	-	-	-	-	-	221	-	40	214,833		
40	GRP Participants - Area 3	6,050,676	6,934,949	-	-	-	-	-	-	2,845	-	514	12,998,985		
41	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	184	15,397,406		
42	Contract Treated - IRWP Water Authorities	-	-	-	-	-	-	-	-	-	-	30	9,562,279		
43	Contract Treated with Allgsp	-	-	-	-	-	-	-	-	-	-	20	12,550,818		
44	Contract Treated without Allgsp	-	-	-	-	-	-	-	-	-	-	226	32,199,001		
45	Contract Water - Unreated	21,547,920	-	-	-	-	-	-	-	-	-	12	4,427,046		
46	Total	\$ 21,527,820	\$ 22,435,264	\$ 70,645,025	\$ 114,072,129	\$ 40,593,920	\$ 77,333,021	\$ 14,976,458	\$ 22,530,316	\$ 14,877,242	\$ 9,562,244	\$ 12,530,799	\$ 15,377,222	\$ 2,589,466	\$ 662,887,066



Houston Combined Utility System

## Water Cost of Service Comparison

FYE 2022 - July Increase

No.	Customer Type	Cost of Service
1	Single Family Residential	\$ 179,751,417
2	Multifamily Residential	153,467,832
3	CII - Commercial	135,310,827
4	CII - Emergency Backup	810,030
5	CII - Extra Container	32,441
6	CII - Government	44,486,221
7	CII - Industrial Sewer Surcharge	4,289,341
8	CII - Resale	74,402
9	CII - Transient	5,277,427
10	Irrigation	19,678,929
11	Metered Fire	1,091,607
12	Unmetered Fire	9,258,315
13	GRP Participants - Areas 1 & 2	214,833
14	GRP Participants - Area 3	12,998,985
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	32,199,001
19	Contract Treated without Airgap	4,427,046
20	Contract Water - Untreated	21,517,916
21	<b>Total</b>	<b>\$ 662,397,066</b>





Houston Combined Utility System

Water System Customer Allocation - FYE 2022 April Increase

Line No.	Customer Type	Common to Retail & Customer-Customers (Retail)			Common to Retail			Common to All			SEWPP Capital	SEWPP Maint.	NEWPP Maint.	EWP Maint.	Sill & Collecting	ICGO Fees	Total
		Base	Max Dly.	Max Hour	Base	Max Dly.	Max Hour	Base	Max Dly.	Max Hour							
26	Single Family Residential	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
27	Multifamily Residential	67,842,843	13,068,566	6,457,886	40,782,655	9,472,675	24,063,626	35,972,571	11,642,552	24,063,626	9,133,756	13,640,338	13,853,188	1,013,013	1,417,983	1,417,983	193,937,511
28	CI - Commercial	56,814,755	13,146,489	5,709,762	34,113,408	9,531,339	21,438,466	40,782,655	9,472,675	24,063,626	785,244	1,176,048	482,269	1,013,013	1,417,983	1,417,983	166,728,509
29	CI - Emergency Backup	31,252	334,380	45,601	18,611	244,381	171,659	18,611	244,381	171,659	12,956	18,805	462	10,972	10,972	10,972	875,999
30	CI - Extra Container	2,078	13,144	1,852	1,249	9,528	6,948	1,249	9,528	6,948	78	117	68	10,911	10,911	10,911	48,077,417
31	CI - Government	9,843,961	12,177,052	2,772,851	5,418,744	8,676,466	8,526,334	189,567	274,925	405,995	189,567	274,925	405,995	10,911	10,911	10,911	4,685,238
32	CI - Industrial Sewer Surcharge	1,803,958	458,770	186,384	1,084,409	332,319	699,166	1,084,409	332,319	699,166	25,720	36,571	5,646	664	664	664	9,048,408
33	CI - Retail	23,120	14,890	3,558	13,888	10,799	13,350	13,888	10,799	13,350	304	455	34	1,398	1,398	1,398	5,763,025
34	CI - Transient	1,010,662	1,535,079	270,321	607,543	1,111,693	1,014,028	607,543	1,111,693	1,014,028	51,853	77,660	21,598	1,398	1,398	1,398	21,663,725
35	Irrigation	6,330,878	3,489,970	899,540	3,805,708	2,516,933	3,374,354	3,805,708	2,516,933	3,374,354	247,416	370,551	197,217	80	80	80	11,777,696
36	Metered Fire	34,100	240,226	33,577	20,499	174,127	125,954	20,499	174,127	125,954	8,918,880	5,870,746	176,980	-	-	-	9,987,606
37	Unmetered Fire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Dewater Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	GRP Participants - Areas 1 & 2	77,132	154,693	-	-	-	-	-	-	-	-	-	-	-	-	-	231,101
41	GRP Participants - Area 3	6,546,824	7,493,204	-	-	-	-	-	-	-	-	-	-	-	-	-	14,043,597
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	514
43	Contract Treated - EWP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
45	Contract Treated with Alltop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
46	Contract Treated without Alltop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	226
47	Contract Water - Unretired	23,088,773	867,622	362,394	-	-	-	-	-	-	-	-	-	-	-	-	4,782,399
48	Total	\$ 23,088,773	\$ 242,857,968	\$ 76,320,381	\$ 131,939,445	\$ 43,891,807	\$ 83,615,626	\$ 161,622,310	\$ 15,919,899	\$ 9,562,244	\$ 12,550,799	\$ 15,397,222	\$ 2,559,486	\$ 712,076,846			



Houston Combined Utility System

## Water Cost of Service Comparison

FYE 2022 - April Increase

Item	Customer Type	Cost of Service
1	Single Family Residential	\$ 193,957,511
2	Multifamily Residential	165,728,509
3	CII - Commercial	146,198,121
4	CII - Emergency Backup	875,399
5	CII - Extra Container	35,062
6	CII - Government	48,077,417
7	CII - Industrial Sewer Surcharge	4,635,238
8	CII - Resale	80,408
9	CII - Transient	5,703,025
10	Irrigation	21,263,725
11	Metered Fire	1,177,698
12	Unmetered Fire	9,967,606
13	GRP Participants - Areas 1 & 2	232,101
14	GRP Participants - Area 3	14,043,587
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	34,783,669
19	Contract Treated without Airgap	4,782,399
20	Contract Water - Untreated	23,024,874
21	<b>Total</b>	<b>\$ 712,076,846</b>



Houston Combined Utility System  
Water System Customer Allocation - FYE 2023 April Increase

Line No.	Disposal Type	Comment to Retail & Customer Group				Comment to Retail				Comment to All					
		Size	Max Day	Year/Day	Year/Year	Size	Max Day	Max Hour	Max Hour	Site	Meter Charge	Billing & Collecting	EWPP/MA	AKWPP/MA	SEWPP/Co-part

Line No.	Units of Service	kgal		kgal/day		kgal/day		kgal/day		kgal/day		kgal		kgal		kgal		Connections
		kgal	kgal	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	kgal	kgal	kgal	kgal	kgal	kgal	
1	Single Family Residential	23,386,883	50,961	47,517	23,386,883	30,961	47,517	504,919	4,977,454	-	-	-	-	-	-	-	-	410,866
2	Multifamily Residential	25,866,958	25,151	48,030	25,866,958	25,151	48,030	48,504	161,730	-	-	-	-	-	-	-	-	575,116
3	CI - Commercial	21,700,306	25,347	42,800	21,700,306	25,347	42,800	88,868	406,732	-	-	-	-	-	-	-	-	43,388
4	CI - Emergency Backup	11,931	645	399	11,931	645	399	696	185	-	-	-	-	-	-	-	-	17
5	CI - Extra Container	792	25	14	792	25	14	4	24	-	-	-	-	-	-	-	-	4,385
6	CI - Government	3,754,042	23,472	16,879	3,754,042	23,472	16,879	10,170	14,517	-	-	-	-	-	-	-	-	269
7	CI - Industrial Sewer Surcharge	687,801	884	1,384	687,801	884	1,384	1,425	2,019	-	-	-	-	-	-	-	-	2
8	CI - Retail	8,815	29	26	8,815	29	26	17	17	-	-	-	-	-	-	-	-	644
9	CI - Transient	385,342	2,959	2,007	385,342	2,959	2,007	2,873	7,723	-	-	-	-	-	-	-	-	470
10	Irrigation	2,413,820	6,746	5,680	2,413,820	6,746	5,680	13,707	13,707	-	-	-	-	-	-	-	-	32
11	Metered Fire	13,001	483	249	13,001	483	249	11,971	5,975	-	-	-	-	-	-	-	-	-
12	Unmetered Fire	-	-	-	-	-	-	217,469	65,288	-	-	-	-	-	-	-	-	-
13	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	GRP Participants - Areas 1 & 2	29,408	298	-	29,408	298	-	-	-	-	-	-	-	-	-	-	-	16
16	GRP Participants - Area 3	4,892,311	14,444	-	4,892,311	14,444	-	-	-	-	-	-	-	-	-	-	-	209
17	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
18	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
20	Contract Treated with Airgap	10,451,103	14,001	-	10,451,103	14,001	-	-	-	-	-	-	-	-	-	-	-	92
21	Contract Treated without Airgap	1,355,711	1,672	2,693	1,355,711	1,672	2,693	-	-	-	-	-	-	-	-	-	-	38
22	Contract Water - Untreated	79,129,675	-	-	79,129,675	-	-	-	-	-	-	-	-	-	-	-	-	5
23	<b>Total</b>	<b>79,129,675</b>	<b>147,137</b>	<b>168,215</b>	<b>79,129,675</b>	<b>116,722</b>	<b>165,215</b>	<b>895,423</b>	<b>5,692,927</b>	<b>13,022,188</b>	<b>14,194,431</b>	<b>19,577,433</b>	<b>1,085,442</b>	<b>1,085,442</b>	<b>1,085,442</b>	<b>1,085,442</b>	<b>1,085,442</b>	
24	<b>Yearly Unit Cost</b>	<b>\$ 0.30</b>	<b>\$ 2.75</b>	<b>\$ 59.55</b>	<b>\$ 145.32</b>	<b>\$ 1.71</b>	<b>\$ 407.91</b>	<b>\$ 13.35</b>	<b>\$ 28.31</b>	<b>\$ 1.08</b>	<b>\$ 0.73</b>	<b>\$ 0.79</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	
25	<b>Yearly Unit Cost</b>	<b>\$ 0.30</b>	<b>\$ 2.75</b>	<b>\$ 59.55</b>	<b>\$ 145.32</b>	<b>\$ 1.71</b>	<b>\$ 407.91</b>	<b>\$ 13.35</b>	<b>\$ 28.31</b>	<b>\$ 1.08</b>	<b>\$ 0.73</b>	<b>\$ 0.79</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	<b>\$ 2.47</b>	



Houston Combined Utility System

Water System Customer Allocation - FYE 2023 April Increase

Line No.	Customer Type	Rate/Water	Base	Max Qty	Max Hour	Base	Max Qty	Max Hour	Fin	1414F Charges	Compart to All	Bill to Collecting	SEWPP Comp	NEWPP W/L	SEWPP Comp	ICGO Fees	Totl		
<b>Allocation of Unit Costs to Customer Types</b>																			
26	Single Family Residential	\$	64,233,885	17,324,395	6,505,352	\$	39,897,536	\$	9,772,313	\$	14,286,396	\$	14,093,513	\$	-	\$	1,013,013	\$	206,392,659
27	Multifamily Residential	-	71,445,091	14,095,566	6,979,679	44,239,052	10,275,502	26,318,620	861,996	1,231,781	453,750	1,417,980	-	-	-	-	1,417,980	\$	177,005,020
28	CI - Commercial	-	59,885,079	14,182,860	6,151,566	37,113,059	10,935,138	23,233,722	1,721,898	2,519,047	1,161,898	106,972	-	-	-	-	106,972	\$	156,225,238
29	CI - Emergency Backup	-	32,815	360,688	49,209	20,405	265,923	185,596	13,464	19,696	470	-	-	-	-	-	42	\$	945,249
30	CI - Extra Comliner	-	2,179	14,177	1,999	1,355	10,335	7,537	84	129	69	-	-	-	-	-	-	\$	37,857
31	CI - Government	-	10,825,213	13,138,982	2,452,817	6,420,369	9,574,536	9,248,557	196,831	287,954	42,866	10,811	-	-	-	-	10,811	\$	51,692,737
32	CI - Industrial Sewer Surcharge	-	1,881,746	494,499	201,433	1,176,315	880,484	759,621	27,579	40,346	5,740	864	-	-	-	-	864	\$	4,956,925
33	CI - Resale	-	24,245	16,050	3,640	15,076	11,708	14,481	326	477	34	-	-	-	-	-	34	\$	86,353
34	CI - Transient	-	1,059,856	1,655,714	291,711	1,206,996	1,099,569	1,464	55,600	81,340	21,955	1,588	-	-	-	-	1,588	\$	6,133,755
35	Irrigation	-	6,639,034	3,775,017	970,719	4,128,249	2,754,943	3,660,337	285,294	388,112	200,479	1,158	-	-	-	-	1,158	\$	22,780,942
36	Metered Fire	-	35,760	259,105	36,234	22,236	188,884	136,629	231,693	338,955	9,584	80	-	-	-	-	80	\$	1,299,169
37	Unmetered Fire	-	-	-	-	-	-	-	4,203,132	6,148,964	179,909	-	-	-	-	-	-	\$	10,582,003
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$	-
39	Dishare Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$	-
40	GRP Participants - Areas 1 & 2	-	80,886	166,849	-	-	-	-	-	-	241	-	-	-	-	-	241	\$	248,016
41	GRP Participants - Area 3	-	13,750,981	8,090,061	-	-	-	-	-	-	8,095	-	-	-	-	-	8,095	\$	21,816,652
42	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	15,397,886	-	-	\$	15,398,070
43	Contract Treated - SEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$	9,562,626
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	15,385,466	-	-	-	\$	15,385,466
45	Contract Treated with Allgap	-	28,854,999	7,834,105	-	-	-	-	-	-	3,391	-	-	-	-	-	3,391	\$	36,693,959
46	Contract Treated without Allgap	-	3,725,281	955,837	-	-	-	-	-	-	1,413	-	-	-	-	-	1,413	\$	5,062,145
47	Contract Water - Unreated	-	23,361,774	-	-	-	-	-	-	-	12,244	-	-	-	-	-	12,244	\$	23,374,501
<b>Total</b>		\$	293,861,776	261,555,050	89,330,995	133,792,686	47,611,720	90,702,008	17,330,206	35,370,240	16,163,234	9,562,626	15,285,466	15,397,886	2,553,436		2,553,436	\$	765,487,609





Houston Combined Utility System

## Water Cost of Service Comparison

FYE 2023 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	\$ 206,392,569
2	Multifamily Residential	177,005,020
3	CII - Commercial	156,225,238
4	CII - Emergency Backup	945,249
5	CII - Extra Container	37,857
6	CII - Government	51,692,737
7	CII - Industrial Sewer Surcharge	4,956,925
8	CII - Resale	86,253
9	CII - Transient	6,133,763
10	Irrigation	22,780,342
11	Metered Fire	1,259,169
12	Unmetered Fire	10,532,003
13	GRP Participants - Areas 1 & 2	248,016
14	GRP Participants - Area 3	21,816,652
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	36,693,959
19	Contract Treated without Airgap	5,052,145
20	Contract Water - Untreated	23,378,501
21	<b>Total</b>	<b>\$ 765,482,609</b>



Houston Combined Utility System  
Water System Customer Allocation - FYE 2024 April Increase

Line No.	Customer Type	Common to Residential Customers Not Connecting to Capital			Common to All			ENRPA MUs	NEWPP MAs	SEMPR Co-Participant	TGO Fees	Total
		Base	Max Day	Max Hour	Base	Max Day	Max Hour					

Line No.	Units of Service	kgal / day			kgal / day			kgal / day			MEU	MEU	MEU	Bills	kgal	kgal	kgal	Connections
		kgal	kgal / day	kgal / day	kgal / day	kgal / day	kgal / day	kgal / day	kgal	kgal								
1	Single Family Residential	23,483,657	31,023	47,612	23,483,657	31,023	47,612	505,929	505,929	4,987,969	-	-	-	-	-	-	-	411,687
2	Multifamily Residential	25,918,672	25,241	48,126	25,918,672	25,241	48,126	48,591	48,591	1,620,054	-	-	-	-	-	-	-	576,266
3	CI - Commercial	21,745,707	25,397	42,485	21,745,707	25,397	42,485	89,146	89,146	409,549	-	-	-	-	-	-	-	43,273
4	CI - Emergency Backup	11,955	646	339	11,955	646	339	697	697	186	-	-	-	-	-	-	-	17
5	CI - Extra Container	794	25	14	794	25	14	4	4	24	-	-	-	-	-	-	-	-
6	CI - Government	3,761,550	29,519	16,912	3,761,550	29,519	16,912	10,190	10,190	14,546	-	-	-	-	-	-	-	4,394
7	CI - Industrial Sewer Surcharge	693,177	886	1,387	693,177	886	1,387	3,428	3,428	2,093	-	-	-	-	-	-	-	270
8	CI - Resale	8,833	29	26	8,833	29	26	17	17	13	-	-	-	-	-	-	-	2
9	CI - Transient	396,113	2,965	2,011	396,113	2,965	2,011	2,879	2,879	7,739	-	-	-	-	-	-	-	645
10	Irrigation	2,418,648	6,760	6,693	2,418,648	6,760	6,693	13,735	13,735	70,665	-	-	-	-	-	-	-	471
11	Metered Fire	13,027	464	250	13,027	464	250	11,995	11,995	3,382	-	-	-	-	-	-	-	32
12	Unmetered Fire	-	-	-	-	-	-	217,609	217,609	63,414	-	-	-	-	-	-	-	-
13	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	GRP Participans - Areas 1 & 2	29,467	299	-	29,467	299	-	-	-	85	-	-	-	-	-	-	-	16
16	GRP Participans - Area 3	5,002,296	14,773	-	5,002,296	14,773	-	-	-	1,091	-	-	-	-	-	-	-	209
17	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Contract Treated with Algae	10,512,085	14,029	-	10,512,085	14,029	-	-	-	120	-	-	-	-	-	-	-	92
21	Contract Treated without Algae	1,356,418	1,576	2,696	1,356,418	1,576	2,696	-	-	50	-	-	-	-	-	-	-	38
22	Contract Water - Untreated	-	-	-	-	-	-	-	-	493	-	-	-	-	-	-	-	5
23	Contract Water - Untreated	79,287,694	-	-	79,287,694	-	-	-	-	-	-	-	-	-	-	-	-	-
24	TOTAL	85,286,398	147,431	168,352	85,286,398	147,431	168,352	897,214	897,214	5,704,312	13,048,232	13,048,232	23,852,931	19,616,588	19,616,588	-	-	3,037,713
25	Year Unit Cost	\$ 2.80	\$ 581.42	\$ 153.20	\$ 2.80	\$ 581.42	\$ 153.20	\$ 20.29	\$ 20.29	\$ 29.09	\$ 0.79	\$ 0.79	\$ 0.91	\$ 0.78	\$ 0.78	\$ -	\$ -	\$ 2.46



Houston Combined Utility System

Water System Customer Allocation - FYE 2024 April Increase

Line No.	Customer Type	Common to Sewer & Water Customers Not Contributing Capital		Common to Sewer		Common to Water		EMTP W/S	MSWFP W/S	SEWPP Capital	ICGO Fees	Total
		Rate	Max Hour	Max Hour	Max Hour	Max Hour	Max Hour					
26	Single Family Residential	\$ 68,022,088	18,347,736	\$ 7,294,403	13,990,328	\$ 10,267,597	\$ 14,715,514	\$ -	\$ -	\$ -	1,013,013	\$ 217,234,438
27	Multi-Family Residential	75,935,468	14,573,024	46,986,459	10,900,032	27,923,350	864,633	-	-	-	1,417,982	187,339,424
28	CI - Commercial	63,116,581	15,020,608	6,508,806	10,865,549	24,650,355	1,809,114	-	-	-	106,972	165,314,442
29	CI - Emergency Backup	34,702	384,972	51,933	278,954	198,870	20,274	-	-	-	42	1,001,062
30	CI - Extra Container	2,304	15,015	2,111	10,965	7,986	88	-	-	-	10,811	54,758,064
31	CI - Government	10,818,845	13,909,787	2,591,047	10,158,315	9,812,896	206,801	-	-	-	664	53,489,767
32	CI - Industrial Sewer Surcharge	2,000,509	529,708	4,057	1,242	15,364	342	-	-	-	1,388	6,485,016
33	CI - Resale	1,100,790	1,753,513	308,151	1,285,590	1,167,088	83,725	-	-	-	1,158	24,167,529
34	CI - Transient	7,000,735	3,997,938	1,025,424	2,819,738	3,883,320	278,732	-	-	-	80	13,321,462
35	Irigation Fee	37,816	274,609	38,276	200,401	144,560	4,415,025	-	-	-	-	10,825,425
36	Unmetered Fire	-	-	-	-	-	-	-	-	-	-	-
37	Sewer Only	-	-	-	-	-	-	-	-	-	-	-
38	Drainage Only	-	-	-	-	-	-	-	-	-	-	-
39	GRP Participants - Areas 1 & 2	85,526	176,705	-	-	-	-	-	-	-	40	262,522
40	GRP Participants - Area 3	14,500,423	8,559,490	-	-	-	-	-	-	-	514	23,083,486
41	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	15,398,604	184	15,399,787
42	Contract Treated - EMTP Water Authorities	-	-	-	-	-	-	-	-	-	30	9,565,069
43	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	9,563,040	-	-	20	21,658,920
44	Contract Treated with Airgap	-	-	-	-	-	-	-	21,658,900	-	218	38,815,776
45	Contract Treated without Airgap	30,513,973	8,296,847	-	-	-	-	-	-	-	94	5,343,565
46	Contract Water - Untreated	3,537,345	981,115	-	-	-	-	-	-	-	12	23,418,342
47		23,401,249										
48	<b>Total</b>	\$ 23,401,249	\$ 276,992,754	\$ 87,194,001	\$ 23,522,785	\$ 95,212,510	\$ 18,208,001	\$ 16,206,561	\$ 21,658,900	\$ 15,398,604	\$ 2,553,498	\$ 811,411,466



Houston Combined Utility System

# Water Cost of Service Comparison

FYE 2024 - April Increase

Line	Category	Cost of Service
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1	Single Family Residential	\$ 217,234,436
2	Multifamily Residential	187,329,424
3	CII - Commercial	165,314,442
4	CII - Emergency Backup	1,001,062
5	CII - Extra Container	40,113
6	CII - Government	54,758,064
7	CII - Industrial Sewer Surcharge	5,248,767
8	CII - Resale	91,359
9	CII - Transient	6,495,016
10	Irrigation	24,107,529
11	Metered Fire	1,321,462
12	Unmetered Fire	10,925,425
13	GRP Participants - Areas 1 & 2	262,522
14	GRP Participants - Area 3	23,083,486
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	38,815,776
19	Contract Treated without Airgap	5,343,565
20	Contract Water - Untreated	23,418,342
21	<b>Total</b>	<b>\$ 811,411,566</b>



Houston Combined Utility System

### Water System Customer Allocation - FYE 2025 April Increase

Line No.	Customer Type	FYE 2024	Commitment to Retail & Wholesale Customers Net Computing Costs				Commitment to Retail				Commitment to All Billing & Computing				EWPP MA	SEWPP MA	TECO Fees	Total	
			Base	Peak Day	Peak Hour	Base	Peak Day	Peak Hour	Base	Peak Day	Peak Hour	Base	Peak Day	Peak Hour					Base
<b>Development of Unit Costs</b>																			
1	Units of Service	kgal	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	kgal/day	MEU	MEU	MEU	MEU	Bills	kgal	kgal	kgal	kgal	Connections	
2	Single Family Residential	-	31,085	47,708	31,085	47,708	31,085	47,708	506,941	506,941	506,941	506,941	4,977,904	-	-	-	-	412,311	
3	Multifamily Residential	-	25,332	48,222	25,332	48,222	25,332	48,222	43,678	43,678	43,678	43,678	152,378	-	-	-	-	577,419	
4	CI - Commercial	-	23,648	42,570	23,648	42,570	23,648	42,570	88,324	88,324	88,324	88,324	410,368	-	-	-	-	48,560	
5	CI - Emergency Backup	-	11,979	340	11,979	340	11,979	340	698	698	698	698	166	-	-	-	-	17	
6	CI - Extra Contoller	-	795	14	795	14	795	14	4	4	4	4	24	-	-	-	-	-	
7	CI - Government	-	23,866	16,946	23,866	16,946	23,866	16,946	10,211	10,211	10,211	10,211	14,575	-	-	-	-	4,402	
8	CI - Industrial Sewer Surcharge	-	690,555	887	690,555	887	690,555	887	1,451	1,451	1,451	1,451	2,027	-	-	-	-	270	
9	CI - Retail	-	8,350	27	8,350	27	8,350	27	17	17	17	17	12	-	-	-	-	2	
10	CI - Transient	-	386,885	2,971	386,885	2,971	386,885	2,971	2,884	2,884	2,884	2,884	7,794	-	-	-	-	2	
11	Irrigation	-	2,432,485	6,773	2,432,485	6,773	2,432,485	6,773	13,752	13,752	13,752	13,752	70,807	-	-	-	-	472	
12	Metered Fire	-	13,054	465	13,054	465	13,054	465	12,019	12,019	12,019	12,019	3,388	-	-	-	-	32	
13	Unmetered Fire	-	-	250	-	250	-	250	218,098	218,098	218,098	218,098	63,341	-	-	-	-	-	
14	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Drainage Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	GRP Participants - Areas 1 & 2	-	29,516	-	29,516	-	29,516	-	-	-	-	-	-	-	-	-	-	16	
17	GRP Participants - Area 3	-	5,012,300	14,502	5,012,300	14,502	5,012,300	14,502	-	-	-	-	1,093	-	-	-	-	209	
18	Contract Treated - SEWPP Co-participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	Contract Treated - EWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
20	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	
21	Contract Treated with Allrgp	-	10,533,109	14,057	10,533,109	14,057	10,533,109	14,057	-	-	-	-	-	13,074,329	-	-	-	8	
22	Contract Treated without Allrgp	-	1,359,131	1,579	1,359,131	1,579	1,359,131	1,579	-	-	-	-	-	181	-	-	-	92	
23	Contract Water - Untreated	-	79,446,510	-	79,446,510	-	79,446,510	-	-	-	-	-	-	-	-	-	-	38	
24	<b>Total</b>	79,446,510	95,476,971	147,716	168,889	78,542,904	117,189	166,188	899,208	899,208	899,208	899,208	5,715,721	13,074,329	28,631,281	19,655,822	-	1,089,789	
25	<b>Year Year Unit Cost</b>	\$	0.29	\$	0.07	\$	0.29	\$	0.21	\$	0.21	\$	2.80	\$	0.78	\$	0.88	\$	2.48





Houston Combined Utility System

# Water Cost of Service Comparison

FYE 2025 - April Increase

Line	Description Type	Cost of Service
1	Single Family Residential	\$ 229,545,436
2	Multifamily Residential	199,339,423
3	CII - Commercial	175,867,284
4	CII - Emergency Backup	1,066,188
5	CII - Extra Container	42,749
6	CII - Government	58,334,109
7	CII - Industrial Sewer Surcharge	5,588,418
8	CII - Resale	97,310
9	CII - Transient	6,915,955
10	Irrigation	25,649,380
11	Metered Fire	1,391,622
12	Unmetered Fire	11,336,696
13	GRP Participants - Areas 1 & 2	278,725
14	GRP Participants - Area 3	24,498,870
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	41,186,511
19	Contract Treated without Airgap	5,670,736
20	Contract Water - Untreated	23,095,461
21	<b>Total</b>	<b>\$ 860,096,260</b>







Houston Combined Utility System

Water System Customer Allocation - FYE 2026 April Increase

Unit No.	Customer Type	Rev Value	Base	New Day	High Hour	Base	Max Day	Max Hour	Fin	Water Charge	Blind & Collecting	EMPP-WA	NEWPP-WA	SEMPF Comp	IS&D Fees	Total
		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
26	Single Family Residential	75,823,135	20,522,646	8,127,142	47,719,362	15,057,458	31,064,866	11,275,440	15,336,357	13,823,497	1,013,013	-	-	-	-	239,584,857
27	Multifamily Residential	83,683,775	16,697,745	8,204,630	52,779,747	12,259,285	39,995,628	971,495	1,221,385	446,514	1,417,983	-	-	-	-	209,360,166
28	CI - Commercial	70,855,045	16,801,154	7,242,896	44,778,014	12,335,187	27,719,157	1,988,750	2,702,290	1,123,593	106,972	-	-	-	-	184,650,908
29	CI - Emergency Backup	38,682	427,251	57,846	24,344	315,682	221,379	15,594	21,129	494	-	-	-	-	-	1,120,345
30	CI - Extra Container	2,569	16,785	2,849	1,617	13,390	8,992	97	132	66	-	-	-	-	-	44,946
31	CI - Government	12,171,062	15,558,855	2,883,292	7,659,870	11,421,960	11,034,538	227,107	308,901	39,899	10,811	-	-	-	-	61,317,055
32	CI - Industrial Sewer Surcharge	2,229,995	585,788	236,432	1,403,412	430,078	904,840	31,821	49,281	5,549	664	-	-	-	-	5,871,798
33	CI - Retail	28,580	19,025	4,514	17,987	13,968	17,277	376	511	93	-	-	-	-	-	1,102,276
34	CI - Transient	1,249,327	1,961,374	342,907	786,265	1,440,015	1,312,216	84,152	87,237	21,228	1,388	-	-	-	-	7,266,441
35	Irrigation	7,825,501	4,471,922	1,141,082	4,925,238	3,283,226	4,386,993	306,100	416,344	198,935	1,138	-	-	-	-	26,531,801
36	Metered Fire	42,152	306,938	42,593	26,529	225,350	163,007	267,331	393,611	5,276	80	-	-	-	-	1,446,886
37	Unmetered Fire	-	-	-	-	-	-	4,849,633	6,596,257	179,946	-	-	-	-	-	11,619,855
38	Sewer Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Drinking Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	GRP Participants - Areas 1 & 2	95,346	197,651	-	-	-	-	-	-	233	-	-	-	-	-	293,270
41	GRP Participants - Area 3	15,185,683	8,574,268	-	-	-	-	-	-	2,982	-	-	-	-	-	25,763,278
42	Contract Treated - SEWPP Co-Participants	-	-	-	-	-	-	-	-	-	-	-	9,563,893	15,400,085	184	15,400,269
43	Contract Treated - EMPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,983,973
44	Contract Treated - NEWPP Water Authorities	-	-	-	-	-	-	-	-	-	-	-	39,503,958	-	20	39,503,973
45	Contract Treated with Allpp	34,013,428	9,280,357	-	-	-	-	-	3,637	1,187	-	-	-	-	-	43,998,855
46	Contract Treated without Allpp	4,385,886	1,108,802	459,627	-	-	-	-	1,516	499	-	-	-	-	-	5,959,233
47	Contract Water - Untreated	22,604,423	-	-	-	-	-	-	13,135	4,322	-	-	-	-	-	22,621,893
	<b>Total</b>	<b>308,315,526</b>	<b>87,528,991</b>	<b>78,735,352</b>	<b>159,627,884</b>	<b>56,803,521</b>	<b>108,212,953</b>	<b>19,895,436</b>	<b>27,215,744</b>	<b>15,646,984</b>	<b>9,563,893</b>	<b>39,503,958</b>	<b>15,400,085</b>	<b>2,553,436</b>	<b>15,400,085</b>	<b>911,702,036</b>



Houston Combined Utility System

## Water Cost of Service Comparison

FYE 2026 - April Increase

Line	Customer Type	Cost of Service
1	Single Family Residential	\$ 239,564,857
2	Multifamily Residential	209,360,166
3	CII - Commercial	184,650,908
4	CII - Emergency Backup	1,120,345
5	CII - Extra Container	44,946
6	CII - Government	61,317,095
7	CII - Industrial Sewer Surcharge	5,871,799
8	CII - Resale	102,276
9	CII - Transient	7,266,441
10	Irrigation	26,931,801
11	Metered Fire	1,446,866
12	Unmetered Fire	11,619,835
13	GRP Participants - Areas 1 & 2	293,270
14	GRP Participants - Area 3	25,763,278
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	43,298,855
19	Contract Treated without Airgap	5,959,233
20	Contract Water - Untreated	22,621,893
21	<b>Total</b>	<b>\$ 911,702,036</b>

Appendix H  
WASTEWATER COST OF SERVICE ANALYSIS



# Wastewater Cost Allocation

Line No.	Flow - Retail	Flow - Retail + Cap	Flow - Retail + Wholesale	Fibre - All	Capacity	BPD - Other	BOD - Capital	ISS - Other	TSS - Capital	Ammonia - Other	Ammonia - Capital	Industrial	Customer	General	Total FYE 2022
1	0.0%	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%	\$ 1,113,843
2	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$ 31,172
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%	\$ 3,972
4	0.0%	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
5	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%	\$ 3,154,900
6	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%	\$ 2,120,338
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%	0.0%	\$ 34,233
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%	0.0%	0.0%	\$ 25,464
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%	\$ 1,072
10	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%	\$ 14,558
11	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%	\$ -
12	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%	\$ -
13	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%	\$ -
14	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	\$ 2,120,338	\$ 3,173,742	\$ -	\$ -	\$ 445,657	\$ -	\$ 334,093	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 889,952	\$ 5,995,676
16	35%	34%	0%	0%	7%	0%	6%	0%	0%	0%	0%	0%	0%	0%	\$ -
17	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	\$ -
18	\$ 3,480,000	\$ 2,002,877	\$ -	\$ 573,443	\$ -	\$ 382,281	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,995,676
19	41.3%	36.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$ -
20															

Line No.	Flow - Retail	Flow - Retail + Cap	Flow - Retail + Wholesale	Fibre - All	Capacity	BPD - Other	BOD - Capital	ISS - Other	TSS - Capital	Ammonia - Other	Ammonia - Capital	Industrial	Customer	General	Total FYE 2022
15	\$ 2,120,338	\$ 3,173,742	\$ -	\$ -	\$ 445,657	\$ -	\$ 334,093	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 889,952	\$ 5,995,676
16	35%	34%	0%	0%	7%	0%	6%	0%	0%	0%	0%	0%	0%	0%	\$ -
17	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	\$ -
18	\$ 3,480,000	\$ 2,002,877	\$ -	\$ 573,443	\$ -	\$ 382,281	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,995,676
19	41.3%	36.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$ -

Reallocation to "As All Others"  
 Total PPS Allocation



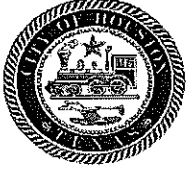




Houston Combined Utility System  
**Wastewater System Customer Allocation - FYE 2022 July Increase**

Line No.	Customer Type	Flow - Retail		Flow - Wholesale		Capacity	BOB - O&M		BDD - Capital		TSS - O&M		TSS - Capital		Ammonia - O&M		Ammonia - Capital		Industrial	Customer	Total	
		kGal	kGal	kGal	kGal		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs				lbs
1																						
2	Single Family Residential	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	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	3,175,970	4,603,570
3	Multi-Family Residential	25,155,956	25,155,956	68,970	22,654,672	22,654,672	68,769,001	68,769,001	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	3,948,351	159,481
4	Commercial	20,573,586	20,573,586	56,366	16,242,722	16,242,722	49,305,316	49,305,316	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	2,890,850	426,405
5	Industrial Surcharge	2,135,783	2,135,783	5,851	16,864,851	16,864,851	7,494,091	7,494,091	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	541,942	3,229
6	Sewer Only	47,581	47,581	130	44,298	44,298	134,469	134,469	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	7,721	10,491
7	Capital without Collection System	-	2,972,313	-	2,740,865	2,740,865	8,288,758	8,288,758	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	474,174	169
8	No Capital with Collection System	-	324,234	888	301,864	301,864	916,318	916,318	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	52,610	133
9	Connections-based Billing	-	55,616	152	51,779	51,779	157,176	157,176	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	9,024	24
10	<b>Total</b>	<b>70,357,074</b>	<b>70,636,923</b>	<b>193,526</b>	<b>77,103,821</b>	<b>74,383,126</b>	<b>190,351,460</b>	<b>182,052,703</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>10,565,469</b>	<b>11,040,642</b>	<b>5,203,703</b>
11	Test Year Unit Cost	\$ 2.89	\$ 2.91	\$ 0.60	\$ 17.92	\$ 0.10	\$ 0.35	\$ 0.70	\$ 0.14	\$ 0.63	\$ 0.14	\$ 0.63	\$ 0.14	\$ 0.63	\$ 0.14	\$ 0.63	\$ 0.14	\$ 0.63	\$ 0.14	\$ 0.63	\$ 0.14	\$ 6.51

Allocation of Unit Costs to Customer Types		Units of Service		kGal		kGal / day		lbs		lbs		lbs		lbs		lbs		lbs		lbs		lbs	
12	Single Family Residential	\$ 64,629,801	\$ 64,979,513	13,494,802	1,757,434	1,757,434	10,891,485	10,891,485	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	7,864,708	212,759,418
13	Multi-Family Residential	72,762,811	73,156,530	12,425,987	2,194,834	2,194,834	12,262,069	12,262,069	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	9,752,504	210,196,671
14	Commercial	59,508,451	59,830,451	12,425,456	1,566,460	1,566,460	10,028,430	10,028,430	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	6,992,253	170,226,958
15	Industrial Surcharge	6,177,684	6,211,111	1,289,910	1,676,459	1,676,459	1,041,070	1,041,070	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	1,062,778	28,421,126
16	Sewer Only	137,627	138,372	28,737	4,272	4,272	15,379	15,379	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	19,070	466,218
17	Capital without Collection System	-	1,764,936	-	262,896	262,896	162,791	162,791	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	296,498	3,947,712
18	No Capital with Collection System	-	942,910	158,045	138,045	138,045	180,050	180,050	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	32,897	1,774,447
19	Connections-based Billing	-	161,738	33,589	4,994	4,994	17,976	17,976	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	22,290	304,580
20	<b>Total</b>	<b>\$ 209,216,373</b>	<b>\$ 205,420,626</b>	<b>44,426,788</b>	<b>\$ 34,431,401</b>	<b>\$ 34,431,401</b>	<b>\$ 7,435,951</b>	<b>\$ 25,823,551</b>	<b>\$ 37,402,805</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 25,823,551</b>	<b>\$ 678,097,130</b>



Houston Combined Utility System

## Wastewater Cost of Service Comparison

FYE 2022 - July Increase

Line	Customer Type	Cost of Service
1	Single Family Residential	\$212,759,418
2	Multifamily Residential	210,196,871
3	Commercial	170,226,958
4	Industrial Surcharge	28,421,126
5	Sewer Only	466,218
6	Capital without Collection System	3,947,712
7	No Capital with Collection System	1,774,447
8	Connection-based	304,380
9	<b>Total</b>	<b>\$628,097,130</b>





Houston Combined Utility System  
Wastewater System Customer Allocation - FYE 2022 April Increase

Line No.	Customer Type	Flow - Retail		Flow - Wholesale		Capacity	BOD-O&M		BOD-Capital		TSS-O&M		TSS-Capital		Ammonia - O&M		Ammonia - Capital		Customer#	Total
		kgal	kgal	kgal	kgal		kgal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs		

Development of Unit Costs		Units of Service										Industrial bills		Bills						
		kgal	kgal	kgal	kgal	kgal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	
1	Single Family Residential	22,344,168	22,344,168	61,217	18,222,940	55,316,332	18,222,940	55,316,332	18,222,940	55,316,332	3,175,970	3,175,970	3,175,970	3,175,970	-	4,603,570				
2	Multi-Family Residential	25,155,956	25,155,956	88,920	22,654,672	68,769,001	22,654,672	68,769,001	22,654,672	68,769,001	3,948,351	3,948,351	3,948,351	3,948,351	-	159,481				
3	Commercial	20,573,586	20,573,586	56,366	16,242,722	49,306,316	16,242,722	49,306,316	16,242,722	49,306,316	2,890,850	2,890,850	2,890,850	2,890,850	-	426,605				
4	Industrial Surcharge	2,135,788	2,135,788	5,851	16,864,851	7,494,091	16,864,851	7,494,091	16,864,851	7,494,091	541,942	541,942	541,942	541,942	3,229	3,229				
5	Sewer Only	47,581	47,581	130	44,298	134,469	44,298	134,469	44,298	134,469	7,721	7,721	7,721	7,721	-	10,481				
6	Capital without Collection System	-	2,922,313	888	2,720,695	8,258,758	-	2,720,695	-	8,258,758	474,174	474,174	-	-	-	169				
7	No Capital with Collection System	-	324,234	888	301,864	301,864	-	301,864	-	916,318	52,610	52,610	-	-	-	133				
8	Connections-based Billing	-	55,616	152	51,779	157,176	-	51,779	-	157,176	9,024	9,024	-	-	-	24				
9																				
10	<b>Total</b>	<b>70,357,074</b>	<b>70,636,923</b>	<b>153,326</b>	<b>77,103,921</b>	<b>190,351,460</b>	<b>74,383,126</b>	<b>182,892,783</b>	<b>11,040,642</b>	<b>10,566,468</b>	<b>3,229</b>	<b>3,229</b>	<b>5,203,703</b>							

Test Year Unit Cost	\$	3.44	\$	3.45	\$	0.70	\$	0.11	\$	0.40	\$	0.20	\$	0.17	\$	0.73	\$	1.195	\$	7.59
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Allocation of Unit Costs to Customer Types		Units of Service										Industrial bills		Bills						
		kgal	kgal	kgal	kgal	kgal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
12	Single Family Residential	76,948,071	77,158,316	15,724,009	13,083,774	2,047,745	7,570,822	12,664,793	9,387,714	11,664,793	2,313,965	2,313,965	2,313,965	2,313,965	-	34,982,428				
13	Multi-Family Residential	86,631,211	86,857,914	17,702,717	14,673,943	2,545,747	9,412,010	15,744,811	11,570,762	11,570,762	2,876,710	2,876,710	2,876,710	2,876,710	-	1,210,161				
14	Commercial	70,850,605	71,044,150	14,478,018	12,000,961	1,825,724	6,748,130	11,268,558	8,367,587	8,367,587	2,062,515	2,062,515	2,062,515	2,062,515	-	3,237,132				
15	Industrial Surcharge	7,375,231	7,375,231	1,502,990	1,245,842	1,895,134	7,006,587	1,715,788	1,271,819	1,271,819	394,851	394,851	394,851	394,851	3,873,920	24,504				
16	Sewer Only	169,858	164,306	33,484	27,755	4,978	18,404	30,787	22,821	22,821	5,675	5,675	5,675	5,675	-	79,605				
17	Capital without Collection System	-	1,119,635	2,056,486	305,729	305,729	-	1,890,860	-	345,476	345,476	-	-	-	-	1,182				
18	No Capital with Collection System	-	228,169	228,169	189,132	189,132	-	155,508	-	155,508	38,331	38,331	-	-	-	1,008				
19	Connections-based Billing	-	192,052	39,138	32,442	5,818	21,512	35,986	26,674	26,674	6,575	6,575	-	-	-	183				
20	<b>Total</b>	<b>241,948,880</b>	<b>248,921,644</b>	<b>51,765,011</b>	<b>41,203,848</b>	<b>8,564,796</b>	<b>30,802,885</b>	<b>43,581,377</b>	<b>30,902,846</b>	<b>30,902,846</b>	<b>8,044,048</b>	<b>8,044,048</b>	<b>3,873,920</b>	<b>3,873,920</b>	<b>39,486,303</b>	<b>744,955,100</b>				



Houston Combined Utility System

## Wastewater Cost of Service Comparison

FYE 2022 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	\$251,781,639
2	Multifamily Residential	249,335,986
3	Commercial	201,902,920
4	Industrial Surcharge	33,661,811
5	Sewer Only	551,622
6	Capital without Collection System	4,599,835
7	No Capital with Collection System	2,100,908
8	Connection-based	360,380
9	<b>Total</b>	<b>\$744,295,100</b>



Houston Combined Utility System  
Wastewater System Customer Allocation - FYE 2023 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Wholesale	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
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Development of Unit Costs													
1	Units of Service	kGal		kGal / day	lbs		lbs		lbs		lbs		Bills
		Flow - Retail	Flow - Wholesale		Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital		
2	Single Family Residential	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	Multi-Family Residential	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	-	-	139,800
4	Commercial	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	5,853	16,898,581	16,898,581	7,509,079	7,509,079	543,026	543,026	3,236	3,236	3,236
6	Sewer Only	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	2,726,136	8,275,275	8,275,275	475,122	475,122	-	-	169
8	No Capital with Collection System	-	324,882	890	302,468	302,468	918,150	918,150	52,715	52,715	-	-	133
9	Connections-based Billing	-	55,727	153	51,882	51,882	157,491	157,491	9,042	9,042	-	-	24
10	<b>Total</b>	<b>70,397,568</b>	<b>70,778,197</b>	<b>193,913</b>	<b>77,258,029</b>	<b>74,531,893</b>	<b>190,732,163</b>	<b>182,456,888</b>	<b>11,062,724</b>	<b>10,587,601</b>	<b>3,236</b>	<b>3,236</b>	<b>5,214,110</b>
11	<b>Test Year Unit Cost</b>	<b>\$ 3.70</b>	<b>\$ 3.68</b>	<b>\$ 232.65</b>	<b>\$ 0.11</b>	<b>\$ 0.45</b>	<b>\$ 0.23</b>	<b>\$ 0.19</b>	<b>\$ 0.78</b>	<b>\$ 1.196</b>	<b>\$ 1.196</b>	<b>\$ 7.57</b>	

Allocation of Unit Costs to Customer Types														
12	Single Family Residential	\$ 82,855,938	\$ 82,350,646	\$ 15,712,702	\$ 14,270,669	\$ 2,046,272	\$ 8,289,288	\$ 12,655,686	\$ 10,278,601	\$ 2,312,301	\$ -	\$ -	\$ 34,907,327	\$ 265,680,429
13	Multi-Family Residential	93,283,649	92,713,645	17,685,987	16,066,489	2,543,916	10,305,203	15,733,489	12,778,308	2,874,642	-	-	1,209,291	265,198,618
14	Commercial	76,293,245	75,825,073	14,467,607	13,136,842	1,823,912	7,388,522	9,161,665	2,061,032	2,061,032	-	-	3,234,806	214,874,143
15	Industrial Surcharge	7,919,937	7,871,543	1,501,909	1,364,072	1,893,771	7,871,517	1,714,555	1,392,514	394,567	3,871,134	-	24,487	35,620,006
16	Sewer Only	176,441	175,363	35,460	30,389	4,974	20,151	30,765	24,986	5,621	-	-	79,547	581,697
17	Capital without Collection System	-	1,194,981	2,055,008	305,510	305,510	1,869,501	1,869,501	345,228	345,228	-	-	1,282	4,596,527
18	No Capital with Collection System	-	204,976	228,005	207,080	137,312	170,266	170,266	38,303	38,303	-	-	1,007	2,220,493
19	Connections-based Billing	-	-	39,110	35,521	5,814	23,553	35,960	6,570	6,570	-	-	183	390,892
20	<b>Total</b>	<b>\$ 260,528,210</b>	<b>\$ 260,336,226</b>	<b>\$ 45,177,787</b>	<b>\$ 45,114,051</b>	<b>\$ 8,658,066</b>	<b>\$ 33,835,546</b>	<b>\$ 43,550,037</b>	<b>\$ 33,435,546</b>	<b>\$ 8,038,264</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 3,871,134</b>	<b>\$ 39,457,929</b>
														<b>\$ 788,557,805</b>



Houston Combined Utility System

## Wastewater Cost of Service Comparison

FYE 2023 - April Increase

Line	Customer Type	Cost of Service
1	Single Family Residential	\$265,680,429
2	Multifamily Residential	265,198,618
3	Commercial	214,674,143
4	Industrial Surcharge	35,620,006
5	Sewer Only	581,697
6	Capital without Collection System	4,596,527
7	No Capital with Collection System	2,220,493
8	Connection-based	380,892
9	<b>Total</b>	<b>\$788,952,805</b>



Houston Combined Utility System  
Wastewater System Customer Allocation - FYE 2024 April Increase

The Customer Type	Flow - Retail		Flow - Wholesale		Capacity	BOD - O&M		BOD - Capital		TSS - O&M		TSS - Capital		Ammonia - O&M		Ammonia - Capital		Industrial	Customer	Total
	Flow	Rebill	Flow	Rebill		Flow	Cap	Flow	Cap	Flow	Cap	Flow	Cap	Flow	Cap	Flow	Cap			

Units of Service	kgal		kgal / day		lbs		lbs		lbs		lbs		lbs		lbs		lbs		Industrial bills	Bills	
	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill			
1 Single Family Residential	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	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	3,188,687	4,622,003	
2 Multifamily Residential	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	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	3,964,160	1,600,120	
3 Commercial	20,655,963	20,655,963	55,592	16,307,758	16,307,758	49,502,734	49,502,734	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	2,842,184	428,314	
4 Industrial Surcharge	2,144,334	2,144,334	5,875	16,932,378	16,932,378	7,524,098	7,524,098	544,112	544,112	544,112	544,112	544,112	544,112	544,112	544,112	544,112	544,112	544,112	544,112	3,242	
5 Sewer Only	47,772	47,772	131	44,476	44,476	135,008	135,008	7,751	7,751	7,751	7,751	7,751	7,751	7,751	7,751	7,751	7,751	7,751	7,751	10,533	
6 Capital without Collection System	-	-	-	2,794,588	2,794,588	8,291,826	8,291,826	476,073	476,073	476,073	476,073	476,073	476,073	476,073	476,073	476,073	476,073	476,073	476,073	170	
7 No Capital with Collection System	-	-	892	303,073	303,073	919,987	919,987	52,821	52,821	52,821	52,821	52,821	52,821	52,821	52,821	52,821	52,821	52,821	52,821	133	
8 Connections-based Billing	-	-	153	51,986	51,986	157,806	157,806	9,060	9,060	9,060	9,060	9,060	9,060	9,060	9,060	9,060	9,060	9,060	9,060	24	
9 Total	70,538,383	70,519,753	194,301	77,412,545	74,680,956	191,113,628	182,821,802	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	11,084,849	3,242	5,224,538	
10 Test Year Unit Cost	\$ 3.96	\$ 3.91	\$ 0.71	\$ 0.11	\$ 0.49	\$ 0.23	\$ 0.20	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 1,203.02	\$ 7.61

Allocation of Unit Costs to Customer Types	kgal		kgal / day		lbs		lbs		lbs		lbs		lbs		lbs		lbs		Industrial bills	Bills	
	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill	kgal	Rebill			
12 Single Family Residential	88,943,077	87,777,295	15,831,707	15,519,370	2,061,770	9,014,610	9,014,610	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	11,177,991	85,171,728
13 Multifamily Residential	100,135,667	98,823,183	17,823,968	17,472,326	2,563,183	11,206,921	11,206,921	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	13,896,426	1,218,451
14 Commercial	81,885,111	80,821,707	14,577,181	14,789,595	1,837,726	8,035,027	8,035,027	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	9,963,321	3,259,307
15 Industrial Surcharge	8,504,685	8,390,253	1,513,285	1,483,430	1,908,114	8,342,784	8,342,784	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	1,777,540	37,704,133
16 Sewer Only	189,401	186,919	33,713	33,048	5,012	21,914	21,914	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	30,988	80,150
17 Capital without Collection System	-	-	2,070,572	2,252,000	307,823	1,493,327	1,493,327	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	1,903,811	4,631,340
18 No Capital with Collection System	-	-	229,732	34,153	34,153	211,230	211,230	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	185,164	1,015
19 Connections-based Billing	-	-	39,406	38,629	5,858	25,514	25,514	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	31,761	184
20 Total	279,664,941	277,491,565	52,118,663	49,861,597	6,723,640	36,796,137	36,796,137	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	43,879,877	3,900,453	39,756,799
21 Test Year Unit Cost	\$ 3.96	\$ 3.91	\$ 0.71	\$ 0.11	\$ 0.49	\$ 0.23	\$ 0.20	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 0.73	\$ 1,203.02	\$ 7.61



Houston Combined Utility System

# Wastewater Cost of Service Comparison

FYE 2024 - April Increase

Line	Customer Type	Cost of Service
1	Single Family Residential	\$280,578,900
2	Multifamily Residential	281,889,189
3	Commercial	228,121,493
4	Industrial Surcharge	37,704,133
5	Sewer Only	613,991
6	Capital without Collection System	4,631,340
7	No Capital with Collection System	2,348,141
8	Connection-based	402,788
9	<b>Total</b>	<b>\$836,289,974</b>



Houston Combined Utility System  
Wastewater System Customer Allocation - FYE 2025 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail + Ctr. Wholesale	Capacity	ROB - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Clabbers	Total
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Line No.	Units of Service	kGal		kGal / day	lbs		lbs		lbs		lbs		Bills
		Flow - Retail	Flow - Retail + Ctr. Wholesale		ROB - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Clabbers	
1	Development of Unit Costs												
2	Single Family Residential	22,478,501	22,478,501	61,585	18,332,496	18,332,496	55,648,894	55,648,894	3,185,064	3,185,064	-	4,631,747	
3	Multifamily Residential	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	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	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	131	44,585	44,585	135,278	135,278	7,767	7,767	-	10,554	
7	Capital without Collection System	-	-	-	2,737,051	2,737,051	8,308,409	8,308,409	471,025	471,025	-	170	
8	No Capital with Collection System	-	-	894	303,679	303,679	921,827	921,827	52,826	52,826	-	134	
9	Connections-based Billing	-	-	153	52,090	52,090	158,121	158,121	9,078	9,078	-	24	
10	<b>Total</b>	<b>70,679,460</b>	<b>71,061,593</b>	<b>194,689</b>	<b>71,567,370</b>	<b>74,830,318</b>	<b>191,495,855</b>	<b>183,187,445</b>	<b>11,107,019</b>	<b>10,629,994</b>	<b>3,249</b>	<b>5,234,987</b>	
11	Test Year Unit Cost	\$ 4.22	\$ 4.15	\$ 0.73	\$ 0.12	\$ 0.53	\$ 0.74	\$ 0.22	\$ 0.75	\$ -	\$ 1,237.59	\$ 7.83	

Allocation of Unit Costs to Customer Types

12	Single Family Residential	\$ 94,905,383	\$ 93,316,517	\$ 16,319,713	\$ 2,125,259	\$ 9,689,450	\$ 13,144,196	\$ 12,007,343	\$ 2,401,556	\$ -	\$ -	\$ 36,254,793	\$ 296,828,539
13	Multifamily Residential	106,848,269	105,059,460	18,372,821	2,642,111	12,038,419	16,340,802	14,972,472	2,985,603	-	-	1,255,972	299,239,616
14	Commercial	87,384,356	85,921,983	15,026,057	1,894,315	8,631,186	11,715,866	10,702,550	2,140,588	-	-	3,359,673	242,126,996
15	Industrial Surcharge	9,071,996	8,919,723	1,593,883	1,966,871	8,961,778	1,626,719	1,626,719	409,797	-	4,020,560	25,432	39,896,589
16	Sewer Only	202,098	198,714	34,751	5,166	25,540	81,952	29,189	5,838	-	-	82,618	649,386
17	Capital without Collection System	-	-	2,134,331	317,302	1,962,435	1,962,435	-	358,554	-	-	1,331	4,779,953
18	No Capital with Collection System	-	-	236,806	35,205	160,407	217,734	198,902	99,782	-	-	1,046	2,485,886
19	Connections-based Billing	-	-	40,619	6,039	27,515	37,348	34,118	6,824	-	-	190	428,417
20	<b>Total</b>	<b>\$ 298,419,202</b>	<b>\$ 285,002,763</b>	<b>\$ 63,724,483</b>	<b>\$ 8,982,267</b>	<b>\$ 39,526,293</b>	<b>\$ 45,231,071</b>	<b>\$ 39,526,293</b>	<b>\$ 8,348,541</b>	<b>\$ -</b>	<b>\$ 4,020,560</b>	<b>\$ 40,981,055</b>	<b>\$ 885,467,372</b>



Houston Combined Utility System

# Wastewater Cost of Service Comparison

FYE 2025 - April Increase

No.	Customer Type	Cost of Service
1	Single Family Residential	\$296,828,539
2	Multifamily Residential	299,239,616
3	Commercial	242,126,996
4	Industrial Surcharge	39,936,589
5	Sewer Only	649,366
6	Capital without Collection System	4,773,953
7	No Capital with Collection System	2,485,896
8	Connection-based	426,417
9	<b>Total</b>	<b>\$886,467,372</b>





Houston Combined Utility System  
Wastewater System Customer Allocation - FYE 2026 April Increase

Line No.	Customer Type	Flow - Retail	Flow - Retail - Cap	Flow - All	Capacity	BOD - O&M	BOD - Capital	TSS - O&M	TSS - Capital	Ammonia - O&M	Ammonia - Capital	Industrial	Customer	Total
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Units of service	kGal	kGal	kGal	kGal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
1	70,820,819	71,203,716	74,169,478	185,079	77,722,504	74,979,979	191,878,946	183,553,820	11,129,233	10,851,254	3,255	3,255	5,245,457	
2	99,723,355	97,754,151	16,649,185	17,613,681	2,168,231	10,231,116	13,409,970	12,686,441	2,450,115	-	-	-	36,987,980	\$ 309,674,124
3	112,272,535	110,065,526	18,744,317	19,830,185	2,695,534	12,719,275	16,671,211	15,771,724	3,045,971	-	-	-	1,281,368	\$ 313,087,646
4	91,821,146	90,007,988	15,329,882	16,217,950	1,952,617	9,119,339	11,952,759	11,307,854	2,183,870	-	-	-	3,427,607	\$ 253,301,008
5	9,532,125	9,343,898	1,591,424	1,685,616	2,006,841	1,816,748	1,718,721	1,718,721	418,083	-	-	4,101,855	25,946	\$ 41,707,680
6	212,357	208,164	35,454	37,508	5,271	24,971	32,598	30,840	5,956	-	-	-	84,289	\$ 677,308
7	-	-	2,177,487	-	313,718	-	2,002,116	-	365,803	-	-	-	1,358	\$ 4,870,482
8	-	1,418,499	241,594	255,590	169,479	169,479	222,137	210,152	40,586	-	-	-	1,067	\$ 2,595,021
9	-	243,316	41,441	43,841	29,071	29,071	38,103	36,047	6,962	-	-	-	194	\$ 445,136
10	313,561,517	309,031,537	54,810,784	55,682,371	9,174,090	41,761,778	46,145,637	41,761,778	8,517,947	-	-	4,101,855	41,809,708	\$ 976,558,404
11	4.43	4.34	0.74	285.44	0.12	0.55	0.32	0.33	0.77	-	-	1,260.09	7.97	

Year	Units of service	kGal	kGal	kGal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
2021	70,820,819	71,203,716	74,169,478	185,079	77,722,504	74,979,979	191,878,946	183,553,820	11,129,233	10,851,254	3,255	3,255	5,245,457	
2022	99,723,355	97,754,151	16,649,185	17,613,681	2,168,231	10,231,116	13,409,970	12,686,441	2,450,115	-	-	-	36,987,980	\$ 309,674,124
2023	112,272,535	110,065,526	18,744,317	19,830,185	2,695,534	12,719,275	16,671,211	15,771,724	3,045,971	-	-	-	1,281,368	\$ 313,087,646
2024	91,821,146	90,007,988	15,329,882	16,217,950	1,952,617	9,119,339	11,952,759	11,307,854	2,183,870	-	-	-	3,427,607	\$ 253,301,008
2025	9,532,125	9,343,898	1,591,424	1,685,616	2,006,841	1,816,748	1,718,721	1,718,721	418,083	-	-	4,101,855	25,946	\$ 41,707,680
2026	212,357	208,164	35,454	37,508	5,271	24,971	32,598	30,840	5,956	-	-	-	84,289	\$ 677,308
2027	-	-	2,177,487	-	313,718	-	2,002,116	-	365,803	-	-	-	1,358	\$ 4,870,482
2028	-	1,418,499	241,594	255,590	169,479	169,479	222,137	210,152	40,586	-	-	-	1,067	\$ 2,595,021
2029	-	243,316	41,441	43,841	29,071	29,071	38,103	36,047	6,962	-	-	-	194	\$ 445,136
20	313,561,517	309,031,537	54,810,784	55,682,371	9,174,090	41,761,778	46,145,637	41,761,778	8,517,947	-	-	4,101,855	41,809,708	\$ 976,558,404

Customer Type	Units of service	kGal	kGal	kGal/day	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Single Family Residential	99,723,355	97,754,151	16,649,185	17,613,681	2,168,231	10,231,116	13,409,970	12,686,441	2,450,115	-	-	-	36,987,980	\$ 309,674,124
Multifamily Residential	112,272,535	110,065,526	18,744,317	19,830,185	2,695,534	12,719,275	16,671,211	15,771,724	3,045,971	-	-	-	1,281,368	\$ 313,087,646
Commercial	91,821,146	90,007,988	15,329,882	16,217,950	1,952,617	9,119,339	11,952,759	11,307,854	2,183,870	-	-	-	3,427,607	\$ 253,301,008
Industrial Surcharge	9,532,125	9,343,898	1,591,424	1,685,616	2,006,841	1,816,748	1,718,721	1,718,721	418,083	-	-	4,101,855	25,946	\$ 41,707,680
Sewer Only	212,357	208,164	35,454	37,508	5,271	24,971	32,598	30,840	5,956	-	-	-	84,289	\$ 677,308
Capital without Collection System	-	-	2,177,487	-	313,718	-	2,002,116	-	365,803	-	-	-	1,358	\$ 4,870,482
Capital with Collection System	-	1,418,499	241,594	255,590	169,479	169,479	222,137	210,152	40,586	-	-	-	1,067	\$ 2,595,021
Connections-based Billing	-	243,316	41,441	43,841	29,071	29,071	38,103	36,047	6,962	-	-	-	194	\$ 445,136
<b>Total</b>	<b>313,561,517</b>	<b>309,031,537</b>	<b>54,810,784</b>	<b>55,682,371</b>	<b>9,174,090</b>	<b>41,761,778</b>	<b>46,145,637</b>	<b>41,761,778</b>	<b>8,517,947</b>	<b>-</b>	<b>-</b>	<b>4,101,855</b>	<b>41,809,708</b>	<b>\$ 976,558,404</b>



Houston Combined Utility System

## Wastewater Cost of Service Comparison

FYE 2026 - April Increase

Line No.	Customer Type	Cost of Service
1	Single Family Residential	\$309,674,124
2	Multifamily Residential	313,087,646
3	Commercial	253,301,008
4	Industrial Surcharge	41,707,680
5	Sewer Only	677,308
6	Capital without Collection System	4,870,482
7	No Capital with Collection System	2,595,021
8	Connection-based	445,136
9	<b>Total</b>	<b>\$926,358,404</b>

# Appendix I

## WATER RATE DESIGN



Houston Combined Utility System  
**Water Rate Design - Monthly Meter Charge**

Line No.	Description	Test Year FYE 2022	
		July 2021	

1	Retail Customer Classes	Escalation	FYE 2019	FYE 2022
	<i>(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)</i>			
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)			\$ 14,674,030
8	Capacity (Meter & Supply)			16,680,852
9	Fire Flow			11,095,630
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 45,001,155</b>

12	Per Bill		\$	2.619
13	Per MEU per month - Capacity		\$	2.100
14	Per MEU per month - Fire		\$	1.397
				<b>Proposed</b>
		<b>Total Fixed Charge (5/8")</b>	\$	6.12
			\$	6.25

15	Per Connection per month - TCEQ Fees				
16	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	\$ 5.82	\$ 6.12	\$ 6.25
18	3/4"	1.00	\$ 5.82	6.12	6.25
19	1"	1.70	\$ 7.21	8.57	8.80
20	1 1/2"	2.70	\$ 10.92	12.06	12.43
21	2"	3.30	\$ 12.86	14.16	14.61
22	3"	8.30	\$ 12.86	31.64	32.76
23	4"	16.70		61.01	63.27
24	6"	40.00		142.47	147.88
25	8"	50.00		177.43	184.20
26	10"	66.70		235.82	244.84
27	12"	93.30		328.82	341.44

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	
		July 2021	
	MEU Revenue	Calculated	Proposed
40			
41	5/8"	\$ 26,626,753	\$ 27,192,354
42	3/4"	637,302	650,839
43	1"	9,451,327	9,704,980
44	1 1/2"	2,791,835	2,877,488
45	2"	792,827	818,023
46	3"	527,108	545,767
47	4"	766,719	795,121
48	6"	1,618,443	1,679,900
49	8"	466,947	484,764
50	10"	51,243	53,203
51	12"	-	-
52	TCEQ Fee	2,601,759	2,601,759
53	<b>Total MEU Revenue</b>	<b>\$ 46,332,264</b>	<b>\$ 47,404,199</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		July 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		\$	34,096,378
8	TCEQ Fee			1,013,013
9	Base			90,885,486
10	Max Day			25,633,258
11	Max Hour			28,123,281
12	<b>Total SFR Costs to Recover</b>		<b>\$</b>	<b>179,751,417</b>

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%	-



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 July 2021		
24	<b>SFR Volume Rates (per 1,000 gal)</b>		<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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	<b>SFR Revenue Check</b>			
34	Monthly Fixed Charge			\$ 33,827,185
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	<b>Total SFR Revenue</b>			<b>\$ 173,344,090</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 July 2021		
<b>1</b>	<b>Multifamily Residential</b>			
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2022</b>	
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
<b>6</b>	<b>MFR Costs to Recover</b>			
7	Customer / Capacity / Fire		\$	2,244,174
8	TCEQ Fee			1,417,982
9	Base			100,523,409
10	Max Day			20,855,868
11	Max Hour			28,426,399
<b>12</b>	<b>Total MFR Costs to Recover</b>		\$	<b>153,467,832</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
14	Calculated MFR Variable Rate (per 1,000 gal)		\$	5.81
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$	5.45
<b>16</b>	<b>MFR Revenue Check</b>			
17	Monthly Fixed Charge		\$	2,191,926
18	TCEQ Fee			1,446,400
19	Variable Rate - All Usage			140,693,425
<b>20</b>	<b>Total MFR Revenue</b>		\$	<b>144,331,751</b>





Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
		July 2021	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<i>(includes Government, Extra Container)</i>		
<b>3</b>	<b>Commercial/Industrial Units of Servic</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
<b>4</b>	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839
			26,090,759
<b>5</b>	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906
			424,443
<b>6</b>	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658
			47,945
<b>7</b>	<b>Commercial/Industrial Costs to Recover</b>		
<b>8</b>	Customer / Capacity / Fire		\$ 5,322,172
<b>9</b>	TCEQ Fee		118,446
<b>10</b>	Base		101,596,005
<b>11</b>	Max Day		41,170,786
<b>12</b>	Max Hour		35,911,419
<b>13</b>	<b>Total Commercial/Industrial Costs to Recover</b>		<b>\$ 184,118,829</b>
<b>14</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
<b>15</b>	Calculated Com/Ind Variable Rate (per 1,000 gal)		\$ 6.85
<b>16</b>	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 5.55
<b>17</b>	<b>Commercial/Industrial Revenue Check</b>		
<b>18</b>	Monthly Fixed Charge		\$ 5,243,514
<b>19</b>	TCEQ Fee		120,820
<b>20</b>	All Usage		144,803,715
<b>21</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 150,168,049</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
		July 2021	
<b>1</b>	<b>Transient</b>		
<b>2</b>	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662
<b>5</b>	<b>Transient Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 140,467
7	TCEQ Fees		1,588
8	Base		1,497,507
9	Max Day		2,449,802
10	Max Hour		1,188,062
<b>11</b>	<b>Total Transient Costs to Recover</b>		<b>\$ 5,277,427</b>
<b>12</b>	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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)		\$ 10.05
17	Proposed Transient Variable Rate (per 1,000 gal)	\$ 5.35	\$ 10.00
<b>18</b>	<b>Transient Revenue Check</b>		
19	Transient Monthly Fixed Charge		\$ 1,414,005
20	All Usage		3,845,732
<b>21</b>	<b>Total Transient Revenue</b>		<b>\$ 5,259,738</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
		July 2021	
<b>1</b>	<b>Irrigation</b>		
<b>2</b>	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466
<b>6</b>	<b>Irrigation Costs to Recover</b>		
7	Customer / Capacity / Fire Flow		\$ 758,230
8	TCEQ Fees		1,158
9	Base		9,380,525
10	Max Day		5,585,533
11	Max Hour		3,953,483
<b>12</b>	<b>Total Irrigation Costs to Recover</b>		<b>\$ 19,678,929</b>
<b>13</b>	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$ 7.86
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$ 10.00
<b>16</b>	<b>Irrigation Revenue Check</b>		
17	Monthly Fixed Charge		\$ 756,509
18	TCEQ Fee		1,181
19	All Usage		24,090,024
<b>20</b>	<b>Total Irrigation Revenue</b>		<b>\$ 24,847,714</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
		July 2021	
<b>1</b>	<b>Resale</b>		
<b>2</b>	<b>Resale Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745
4	Resale Customer Bills Forecast	Inside City Customer Growth	12
<b>5</b>	<b>Resale Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 736
7	TCEQ Fees		5
8	Base		34,257
9	Max Day		23,763
10	Max Hour		15,641
<b>11</b>	<b>Total Resale Costs to Recover</b>		<b>\$ 74,402</b>
<b>12</b>	<b>Resale Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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)		\$ 7.97
22	Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 10.00
<b>23</b>	<b>Resale Revenue Check</b>		
24	Resale Monthly Fixed Charge		\$ 4,346
25	All Usage		87,976
<b>26</b>	<b>Total Resale Revenue</b>		<b>\$ 92,322</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022		
		July 2021		
<b>1</b>	<b>Emergency Backup</b>			
<b>2</b>	<b>Emergency Backup Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2022</b>	
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
<b>6</b>	<b>Emergency Backup Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	29,559
8	TCEQ Fees			42
9	Base			46,366
10	Max Day			533,647
11	Max Hour			200,417
12	<b>Total Emergency Backup Costs to Recover</b>		\$	<b>810,030</b>
<b>13</b>	<b>EBS Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$	68.03
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$	10.00
<b>16</b>	<b>Emergency Backup Revenue Check</b>			
17	Monthly Fixed Charge		\$	29,809
18	TCEQ Fee			43
19	All Usage			119,072
20	<b>Total Emergency Backup Revenue</b>		\$	<b>148,924</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
		July 2021	
<b>1</b>	<b>Unmetered Fire Line</b>		
<b>2</b>	<b>Unmetered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784
5	<b>Unmetered Fire Line Costs to Recover</b>		
6	Customer		\$ 9,258,315
7	<b>Total Unmetered Fire Line Costs to Recover</b>		<b>\$ 9,258,315</b>
<b>8</b>	<b>Unmetered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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	\$ 330.00
19	<b>Unmetered Fire Line Revenue Check</b>		
20	All Accounts		\$ 10,708,160
21	<b>Total Unmetered Fire Line Revenue</b>		<b>\$ 10,708,160</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022		
		July 2021		
<b>1</b>	<b>Metered Fire Line</b>			
<b>2</b>	<b>Metered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2022</b>	
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
<b>5</b>	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	510,057
7	TCEQ Fees			80
8	Base			50,526
9	Max Day			383,373
10	Max Hour			147,572
<b>11</b>	<b>Total Metered Fire Line Costs to Recover</b>		\$	<b>581,470</b>
<b>12</b>	<b>Metered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
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)		\$	21.46
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$	10.00
<b>24</b>	<b>Metered Fire Line Revenue Check</b>			
25	Metered Fire Line Monthly Fixed Charge		\$	303,099
26	All Usage			129,755
<b>27</b>	<b>Total Metered Fire Line Revenue</b>		\$	<b>432,854</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
			July 2021
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 7,215
9	TCEQ Fee		780
10	Base		31,604,520
11	Max Day		13,800,303
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 45,412,818</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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 gal)	3.31	\$ 3.35
20	Proposed Contract Treated with Airgap Excess Rate (per 1,000 gal)	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	<b>Contract Treated with Airgap Revenue Check</b>		
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	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 45,031,735</b>





Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021	
<b>1</b>	<b>Contract Treated without Airgap</b>		
<b>2</b>	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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
<b>5</b>	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer	\$	1,729
7	TCEQ Fee		94
8	Base		3,286,815
9	Max Day		803,011
10	Max Hour		335,397
<b>11</b>	<b>Total Contract Treated without Airgap Costs to Recover</b>	<b>\$</b>	<b>4,427,046</b>
<b>12</b>	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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 1,000 gal)	4.04	\$ 4.05
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal)	0.82	\$ 0.85
<b>17</b>	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage	\$	5,471,585
19	Contract Treated without Airgap Excess		321,540
<b>20</b>	<b>Total Contract Treated without Airgap Revenue</b>	<b>\$</b>	<b>5,793,125</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
			July 2021
<b>1</b>	<b>Contract Untreated</b>		
<b>2</b>	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	78,971,731
<b>4</b>	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 21,517,916
<b>6</b>	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 21,517,916</b>
<b>7</b>	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2725
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
<b>10</b>	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,125,972
<b>12</b>	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,125,972</b>



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
	<i>(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)</i>			
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	<b>Fixed Revenue to Recover</b>			
7	Customer (Billing & Collecting)		\$	15,702,445
8	Capacity (Meter & Supply)			17,933,575
9	Fire Flow			11,974,195
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>48,160,857</b>

12	Per Bill		\$	2.802
13	Per MEU per month - Capacity		\$	2.257
14	Per MEU per month - Fire		\$	1.507
				<b>Proposed</b>
		<b>Total Fixed Charge (5/8")</b>	\$	6.57
			\$	6.57

15	Per Connection per month - TCEQ Fees		\$	0.21	
16	<b>Meter Size</b>	<b>Meter Factor</b>	<b>SFR FYE21</b>	<b>Calculated</b>	<b>Proposed</b>
17	5/8"	1.00	\$ 5.82	\$ 6.57	\$ 6.57
18	3/4"	1.00	\$ 5.82	6.57	6.57
19	1"	1.70	\$ 7.21	9.21	9.21
20	1 1/2"	2.70	\$ 10.92	12.97	12.98
21	2"	3.30	\$ 12.86	15.23	15.24
22	3"	8.30	\$ 12.86	34.05	34.08
23	4"	16.70		65.67	65.73
24	6"	40.00		153.38	153.53
25	8"	50.00		191.03	191.21
26	10"	66.70		253.89	254.13
27	12"	93.30		354.03	354.36

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	
		Calculated	Proposed
40	MEU Revenue		
41	5/8"	\$ 28,584,602	\$ 28,584,602
42	3/4"	684,162	684,162
43	1"	10,157,144	10,157,144
44	1 1/2"	3,002,496	3,004,811
45	2"	852,737	853,297
46	3"	567,258	567,758
47	4"	825,282	826,036
48	6"	1,742,380	1,744,084
49	8"	502,739	503,213
50	10"	55,170	55,222
51	12"	-	-
52	TCEQ Fee	2,601,759	2,601,759
53	<b>Total MEU Revenue</b>	<b>\$ 49,575,728</b>	<b>\$ 49,582,087</b>



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	\$	36,626,492
8 TCEQ Fee		1,013,013
9 Base		98,210,768
10 Max Day		27,704,695
11 Max Hour		30,402,543
<b>12 Total SFR Costs to Recover</b>	<b>\$</b>	<b>193,957,511</b>

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%	-



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
		April 2022	
24	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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	<b>SFR Revenue Check</b>		
34	Monthly Fixed Charge		\$ 35,513,899
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	<b>Total SFR Revenue</b>		<b>\$ 187,828,120</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 April 2022		
<b>1</b>	<b>Multifamily Residential</b>			
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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
<b>6</b>	<b>MFR Costs to Recover</b>			
7	Customer / Capacity / Fire		\$	2,413,560
8	TCEQ Fee			1,417,982
9	Base			108,625,498
10	Max Day			22,541,241
11	Max Hour			30,730,227
<b>12</b>	<b>Total MFR Costs to Recover</b>		\$	<b>165,728,509</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
14	Calculated MFR Variable Rate (per 1,000 gal)		\$	6.28
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$	5.94
<b>16</b>	<b>MFR Revenue Check</b>			
17	Monthly Fixed Charge		\$	2,287,903
18	TCEQ Fee			1,446,400
19	Variable Rate - All Usage			153,342,926
<b>20</b>	<b>Total MFR Revenue</b>		\$	<b>157,077,229</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
		April 2022	
1	<b>Commercial/Industrial</b>		
2	<i>(includes Government, Extra Container)</i>		
3	<b>Commercial/Industrial Units of Servic</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
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	<b>Commercial/Industrial Costs to Recover</b>		
8	Customer / Capacity / Fire		\$ 5,723,156
9	TCEQ Fee		118,446
10	Base		109,784,544
11	Max Day		44,497,818
12	Max Hour		38,821,874
13	<b>Total Commercial/Industrial Costs to Recover</b>		<b>\$ 198,945,838</b>
14	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
15	Calculated Com/Ind Variable Rate (per 1,000 gal)		\$ 7.41
16	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 6.15
17	<b>Commercial/Industrial Revenue Check</b>		
18	Monthly Fixed Charge		\$ 5,476,131
19	TCEQ Fee		120,820
20	All Usage		160,458,171
21	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 166,055,122</b>





Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 April 2022	
1	<b>Transient</b>		
2	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275
4	Transient Customer Bills Forecast	Inside City Customer Growth	7,662
5	<b>Transient Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 151,111
7	TCEQ Fees		1,588
8	Base		1,618,205
9	Max Day		2,647,772
10	Max Hour		1,284,349
11	<b>Total Transient Costs to Recover</b>		<b>\$ 5,703,025</b>
12	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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	<b>Transient Revenue Check</b>		
19	Transient Monthly Fixed Charge		\$ 1,569,262
20	All Usage		4,018,790
21	<b>Total Transient Revenue</b>		<b>\$ 5,588,052</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 April 2022		
<b>1</b>	<b>Irrigation</b>			
<b>2</b>	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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
<b>6</b>	<b>Irrigation Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	815,184
8	TCEQ Fees			1,158
9	Base			10,136,586
10	Max Day			6,036,903
11	Max Hour			4,273,894
<b>12</b>	<b>Total Irrigation Costs to Recover</b>		\$	<b>21,263,725</b>
<b>13</b>	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$	8.49
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$	10.45
<b>16</b>	<b>Irrigation Revenue Check</b>			
17	Monthly Fixed Charge		\$	790,694
18	TCEQ Fee			1,181
19	All Usage			25,174,075
<b>20</b>	<b>Total Irrigation Revenue</b>		\$	<b>25,965,950</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
		April 2022	
<b>1</b>	<b>Resale</b>		
<b>2</b>	<b>Resale Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2022</b>
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745
4	Resale Customer Bills Forecast	Inside City Customer Growth	12
<b>5</b>	<b>Resale Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 793
7	TCEQ Fees		5
8	Base		37,018
9	Max Day		25,683
10	Max Hour		16,908
<b>11</b>	<b>Total Resale Costs to Recover</b>		<b>\$ 80,408</b>
<b>12</b>	<b>Resale Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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)		\$ 8.65
22	Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 10.45
<b>23</b>	<b>Resale Revenue Check</b>		
24	Resale Monthly Fixed Charge		\$ 4,358
25	All Usage		91,935
<b>26</b>	<b>Total Resale Revenue</b>		<b>\$ 96,293</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022		
		April 2022		
<b>1</b>	<b>Emergency Backup</b>			
<b>2</b>	<b>Emergency Backup Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2022</b>	
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
<b>6</b>	<b>Emergency Backup Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	31,824
8	TCEQ Fees			42
9	Base			50,103
10	Max Day			576,771
11	Max Hour			216,660
12	<b>Total Emergency Backup Costs to Recover</b>		\$	<b>875,399</b>
<b>13</b>	<b>EBS Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$	73.52
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$	10.45
<b>16</b>	<b>Emergency Backup Revenue Check</b>			
17	Monthly Fixed Charge		\$	30,944
18	TCEQ Fee			43
19	All Usage			124,430
20	<b>Total Emergency Backup Revenue</b>		\$	<b>155,417</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
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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	<b>Unmetered Fire Line Costs to Recover</b>			
6	Customer		\$	9,967,606
7	<b>Total Unmetered Fire Line Costs to Recover</b>		\$	<b>9,967,606</b>

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	<b>Total Unmetered Fire Line Revenue</b>	\$	<b>10,853,217</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022		
		April 2022		
<b>1</b>	<b>Metered Fire Line</b>			
<b>2</b>	<b>Metered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2022</b>	
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
<b>5</b>	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	549,135
7	TCEQ Fees			80
8	Base			54,598
9	Max Day			414,353
10	Max Hour			159,532
<b>11</b>	<b>Total Metered Fire Line Costs to Recover</b>		\$	<b>628,483</b>
<b>12</b>	<b>Metered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>	
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)		\$	24.18
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$	10.45
<b>24</b>	<b>Metered Fire Line Revenue Check</b>			
25	Metered Fire Line Monthly Fixed Charge		\$	314,804
26	All Usage			135,594
<b>27</b>	<b>Total Metered Fire Line Revenue</b>		\$	<b>450,398</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022	
April 2022			
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 7,736
9	TCEQ Fee		780
10	Base		34,139,630
11	Max Day		14,911,210
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 49,059,356</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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 gal) \$	3.31	\$ 3.70
20	Proposed Contract Treated with Airgap Excess Rate (per 1,000 gal) \$	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	<b>Contract Treated with Airgap Revenue Check</b>		
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	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 49,667,471</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 April 2022	
<b>1</b>	<b>Contract Treated without Airgap</b>		
<b>2</b>	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
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
<b>5</b>	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer	\$	1,856
7	TCEQ Fee		94
8	Base		3,550,462
9	Max Day		867,652
10	Max Hour		362,334
<b>11</b>	<b>Total Contract Treated without Airgap Costs to Recover</b>	\$	<b>4,782,399</b>
<b>12</b>	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
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 1,000 gal)	4.04	\$ 4.20
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal)	0.82	\$ 0.90
<b>17</b>	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage	\$	5,674,237
19	Contract Treated without Airgap Excess		340,454
<b>20</b>	<b>Total Contract Treated without Airgap Revenue</b>	\$	<b>6,014,691</b>





Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 April 2022	
<b>1</b>	<b>Contract Untreated</b>		
<b>2</b>	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2022</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	78,971,731
<b>4</b>	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 23,024,874
<b>6</b>	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 23,024,874</b>
<b>7</b>	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2916
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
<b>10</b>	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,125,972
<b>12</b>	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,125,972</b>



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)			\$ 15,962,184
8	Capacity (Meter & Supply)			18,783,457
9	Fire Flow			12,839,455
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 50,135,737</b>

12	Per Bill			\$ 2.843
13	Per MEU per month - Capacity			\$ 2.360
14	Per MEU per month - Fire			\$ 1.613
				<b>Proposed</b>
		<b>Total Fixed Charge (5/8")</b>		<b>\$ 6.82</b>
				<b>\$ 6.82</b>

15	Per Connection per month - TCEQ Fees			\$ 0.21
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	Meter Size	Meter Factor	SFR FYE21	Calculated	Proposed
17	5/8"	1.00	\$ 5.82	\$ 6.82	\$ 6.82
18	3/4"	1.00	\$ 5.82	6.82	6.82
19	1"	1.70	\$ 7.21	9.60	9.61
20	1 1/2"	2.70	\$ 10.92	13.57	13.59
21	2"	3.30	\$ 12.86	15.96	15.97
22	3"	8.30	\$ 12.86	35.82	35.86
23	4"	16.70		69.19	69.27
24	6"	40.00		161.74	161.94
25	8"	50.00		201.47	201.71
26	10"	66.70		267.80	268.13
27	12"	93.30		373.47	373.93

	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	
		Calculated	Proposed
40	<b>MEU Revenue</b>		
41	5/8"	\$ 29,731,641	\$ 29,731,641
42	3/4"	711,616	711,616
43	1"	10,608,426	10,619,476
44	1 1/2"	3,147,676	3,152,315
45	2"	895,397	895,958
46	3"	597,939	598,607
47	4"	871,257	872,264
48	6"	1,841,023	1,843,299
49	8"	531,275	531,907
50	10"	58,309	58,381
51	12"	-	-
52	TCEQ Fee	2,606,962	2,606,962
53	<b>Total MEU Revenue</b>	<b>\$ 51,601,520</b>	<b>\$ 51,622,427</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023
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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	<b>SFR Costs to Recover</b>			
7	Customer / Capacity / Fire		\$	38,161,229
8	TCEQ Fee			1,013,013
9	Base			104,321,421
10	Max Day			29,953,675
11	Max Hour			32,943,231
12	<b>Total SFR Costs to Recover</b>		\$	<b>206,392,569</b>

13 **Calculated SFR Uniform Variable Rate (per 1,000 gal)** \$ 7.16

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%	-



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
24	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
25	Tier 1 - Monthly usage less than	3 \$ 0.16	\$ 1.35
26	Tier 2	6 \$ 7.65	\$ 6.60
27	Tier 3	12 \$ 0.45	\$ 9.20
28	Tier 4	20 \$ 12.56	\$ 12.20
29	Tier 5	\$ 5.29	\$ 16.20
30	Tier 6	\$ 5.29	\$ 16.20
31	Tier 7	\$ 5.74	\$ 16.20
32	Tier 8	\$ 9.46	\$ 16.20
33	<b>SFR Revenue Check</b>		
34	Monthly Fixed Charge		\$ 36,995,110
35	TCEQ Fee		1,035,381
36	Tier 1 - Monthly usage less than	3	5,095,742
37	Tier 2	6	89,757,793
38	Tier 3	12	33,015,527
39	Tier 4	20	14,885,909
40	Tier 5		19,501,450
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	<b>Total SFR Revenue</b>		<b>\$ 200,286,913</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023
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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		\$	2,533,517
8	TCEQ Fee			1,417,982
9	Base			115,384,153
10	Max Day			24,371,069
11	Max Hour			33,298,299
12	<b>Total MFR Costs to Recover</b>		\$	<b>177,005,020</b>

13	MFR Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2023 Rates
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 6.70
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$ 6.39

**16 MFR Revenue Check**

17	Monthly Fixed Charge		\$	2,401,442
18	TCEQ Fee			1,449,292
19	Variable Rate - All Usage			165,289,734
20	<b>Total MFR Revenue</b>		\$	<b>169,140,468</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023	
		April 2023	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<i>(includes Government, Extra Container)</i>		
<b>3</b>	<b>Commercial/Industrial Units of Servic</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2023</b>
<b>4</b>	Commercial/Industrial Customer Usage (kgal) Forecast	Inside City Customer Growth	25,934,839
			26,142,941
<b>5</b>	Commercial/Industrial Customer Bills Forecast	Inside City Customer Growth	421,906
			425,291
<b>6</b>	Commercial/Industrial Customer Connections Forecast	Inside City Customer Growth	47,658
			48,040
<b>7</b>	<b>Commercial/Industrial Costs to Recover</b>		
<b>8</b>	Customer / Capacity / Fire		\$ 6,002,835
<b>9</b>	TCEQ Fee		118,446
<b>10</b>	Base		116,615,315
<b>11</b>	Max Day		48,110,012
<b>12</b>	Max Hour		42,066,150
<b>13</b>	<b>Total Commercial/Industrial Costs to Recover</b>		<b>\$ 212,912,758</b>
<b>14</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
<b>15</b>	Calculated Com/Ind Variable Rate (per 1,000 gal)		\$ 7.92
<b>16</b>	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 6.70
<b>17</b>	<b>Commercial/Industrial Revenue Check</b>		
<b>18</b>	Monthly Fixed Charge		\$ 5,743,617
<b>19</b>	TCEQ Fee		121,062
<b>20</b>	All Usage		175,157,705
<b>21</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 181,022,384</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023 April 2023		
<b>1</b>	<b>Transient</b>			
<b>2</b>	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2023</b>
<b>3</b>	Transient Customer Usage (kgal) Forecast	Inside City Customer Growth	382,275	385,342
<b>4</b>	Transient Customer Bills Forecast	Inside City Customer Growth	7,662	7,723
<b>5</b>	<b>Transient Costs to Recover</b>			
<b>6</b>	Customer / Capacity / Fire Flow		\$	158,896
<b>7</b>	TCEQ Fees			1,588
<b>8</b>	Base			1,718,889
<b>9</b>	Max Day			2,862,709
<b>10</b>	Max Hour			1,391,680
<b>11</b>	<b>Total Transient Costs to Recover</b>		\$	<b>6,133,763</b>
<b>12</b>	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>	
<b>13</b>	Transient Fixed Charge (1-inch meter)	\$ 20.17	\$	117.29
<b>14</b>	Transient Fixed Charge (2-inch meter)	\$ 26.90	\$	225.00
<b>15</b>	Transient Fixed Charge (3-inch meter)	\$ 33.62	\$	561.60
<b>16</b>	Calculated Transient Variable Rate (per 1,000 gal)		\$	11.44
<b>17</b>	Proposed Transient Variable Rate (per 1,000 gal)	\$ 5.35	\$	10.87
<b>18</b>	<b>Transient Revenue Check</b>			
<b>19</b>	Transient Monthly Fixed Charge		\$	1,725,801
<b>20</b>	All Usage			4,188,672
<b>21</b>	<b>Total Transient Revenue</b>		\$	<b>5,914,473</b>





Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023		
		April 2023		
<b>1</b>	<b>Irrigation</b>			
<b>2</b>	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2023</b>	
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
<b>6</b>	<b>Irrigation Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	853,885
8	TCEQ Fees			1,158
9	Base			10,767,282
10	Max Day			6,526,960
11	Max Hour			4,631,056
<b>12</b>	<b>Total Irrigation Costs to Recover</b>		\$	<b>22,780,342</b>
<b>13</b>	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>	
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$	9.09
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$	10.87
<b>16</b>	<b>Irrigation Revenue Check</b>			
17	Monthly Fixed Charge		\$	828,244
18	TCEQ Fee			1,184
19	All Usage			26,238,228
<b>20</b>	<b>Total Irrigation Revenue</b>		\$	<b>27,067,656</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023	
		April 2023	
<b>1</b>	<b>Resale</b>		
<b>2</b>	<b>Resale Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b> <b>FYE 2023</b>
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
<b>5</b>	<b>Resale Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 837
7	TCEQ Fees		5
8	Base		39,322
9	Max Day		27,768
10	Max Hour		18,321
<b>11</b>	<b>Total Resale Costs to Recover</b>		<b>\$ 86,253</b>
<b>12</b>	<b>Resale Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
13	Resale Fixed Charge (5/8- or 3/4-inch meter)	\$ 22.83	\$ 24.35
14	Resale Fixed Charge (1-inch meter)	\$ 26.47	\$ 39.40
15	Resale Fixed Charge (1 1/2-inch meter)	\$ 65.31	\$ 60.91
16	Resale Fixed Charge (2-inch meter)	\$ 99.60	\$ 73.81
17	Resale Fixed Charge (3-inch meter)	\$ 215.61	\$ 181.35
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	\$ 1,078.16
21	Calculated Resale Variable Rate (per 1,000 gal)		\$ 9.29
22	Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 10.87
<b>23</b>	<b>Resale Revenue Check</b>		
24	Resale Monthly Fixed Charge		\$ 4,379
25	All Usage		95,821
<b>26</b>	<b>Total Resale Revenue</b>		<b>\$ 100,200</b>



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	\$	33,630
8	TCEQ Fees		42
9	Base		53,220
10	Max Day		623,591
11	Max Hour		234,765
12	<b>Total Emergency Backup Costs to Recover</b>	<b>\$</b>	<b>945,249</b>

13	EBS Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2023 Rates
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$ 79.23
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$ 10.87

**16 Emergency Backup Revenue Check**

17	Monthly Fixed Charge	\$	32,709
18	TCEQ Fee		43
19	All Usage		129,690
20	<b>Total Emergency Backup Revenue</b>	<b>\$</b>	<b>162,442</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023		
		April 2023		
<b>1</b>	<b>Unmetered Fire Line</b>			
<b>2</b>	<b>Unmetered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2023</b>	
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
<b>5</b>	<b>Unmetered Fire Line Costs to Recover</b>			
6	Customer		\$	10,532,003
<b>7</b>	<b>Total Unmetered Fire Line Costs to Recover</b>		\$	<b>10,532,003</b>
<b>8</b>	<b>Unmetered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>	
9	Unmetered Fire Line Fixed Charge (5/8- or 3/4-inch meter)	\$ 15.83	\$	7.00
10	Unmetered Fire Line Fixed Charge (1-inch meter)	\$ 15.83	\$	9.90
11	Unmetered Fire Line Fixed Charge (1 1/2-inch meter)	\$ 63.05	\$	14.06
12	Unmetered Fire Line Fixed Charge (2-inch meter)	\$ 93.00	\$	16.55
13	Unmetered Fire Line Fixed Charge (3-inch meter)	\$ 93.00	\$	37.32
14	Unmetered Fire Line Fixed Charge (4-inch meter)	\$ 93.00	\$	72.21
15	Unmetered Fire Line Fixed Charge (6-inch meter)	\$ 103.59	\$	169.00
16	Unmetered Fire Line Fixed Charge (8-inch meter)	\$ 176.82	\$	210.54
17	Unmetered Fire Line Fixed Charge (10-inch meter)	\$ 238.53	\$	279.91
18	Unmetered Fire Line Fixed Charge (12-inch meter)	\$ 238.53	\$	390.40
<b>19</b>	<b>Unmetered Fire Line Revenue Check</b>			
20	All Accounts		\$	11,005,158
<b>21</b>	<b>Total Unmetered Fire Line Revenue</b>		\$	<b>11,005,158</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023
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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	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	580,242
7	TCEQ Fees			80
8	Base			57,996
9	Max Day			447,989
10	Max Hour			172,863
11	<b>Total Metered Fire Line Costs to Recover</b>		\$	<b>678,848</b>

12	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	\$ 5.05
14	Metered Fire Line Fixed Charge (1-inch meter)	\$ 7.50	\$ 6.59
15	Metered Fire Line Fixed Charge (1 1/2-inch meter)	\$ 11.35	\$ 8.79
16	Metered Fire Line Fixed Charge (2-inch meter)	\$ 13.36	\$ 10.12
17	Metered Fire Line Fixed Charge (3-inch meter)	\$ 35.35	\$ 21.14
18	Metered Fire Line Fixed Charge (4-inch meter)	\$ 48.19	\$ 39.65
19	Metered Fire Line Fixed Charge (6-inch meter)	\$ 82.59	\$ 91.00
20	Metered Fire Line Fixed Charge (8-inch meter)	\$ 215.64	\$ 113.04
21	Metered Fire Line Fixed Charge (10-inch meter)	\$ 215.64	\$ 149.85
22	Calculated Metered Fire Line Variable Rate (per 1,000 gal)		\$ 27.13
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$ 10.87

**24 Metered Fire Line Revenue Check**

25	Metered Fire Line Monthly Fixed Charge	\$	326,201
26	All Usage		141,326
27	<b>Total Metered Fire Line Revenue</b>	\$	<b>467,527</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023 April 2023	
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2023</b>
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	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 7,964
9	TCEQ Fee		780
10	Base		42,666,866
11	Max Day		16,083,016
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 58,758,626</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
15	Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)		\$ 3.79
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)		\$ 3.04
18	Calculated GRP Area 3 Variable Rate (per 1,000 gal)		\$ 2.28
19	Proposed Contract Treated with Airgap Variable Rate (per 1,000 gal) \$	3.31	\$ 3.75
20	Proposed Contract Treated with Airgap Excess Rate (per 1,000 gal) \$	0.82	\$ 0.95
21	Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal) \$	2.65	\$ 3.00
22	Proposed GRP Area 3 Variable Rate (per 1,000 gal) \$	0.99	\$ 2.25
23	<b>Contract Treated with Airgap Revenue Check</b>		
24	Contract Treated with Airgap Usage	10,491,103	\$ 39,341,636
25	Contract Treated with Airgap Excess Usage	1,783,487	1,694,313
26	GRP Areas 1 & 2 Usage	36,761	110,282
27	GRP Area 3 Usage	8,320,519	18,721,167
28	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 59,867,398</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023 April 2023	
1	<b>Contract Treated without Airgap</b>		
2	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2023</b>
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	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer		\$ 1,929
7	TCEQ Fee		94
8	Base		3,723,281
9	Max Day		935,837
10	Max Hour		391,004
11	<b>Total Contract Treated without Airgap Costs to Recover</b>		<b>\$ 5,052,145</b>
12	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
13	Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)		\$ 3.74
14	Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)		\$ 0.76
15	Proposed Contract Treated without Airgap Variable Rate (per 1,000 gal)	4.04	\$ 4.25
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal)	0.82	\$ 0.95
17	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage		\$ 5,753,271
19	Contract Treated without Airgap Excess		360,087
20	<b>Total Contract Treated without Airgap Revenue</b>		<b>\$ 6,113,358</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023	
		April 2023	
<b>1</b>	<b>Contract Untreated</b>		
<b>2</b>	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2023</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,129,675
<b>4</b>	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 23,378,501
<b>6</b>	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 23,378,501</b>
<b>7</b>	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2955
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
<b>10</b>	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,260,224
<b>12</b>	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,260,224</b>





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
	<i>(Includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)</i>			
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)			\$ 15,985,587
8	Capacity (Meter & Supply)			19,334,119
9	Fire Flow			13,489,788
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 51,360,136</b>

12	Per Bill		\$ 2.841	
13	Per MEU per month - Capacity		\$ 2.424	
14	Per MEU per month - Fire		\$ 1.691	Proposed
	<b>Total Fixed Charge (5/8")</b>		<b>\$ 6.96</b>	<b>\$ 6.96</b>

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	\$ 6.96	\$ 6.96
18	3/4"	1.00	\$ 5.82	6.96	6.96
19	1"	1.70	\$ 7.21	9.84	9.85
20	1 1/2"	2.70	\$ 10.92	13.96	13.97
21	2"	3.30	\$ 12.86	16.43	16.44
22	3"	8.30	\$ 12.86	37.00	37.03
23	4"	16.70		71.57	71.63
24	6"	40.00		167.45	167.60
25	8"	50.00		208.60	208.79
26	10"	66.70		277.32	277.57
27	12"	93.30		386.78	387.13

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	
		Calculated	Proposed
40	<b>MEU Revenue</b>		
41	5/8"	\$ 30,402,652	\$ 30,402,652
42	3/4"	727,677	727,677
43	1"	10,895,383	10,906,456
44	1 1/2"	3,244,616	3,246,940
45	2"	923,609	924,171
46	3"	618,872	619,374
47	4"	903,029	903,786
48	6"	1,909,830	1,911,540
49	8"	551,176	551,678
50	10"	60,503	60,557
51	12"	-	-
52	TCEQ Fee	2,612,176	2,612,176
53	<b>Total MEU Revenue</b>	<b>\$ 52,849,522</b>	<b>\$ 52,867,008</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
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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
<b>6 SFR Costs to Recover</b>			
7 Customer / Capacity / Fire		\$	39,095,988
8 TCEQ Fee			1,013,013
9 Base			110,458,401
10 Max Day			31,747,034
11 Max Hour			34,920,000
12 <b>Total SFR Costs to Recover</b>		<b>\$</b>	<b>217,234,436</b>

13 **Calculated SFR Uniform Variable Rate (per 1,000 gal)** \$ 7.56

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%	-



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
24	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
25	Tier 1 - Monthly usage less than	3 \$ 0.16	\$ 1.50
26	Tier 2	6 \$ 7.65	\$ 7.05
27	Tier 3	12 \$ 0.45	\$ 9.80
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	<b>SFR Revenue Check</b>		
34	Monthly Fixed Charge		\$ 37,878,793
35	TCEQ Fee		1,037,452
36	Tier 1 - Monthly usage less than	3	5,673,259
37	Tier 2	6	96,069,398
38	Tier 3	12	35,239,051
39	Tier 4	20	15,649,239
40	Tier 5		20,083,244
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	<b>Total SFR Revenue</b>		<b>\$ 211,630,436</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b> <b>FYE 2024</b>
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
<b>6</b>	<b>MFR Costs to Recover</b>		
7	Customer / Capacity / Fire		\$ 2,612,950
8	TCEQ Fee		1,417,982
9	Base		122,171,927
10	Max Day		25,830,191
11	Max Hour		35,296,374
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 187,329,424</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 7.08
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$ 6.79
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 2,475,189
18	TCEQ Fee		1,452,191
19	Variable Rate - All Usage		175,987,782
<b>20</b>	<b>Total MFR Revenue</b>		<b>\$ 179,915,161</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
		April 2024

**1 Commercial/Industrial**

*(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	\$	6,186,672
9	TCEQ Fee		118,446
10	Base		123,475,515
11	Max Day		50,990,410
12	Max Hour		44,590,343
13	<b>Total Commercial/Industrial Costs to Recover</b>	<b>\$</b>	<b>225,361,386</b>

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)		\$ 8.37
16	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 7.20

**17 Commercial/Industrial Revenue Check**

18	Monthly Fixed Charge	\$	5,916,083
19	TCEQ Fee		121,304
20	All Usage		188,605,633
21	<b>Total Commercial/Industrial Revenue</b>	<b>\$</b>	<b>194,643,020</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024 April 2024		
1	<b>Transient</b>			
2	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2024</b>
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	<b>Transient Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	164,129
7	TCEQ Fees			1,588
8	Base			1,820,008
9	Max Day			3,034,103
10	Max Hour			1,475,188
11	<b>Total Transient Costs to Recover</b>		\$	<b>6,495,016</b>
12	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>	
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)		\$	11.95
17	Proposed Transient Variable Rate (per 1,000 gal)	\$ 5.35	\$	11.22
18	<b>Transient Revenue Check</b>			
19	Transient Monthly Fixed Charge		\$	1,882,949
20	All Usage			4,332,189
21	<b>Total Transient Revenue</b>		\$	<b>6,215,138</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024 April 2024		
<b>1</b>	<b>Irrigation</b>			
<b>2</b>	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2024</b>
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
<b>6</b>	<b>Irrigation Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	878,995
8	TCEQ Fees			1,158
9	Base			11,400,696
10	Max Day			6,917,736
11	Max Hour			4,908,944
<b>12</b>	<b>Total Irrigation Costs to Recover</b>		\$	<b>24,107,529</b>
<b>13</b>	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>	
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$	9.61
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$	11.22
<b>16</b>	<b>Irrigation Revenue Check</b>			
17	Monthly Fixed Charge		\$	852,285
18	TCEQ Fee			1,186
19	All Usage			27,137,231
<b>20</b>	<b>Total Irrigation Revenue</b>		\$	<b>27,990,702</b>





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
<b>5 Resale Costs to Recover</b>			
6 Customer / Capacity / Fire Flow			\$ 867
7 TCEQ Fees			5
8 Base			41,635
9 Max Day			29,431
10 Max Hour			19,421
11 <b>Total Resale Costs to Recover</b>			<b>\$ 91,359</b>

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	\$ 24.41
14 Resale Fixed Charge (1-inch meter)	\$ 26.47	\$ 39.50
15 Resale Fixed Charge (1 1/2-inch meter)	\$ 65.31	\$ 61.07
16 Resale Fixed Charge (2-inch meter)	\$ 99.60	\$ 74.01
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)		\$ 9.85
22 Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 11.22

**23 Resale Revenue Check**

24 Resale Monthly Fixed Charge		\$ 4,400
25 All Usage		99,104
26 <b>Total Resale Revenue</b>		<b>\$ 103,504</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024		
		April 2024		
<b>1</b>	<b>Emergency Backup</b>			
<b>2</b>	<b>Emergency Backup Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2024</b>	
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
<b>6</b>	<b>Emergency Backup Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	34,890
8	TCEQ Fees			42
9	Base			56,351
10	Max Day			660,927
11	Max Hour			248,853
<b>12</b>	<b>Total Emergency Backup Costs to Recover</b>		\$	<b>1,001,062</b>
<b>13</b>	<b>EBS Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>	
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$	83.74
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$	11.22
<b>16</b>	<b>Emergency Backup Revenue Check</b>			
17	Monthly Fixed Charge		\$	33,924
18	TCEQ Fee			43
19	All Usage			134,133
<b>20</b>	<b>Total Emergency Backup Revenue</b>		\$	<b>168,101</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024 April 2024	
1	<b>Unmetered Fire Line</b>		
2	<b>Unmetered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784
5	<b>Unmetered Fire Line Costs to Recover</b>		
6	Customer		\$ 10,925,425
7	<b>Total Unmetered Fire Line Costs to Recover</b>		<b>\$ 10,925,425</b>
8	<b>Unmetered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
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	\$ 9.99
11	Unmetered Fire Line Fixed Charge (1 1/2-inch meter)	\$ 63.05	\$ 14.19
12	Unmetered Fire Line Fixed Charge (2-inch meter)	\$ 93.00	\$ 16.71
13	Unmetered Fire Line Fixed Charge (3-inch meter)	\$ 93.00	\$ 37.73
14	Unmetered Fire Line Fixed Charge (4-inch meter)	\$ 93.00	\$ 73.05
15	Unmetered Fire Line Fixed Charge (6-inch meter)	\$ 103.59	\$ 171.00
16	Unmetered Fire Line Fixed Charge (8-inch meter)	\$ 176.82	\$ 213.04
17	Unmetered Fire Line Fixed Charge (10-inch meter)	\$ 238.53	\$ 283.25
18	Unmetered Fire Line Fixed Charge (12-inch meter)	\$ 238.53	\$ 395.07
19	<b>Unmetered Fire Line Revenue Check</b>		
20	All Accounts		\$ 11,157,755
21	<b>Total Unmetered Fire Line Revenue</b>		<b>\$ 11,157,755</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024		
		April 2024		
<b>1</b>	<b>Metered Fire Line</b>			
<b>2</b>	<b>Metered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2024</b>	
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
<b>5</b>	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	601,928
7	TCEQ Fees			80
8	Base			61,407
9	Max Day			474,811
10	Max Hour			183,236
<b>11</b>	<b>Total Metered Fire Line Costs to Recover</b>		\$	<b>719,454</b>
<b>12</b>	<b>Metered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>	
13	Metered Fire Line Fixed Charge (5/8- or 3/4-inch meter)	\$ 6.24	\$	5.12
14	Metered Fire Line Fixed Charge (1-inch meter)	\$ 7.50	\$	6.72
15	Metered Fire Line Fixed Charge (1 1/2-inch meter)	\$ 11.35	\$	8.99
16	Metered Fire Line Fixed Charge (2-inch meter)	\$ 13.36	\$	10.36
17	Metered Fire Line Fixed Charge (3-inch meter)	\$ 35.35	\$	21.76
18	Metered Fire Line Fixed Charge (4-inch meter)	\$ 48.19	\$	40.90
19	Metered Fire Line Fixed Charge (6-inch meter)	\$ 82.59	\$	94.00
20	Metered Fire Line Fixed Charge (8-inch meter)	\$ 215.64	\$	116.79
21	Metered Fire Line Fixed Charge (10-inch meter)	\$ 215.64	\$	154.85
22	Calculated Metered Fire Line Variable Rate (per 1,000 gal)		\$	29.31
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$	11.22
<b>24</b>	<b>Metered Fire Line Revenue Check</b>			
25	Metered Fire Line Monthly Fixed Charge		\$	337,647
26	All Usage			146,169
<b>27</b>	<b>Total Metered Fire Line Revenue</b>		\$	<b>483,815</b>



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024	
		April 2024	
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2024</b>
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	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 8,070
9	TCEQ Fee		780
10	Base		45,119,932
11	Max Day		17,033,002
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 62,161,784</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
15	Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)		\$ 4.00
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)		\$ 3.20
18	Calculated GRP Area 3 Variable Rate (per 1,000 gal)		\$ 2.40
19	Proposed Contract Treated with Airgap Variable Rate (per 1,000 gal)	3.31	\$ 3.85
20	Proposed Contract Treated with Airgap Excess Rate (per 1,000 gal)	0.82	\$ 1.00
21	Proposed GRP Areas 1 & 2 Variable Rate (per 1,000 gal)	\$ 2.65	\$ 3.08
22	Proposed GRP Area 3 Variable Rate (per 1,000 gal)	\$ 0.99	\$ 2.31
23	<b>Contract Treated with Airgap Revenue Check</b>		
24	Contract Treated with Airgap Usage	10,512,085	\$ 40,471,527
25	Contract Treated with Airgap Excess Usage	1,787,054	1,787,054
26	GRP Areas 1 & 2 Usage	36,834	113,449
27	GRP Area 3 Usage	8,337,160	19,258,839
28	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 61,630,870</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024	
		April 2024	
<b>1</b>	<b>Contract Treated without Airgap</b>		
<b>2</b>	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2024</b>
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
<b>5</b>	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer		\$ 1,971
7	TCEQ Fee		94
8	Base		3,937,345
9	Max Day		991,115
10	Max Hour		413,040
<b>11</b>	<b>Total Contract Treated without Airgap Costs to Recover</b>		<b>\$ 5,343,565</b>
<b>12</b>	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
13	Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)		\$ 3.94
14	Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)		\$ 0.80
15	Proposed Contract Treated without Airgap Variable Rate (per 1,000 gal)	4.04	\$ 4.30
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal)	0.82	\$ 1.00
<b>17</b>	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage		\$ 5,832,598
19	Contract Treated without Airgap Excess		379,797
<b>20</b>	<b>Total Contract Treated without Airgap Revenue</b>		<b>\$ 6,212,395</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024 April 2024	
1	<b>Contract Untreated</b>		
2	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2024</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,287,934
4	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 23,418,342
6	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 23,418,342</b>
7	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2954
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
10	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,394,744
12	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,394,744</b>



Houston Combined Utility System  
**Water Rate Design - Monthly Meter Charge**

Line No.	Description	Test Year FYE 2025	
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April 2025

1	Retail Customer Classes	Escalation	FYE 2019	FYE 2025
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*(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)		\$	15,765,532
8	Capacity (Meter & Supply)			19,845,746
9	Fire Flow			14,242,060
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>52,403,981</b>

12	Per Bill		\$	2.796
13	Per MEU per month - Capacity		\$	2.483
14	Per MEU per month - Fire		\$	1.782
				Proposed
		<b>Total Fixed Charge (5/8")</b>	\$	7.07
			\$	7.07

15	Per Connection per month - TCEQ Fees		\$	0.21
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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	10.05	10.07
20	1 1/2"	2.70	\$ 10.92	14.32	14.34
21	2"	3.30	\$ 12.86	16.88	16.90
22	3"	8.30	\$ 12.86	38.20	38.27
23	4"	16.70		74.03	74.17
24	6"	40.00		173.40	173.74
25	8"	50.00		216.05	216.48
26	10"	66.70		287.27	287.85
27	12"	93.30		400.72	401.52

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	
		Calculated	Proposed
40	<b>MEU Revenue</b>		
41	5/8"	\$ 30,944,920	\$ 30,944,920
42	3/4"	740,656	740,656
43	1"	11,150,163	11,172,352
44	1 1/2"	3,334,945	3,339,602
45	2"	950,803	951,930
46	3"	640,221	641,394
47	4"	935,936	937,706
48	6"	1,981,647	1,985,533
49	8"	572,003	573,141
50	10"	62,799	62,925
51	12"	-	-
52	TCEQ Fee	2,617,401	2,617,401
53	<b>Total MEU Revenue</b>	<b>\$ 53,931,493</b>	<b>\$ 53,967,560</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025
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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
<b>6 SFR Costs to Recover</b>			
7 Customer / Capacity / Fire			\$ 39,863,683
8 TCEQ Fee			1,013,013
9 Base			117,542,371
10 Max Day			33,822,242
11 Max Hour			37,304,128
<b>12 Total SFR Costs to Recover</b>			<b>\$ 229,545,436</b>

13 **Calculated SFR Uniform Variable Rate (per 1,000 gal)** \$ 8.04

14 **Conservation Credit?** Yes

**15 SFR Tier Allocation**

16 SFR Tier Demand	Tier breakpoint	Tier % of kGal	
17 Tier 1 - Conservation Credit	3	16%	3,789,737
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%	-



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
24	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
25	Tier 1 - Monthly usage less than	3 \$ 0.16	\$ 1.65
26	Tier 2	6 \$ 7.65	\$ 7.55
27	Tier 3	12 \$ 0.45	\$ 10.40
28	Tier 4	20 \$ 12.56	\$ 13.40
29	Tier 5	\$ 5.29	\$ 17.10
30	Tier 6	\$ 5.29	\$ 17.10
31	Tier 7	\$ 5.74	\$ 17.10
32	Tier 8	\$ 9.46	\$ 17.10
33	<b>SFR Revenue Check</b>		
34	Monthly Fixed Charge		\$ 38,627,544
35	TCEQ Fee		1,039,527
36	Tier 1 - Monthly usage less than	3	6,253,067
37	Tier 2	6	103,088,596
38	Tier 3	12	37,471,337
39	Tier 4	20	16,415,562
40	Tier 5		20,667,286
41	Tier 6		-
42	Tier 7		-
43	Tier 8		-
44	<b>Total SFR Revenue</b>		<b>\$ 223,562,919</b>



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	\$	2,689,496
8	TCEQ Fee		1,417,982
9	Base		130,007,114
10	Max Day		27,518,632
11	Max Hour		37,706,199
12	<b>Total MFR Costs to Recover</b>	<b>\$</b>	<b>199,339,423</b>

13	MFR Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2025 Rates
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 7.52
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$ 7.26

**16 MFR Revenue Check**

17	Monthly Fixed Charge	\$	2,548,538
18	TCEQ Fee		1,455,095
19	Variable Rate - All Usage		188,545,897
20	<b>Total MFR Revenue</b>	<b>\$</b>	<b>192,549,529</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025		
1	<b>Commercial/Industrial</b>			
2	<i>(includes Government, Extra Container)</i>			
3	<b>Commercial/Industrial Units of Servic</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2025</b>	
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	<b>Commercial/Industrial Costs to Recover</b>			
8	Customer / Capacity / Fire		\$ 6,361,605	
9	TCEQ Fee		118,446	
10	Base		131,394,304	
11	Max Day		54,323,499	
12	Max Hour		47,634,704	
13	<b>Total Commercial/Industrial Costs to Recover</b>		<b>\$ 239,832,559</b>	
14	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
15	Calculated Com/Ind Variable Rate (per 1,000 gal)		\$ 8.90	
16	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 7.77	
17	<b>Commercial/Industrial Revenue Check</b>			
18	Monthly Fixed Charge		\$ 6,085,581	
19	TCEQ Fee		121,547	
20	All Usage		203,943,987	
21	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 210,151,114</b>	



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025 April 2025		
<b>1</b>	<b>Transient</b>			
<b>2</b>	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2025</b>
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
<b>5</b>	<b>Transient Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	169,299
7	TCEQ Fees			1,588
8	Base			1,936,729
9	Max Day			3,232,433
10	Max Hour			1,575,905
<b>11</b>	<b>Total Transient Costs to Recover</b>		\$	<b>6,915,955</b>
<b>12</b>	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
13	Transient Fixed Charge (1-inch meter)	\$ 20.17	\$	137.87
14	Transient Fixed Charge (2-inch meter)	\$ 26.90	\$	265.00
15	Transient Fixed Charge (3-inch meter)	\$ 33.62	\$	662.28
16	Calculated Transient Variable Rate (per 1,000 gal)		\$	12.61
17	Proposed Transient Variable Rate (per 1,000 gal)	\$ 5.35	\$	11.66
<b>18</b>	<b>Transient Revenue Check</b>			
19	Transient Monthly Fixed Charge		\$	2,040,716
20	All Usage			4,511,083
<b>21</b>	<b>Total Transient Revenue</b>		\$	<b>6,551,798</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025		
<b>1</b>	<b>Irrigation</b>			
<b>2</b>	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	<b>FYE 2025</b>
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
<b>6</b>	<b>Irrigation Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	902,346
8	TCEQ Fees			1,158
9	Base			12,131,850
10	Max Day			7,369,928
11	Max Hour			5,244,097
<b>12</b>	<b>Total Irrigation Costs to Recover</b>		<b>\$</b>	<b>25,649,380</b>
<b>13</b>	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$	10.22
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$	11.66
<b>16</b>	<b>Irrigation Revenue Check</b>			
17	Monthly Fixed Charge		\$	875,207
18	TCEQ Fee			1,188
19	All Usage			28,257,839
<b>20</b>	<b>Total Irrigation Revenue</b>		<b>\$</b>	<b>29,134,235</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Resale</b>		
2	<b>Resale Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
			<b>FYE 2025</b>
3	Resale Customer Usage (kgal) Forecast	Inside City Customer Growth	8,745
4	Resale Customer Bills Forecast	Inside City Customer Growth	12
5	<b>Resale Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 899
7	TCEQ Fees		5
8	Base		44,305
9	Max Day		31,354
10	Max Hour		20,747
11	<b>Total Resale Costs to Recover</b>		<b>\$ 97,310</b>
12	<b>Resale Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
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)		\$ 10.50
22	Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 11.66
23	<b>Resale Revenue Check</b>		
24	Resale Monthly Fixed Charge		\$ 4,421
25	All Usage		103,196
26	<b>Total Resale Revenue</b>		<b>\$ 107,617</b>





Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025		
<b>1</b>	<b>Emergency Backup</b>			
<b>2</b>	<b>Emergency Backup Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2025</b>	
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
<b>6</b>	<b>Emergency Backup Costs to Recover</b>			
7	Customer / Capacity / Fire Flow		\$	36,209
8	TCEQ Fees			42
9	Base			59,965
10	Max Day			704,129
11	Max Hour			265,843
<b>12</b>	<b>Total Emergency Backup Costs to Recover</b>		\$	<b>1,066,188</b>
<b>13</b>	<b>EBS Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$	89.01
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$	11.66
<b>16</b>	<b>Emergency Backup Revenue Check</b>			
17	Monthly Fixed Charge		\$	35,243
18	TCEQ Fee			43
19	All Usage			139,672
<b>20</b>	<b>Total Emergency Backup Revenue</b>		\$	<b>174,959</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025		
		April 2025		
<b>1</b>	<b>Unmetered Fire Line</b>	<hr/>		
<b>2</b>	<b>Unmetered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2025</b>	
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
<b>5</b>	<b>Unmetered Fire Line Costs to Recover</b>	<hr/>		
6	Customer		\$	11,336,696
<b>7</b>	<b>Total Unmetered Fire Line Costs to Recover</b>		\$	<b>11,336,696</b>
<b>8</b>	<b>Unmetered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
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
<b>19</b>	<b>Unmetered Fire Line Revenue Check</b>	<hr/>		
20	All Accounts		\$	11,310,961
<b>21</b>	<b>Total Unmetered Fire Line Revenue</b>		\$	<b>11,310,961</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025		
		April 2025		
<b>1</b>	<b>Metered Fire Line</b>			
<b>2</b>	<b>Metered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2025</b>	
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
<b>5</b>	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	624,603
7	TCEQ Fees			80
8	Base			65,345
9	Max Day			505,848
10	Max Hour			195,746
<b>11</b>	<b>Total Metered Fire Line Costs to Recover</b>		\$	<b>766,939</b>
<b>12</b>	<b>Metered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>	
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)		\$	32.01
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$	11.66
<b>24</b>	<b>Metered Fire Line Revenue Check</b>			
25	Metered Fire Line Monthly Fixed Charge		\$	349,148
26	All Usage			152,204
<b>27</b>	<b>Total Metered Fire Line Revenue</b>		\$	<b>501,352</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025	
		April 2025	
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2025</b>
4	Contract Treated with Airgap Customer Usage (kgal) Forecast	10,407,592	10,533,109
5	Contract Treated with Airgap Excess Usage (kgal) Forecast	1.7%	1,790,629
6	GRP Area Customer Usage (kgal) Forecast (adjusted)	4,981,746	5,041,827
7	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 8,099
9	TCEQ Fee		780
10	Base		47,860,931
11	Max Day		18,094,295
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 65,964,106</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
15	Calculated Contract Treated with Airgap Variable Rate (per 1,000 gal)		\$ 4.24
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)		\$ 3.40
18	Calculated GRP Area 3 Variable Rate (per 1,000 gal)		\$ 2.55
19	Proposed Contract Treated with Airgap Variable Rate (per 1,000 gal) \$	3.31	\$ 4.00
20	Proposed Contract Treated with Airgap Excess Rate (per 1,000 gal) \$	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	<b>Contract Treated with Airgap Revenue Check</b>		
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	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 64,179,904</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Contract Treated without Airgap</b>		
2	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2025</b>
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	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer		\$ 2,002
7	TCEQ Fee		94
8	Base		4,176,536
9	Max Day		1,052,869
10	Max Hour		439,235
11	<b>Total Contract Treated without Airgap Costs to Recover</b>		<b>\$ 5,670,736</b>
12	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
13	Calculated Contract Treated without Airgap Variable Rate (per 1,000 gal)		\$ 4.18
14	Calculated Contract Treated without Airgap Excess Rate (per 1,000 gal)		\$ 0.85
15	Proposed Contract Treated without Airgap Variable Rate (per 1,000 gal)	4.04	\$ 4.45
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal)	0.82	\$ 1.05
17	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage		\$ 6,048,133
19	Contract Treated without Airgap Excess		399,585
20	<b>Total Contract Treated without Airgap Revenue</b>		<b>\$ 6,447,718</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Contract Untreated</b>		
2	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2025</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,446,510
4	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 23,095,461
6	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 23,095,461</b>
7	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2908
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
10	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,529,534
12	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,529,534</b>



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
	<i>(includes Single Family Residential, Multifamily Residential, Commercial/ Industrial, Irrigation, Emergency Backup)</i>			
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	<b>Fixed Revenue to Recover</b>			
7	Customer (Billing & Collecting)			\$ 15,433,209
8	Capacity (Meter & Supply)			20,149,819
9	Fire Flow			14,814,344
10	TCEQ Fees			2,550,642
11	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 52,948,014</b>

12	Per Bill		\$ 2.732	
13	Per MEU per month - Capacity		\$ 2.516	
14	Per MEU per month - Fire		\$ 1.850	Proposed
	<b>Total Fixed Charge (5/8")</b>		<b>\$ 7.10</b>	<b>\$ 7.10</b>
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	\$ 7.10	\$ 7.10
18	3/4"	1.00	\$ 5.82	7.10	7.10
19	1"	1.70	\$ 7.21	10.16	10.16
20	1 1/2"	2.70	\$ 10.92	14.52	14.53
21	2"	3.30	\$ 12.86	17.14	17.15
22	3"	8.30	\$ 12.86	38.97	38.99
23	4"	16.70		75.65	75.68
24	6"	40.00		177.37	177.45
25	8"	50.00		221.03	221.13
26	10"	66.70		293.94	294.08
27	12"	93.30		410.07	410.27

28	Account Projection	Escalation	FYE 2019	FYE 2026
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	
		Calculated	Proposed
40	MEU Revenue		
41	5/8"	\$ 31,138,380	\$ 31,138,380
42	3/4"	745,286	745,286
43	1"	11,294,749	11,294,749
44	1 1/2"	3,388,285	3,390,619
45	2"	967,379	967,944
46	3"	654,432	654,768
47	4"	958,330	958,710
48	6"	2,031,071	2,031,987
49	8"	586,358	586,623
50	10"	64,385	64,416
51	12"	-	-
52	TCEQ Fee	2,622,635	2,622,635
53	<b>Total MEU Revenue</b>	<b>\$ 54,451,292</b>	<b>\$ 54,456,117</b>





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		\$	40,237,295
8	TCEQ Fee			1,013,013
9	Base			123,542,497
10	Max Day			35,590,105
11	Max Hour			39,181,948

12	<b>Total SFR Costs to Recover</b>		\$	<b>239,564,857</b>
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13	<b>Calculated SFR Uniform Variable Rate (per 1,000 gal)</b>		\$	<b>8.43</b>
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14	<b>Conservation Credit?</b>	<b>Yes</b>
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**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%	-



Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026	
		April 2026	
24	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
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	<b>SFR Revenue Check</b>		
34	Monthly Fixed Charge		\$ 38,924,590
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	<b>Total SFR Revenue</b>		<b>\$ 234,153,249</b>



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		\$	2,737,394
8	TCEQ Fee			1,417,982
9	Base			136,643,522
10	Max Day			28,957,010
11	Max Hour			39,604,259
12	<b>Total MFR Costs to Recover</b>		<b>\$</b>	<b>209,360,166</b>

13	MFR Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2026 Rates
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 7.89
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 4.65	\$ 7.64

**16 MFR Revenue Check**

17	Monthly Fixed Charge		\$	2,589,439
18	TCEQ Fee			1,458,006
19	Variable Rate - All Usage			198,811,519
20	<b>Total MFR Revenue</b>		<b>\$</b>	<b>202,858,964</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
		April 2026

**1 Commercial/Industrial**

*(includes Government, Extra Container)*

3	Commercial/Industrial Units of Service	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	\$	6,469,286
9	TCEQ Fee		118,446
10	Base		138,101,523
11	Max Day		57,162,947
12	Max Hour		50,032,547

13	<b>Total Commercial/Industrial Costs to Recover</b>	\$	<b>251,884,749</b>
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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)		\$ 9.33
16	Proposed Com/Ind Variable Rate (per 1,000 gal)	\$ 4.77	\$ 8.24

**17 Commercial/Industrial Revenue Check**

18	Monthly Fixed Charge	\$	6,178,027
19	TCEQ Fee		121,790
20	All Usage		216,712,927

21	<b>Total Commercial/Industrial Revenue</b>	\$	<b>223,012,744</b>
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Houston Combined Utility System  
**Water Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026 April 2026		
<b>1</b>	<b>Transient</b>			
<b>2</b>	<b>Transient Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>	
			<b>FYE 2026</b>	
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
<b>5</b>	<b>Transient Costs to Recover</b>			
6	Customer / Capacity / Fire Flow		\$	172,637
7	TCEQ Fees			1,588
8	Base			2,035,592
9	Max Day			3,401,390
10	Max Hour			1,655,233
<b>11</b>	<b>Total Transient Costs to Recover</b>		\$	<b>7,266,441</b>
<b>12</b>	<b>Transient Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>	
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)		\$	13.08
17	Proposed Transient Variable Rate (per 1,000 gal)	\$ 5.35	\$	12.00
<b>18</b>	<b>Transient Revenue Check</b>			
19	Transient Monthly Fixed Charge		\$	2,199,104
20	All Usage			4,651,909
<b>21</b>	<b>Total Transient Revenue</b>		\$	<b>6,851,013</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
1	<b>Irrigation</b>		
2	<b>Irrigation Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Irrigation Customer Usage (kgal) Forecast	Inside City Customer Growth	2,394,606
4	Irrigation Customer Bills Forecast	Inside City Customer Growth	69,963
5	Irrigation Customer Connections Forecast	Inside City Customer Growth	466
6	<b>Irrigation Costs to Recover</b>		
7	Customer / Capacity / Fire Flow		\$ 916,280
8	TCEQ Fees		1,158
9	Base		12,751,139
10	Max Day		7,755,148
11	Max Hour		5,508,075
12	<b>Total Irrigation Costs to Recover</b>		<b>\$ 26,931,801</b>
13	<b>Irrigation Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
14	Calculated Irrigation Variable Rate (per 1,000 gal)		\$ 10.72
15	Proposed Irrigation Variable Rate (per 1,000 gal)	\$ 8.06	\$ 12.00
16	<b>Irrigation Revenue Check</b>		
17	Monthly Fixed Charge		\$ 887,306
18	TCEQ Fee		1,191
19	All Usage		29,139,988
20	<b>Total Irrigation Revenue</b>		<b>\$ 30,028,484</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
1	<b>Resale</b>		
2	<b>Resale Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b> <b>FYE 2026</b>
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	<b>Resale Costs to Recover</b>		
6	Customer / Capacity / Fire Flow		\$ 920
7	TCEQ Fees		5
8	Base		46,567
9	Max Day		32,993
10	Max Hour		21,791
11	<b>Total Resale Costs to Recover</b>		<b>\$ 102,276</b>
12	<b>Resale Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
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)		\$ 11.04
22	Proposed Resale Variable Rate (per 1,000 gal)	\$ 5.73	\$ 12.00
23	<b>Resale Revenue Check</b>		
24	Resale Monthly Fixed Charge		\$ 4,442
25	All Usage		106,418
26	<b>Total Resale Revenue</b>		<b>\$ 110,860</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year
		FYE 2026 April 2026

**1      Emergency Backup**

2	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

**6      Emergency Backup Costs to Recover**

7	Customer / Capacity / Fire Flow	\$	37,118
8	TCEQ Fees		42
9	Base		63,026
10	Max Day		740,934
11	Max Hour		279,225
12	<b>Total Emergency Backup Costs to Recover</b>	<b>\$</b>	<b>1,120,345</b>

13	EBS Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2026 Rates
14	Calculated Emergency Backup Variable Rate (per 1,000 gal)		\$ 93.35
15	Proposed Emergency Backup Variable Rate (per 1,000 gal)	\$ 8.85	\$ 12.00

**16      Emergency Backup Revenue Check**

17	Monthly Fixed Charge	\$	36,072
18	TCEQ Fee		43
19	All Usage		144,032
20	<b>Total Emergency Backup Revenue</b>	<b>\$</b>	<b>180,148</b>





Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
1	<b>Unmetered Fire Line</b>		
2	<b>Unmetered Fire Line Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Unmetered Fire Line Projected MEUs	Inside City Customer Growth	215,440
4	Unmetered Fire Line Projected Bills	Inside City Customer Growth	62,784
5	<b>Unmetered Fire Line Costs to Recover</b>		
6	Customer		\$ 11,619,835
7	<b>Total Unmetered Fire Line Costs to Recover</b>		<b>\$ 11,619,835</b>
8	<b>Unmetered Fire Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
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	<b>Unmetered Fire Line Revenue Check</b>		
20	All Accounts		\$ 11,464,832
21	<b>Total Unmetered Fire Line Revenue</b>		<b>\$ 11,464,832</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
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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	<b>Metered Fire Line Costs to Recover</b>			
6	Customer / Capacity / Fire Flow			\$ 640,218
7	TCEQ Fees			80
8	Base			68,681
9	Max Day			532,288
10	Max Hour			205,600
11	<b>Total Metered Fire Line Costs to Recover</b>			<b>\$ 806,569</b>

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)		\$ 34.09
23	Proposed Metered Fire Line Variable Rate (per 1,000 gal)	\$ 4.77	\$ 12.00

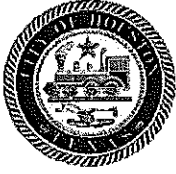
24 **Metered Fire Line Revenue Check**

25	Metered Fire Line Monthly Fixed Charge		\$ 360,706
26	All Usage		156,956
27	<b>Total Metered Fire Line Revenue</b>		<b>\$ 517,662</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
1	<b>Contract Treated with Airgap</b>		
2	<i>(includes Contract Treated Industrial, GRP Areas 1 and 2, GRP Area 3)</i>		
3	<b>Contract Treated with Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2026</b>
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	<b>Contract Treated with Airgap Costs to Recover</b>		
8	Customer		\$ 8,059
9	TCEQ Fee		780
10	Base		50,294,467
11	Max Day		19,052,096
12	Max Hour		-
13	<b>Total Contract Treated with Airgap Costs to Recover</b>		<b>\$ 69,355,403</b>
14	<b>Contract Treated - Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
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	<b>Contract Treated with Airgap Revenue Check</b>		
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	<b>Total Contract Treated with Airgap Revenue</b>		<b>\$ 65,958,582</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
<b>1</b>	<b>Contract Treated without Airgap</b>		
<b>2</b>	<b>Contract Treated without Airgap Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2026</b>
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
<b>5</b>	<b>Contract Treated without Airgap Costs to Recover</b>		
6	Customer	\$	2,014
7	TCEQ Fee		94
8	Base		4,388,896
9	Max Day		1,108,602
10	Max Hour		459,627
<b>11</b>	<b>Total Contract Treated without Airgap Costs to Recover</b>	<b>\$</b>	<b>5,959,233</b>
<b>12</b>	<b>Contract Treated without Airgap Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
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 1,000 gal) \$	4.04	\$ 4.60
16	Proposed Contract Treated without Airgap Excess Rate (per 1,000 gal) \$	0.82	\$ 1.10
<b>17</b>	<b>Contract Treated without Airgap Revenue Check</b>		
18	Contract Treated without Airgap Usage	\$	6,264,507
19	Contract Treated without Airgap Excess		419,450
<b>20</b>	<b>Total Contract Treated without Airgap Revenue</b>	<b>\$</b>	<b>6,683,956</b>



Houston Combined Utility System  
 Water Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
<b>1</b>	<b>Contract Untreated</b>		
<b>2</b>	<b>Contract Untreated Units of Service</b>	<b>FYE 2019</b>	<b>FYE 2026</b>
3	Contract Untreated Customer Usage (kgal) Forecast	78,499,790	79,605,403
<b>4</b>	<b>Contract Untreated Costs to Recover</b>		
5	Raw Water		\$ 22,621,893
<b>6</b>	<b>Total Contract Untreated Costs to Recover</b>		<b>\$ 22,621,893</b>
<b>7</b>	<b>Contract Untreated Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
8	Calculated Contract Untreated Variable Rate (per 1,000 gal)		\$ 0.2842
9	Proposed Contract Untreated Variable Rate (per 1,000 gal)	\$ 0.7573	\$ 0.8500
<b>10</b>	<b>Contract Untreated Revenue Check</b>		
11	All Usage		\$ 67,664,593
<b>12</b>	<b>Total Contract Untreated Revenue</b>		<b>\$ 67,664,593</b>

# Appendix J

## WASTEWATER RATE DESIGN



Houston Combined Utility System  
 Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year
		FYE 2022
		July 2021

1	Retail Customer Classes	Escalation	FYE 2019	FYE 2022
	<i>(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>			
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	<b>Fixed Revenue to Recover</b>			
5	Customer (Billing & Collecting)		\$	33,817,846
6	Capacity (Meter & Supply)			34,223,054
7	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>68,040,899</b>
8	Per Bill		\$	<b>6.512</b>
9	Per MEU per month - Capacity		\$	<b>4.451</b>
		<b>Total Fixed Charge (5/8")</b>	\$	<b>10.97</b>
			\$	<b>10.00</b>

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 10.97	\$ 10.00
12	3/4"	1.00	\$ 12.37	10.97	10.00
13	1"	1.70	\$ 13.00	14.08	12.45
14	1 1/2"	2.70	\$ 15.06	18.53	15.93
15	2"	3.30	\$ 15.69	21.20	18.03
16	3"	8.30	\$ 28.11	43.46	35.46
17	4"	16.70		80.84	64.76
18	6"	40.00		184.55	146.02
19	8"	50.00		229.05	180.90
20	10"	66.70		303.38	239.14
21	12"	93.30		421.77	331.92
22	16"	229.20		1,026.62	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	
		July 2021	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 41,746,224	\$ 38,054,899
38	3/4"	265	241
39	1"	14,484,260	12,807,460
40	1 1/2"	2,659,681	2,286,493
41	2"	3,553,346	3,022,020
42	3"	609,387	497,213
43	4"	1,235,749	989,944
44	6"	1,850,654	1,464,278
45	8"	1,732,351	1,368,183
46	10"	179,765	141,700
47	12"	5,092	4,007
48	16"	12,394	9,729
49	<b>Total MEU Revenue</b>	<b>\$ 68,069,167</b>	<b>\$ 60,646,168</b>





Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021	
1	<b>Single Family Residential</b>		
2	<b>SFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b> <b>FYE 2022</b>
3	SFR Customer Flow (kGal) Forecast	Growth	22,210,637      22,344,168
4	SFR Bills	Growth	4,576,059      4,603,570
5	<b>SFR Costs to Recover</b>		
6	Flow		\$ 143,104,116
7	BOD		8,083,883
8	TSS		18,714,002
9	Ammonia		1,985,912
10	Capacity		10,891,485
11	Customer Billing		29,980,020
12	<b>Total SFR Costs to Recover</b>		<b>\$ 212,759,418</b>
13	<b>Calculated SFR Uniform Rate (per 1,000 gal)</b>		<b>\$ 7.70</b>
14	<b>SFR Tier Allocation</b>		
15	<b>SFR Tier Demand</b>	<b>Tier breakpoint</b>	<b>Tier % of kGal</b>
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	<b>SFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
23	Tier 1	3      \$ 0.20	\$ 7.00
24	Tier 2	\$ 0.41	\$ 13.35
25	Tier 3	\$ 0.33	\$ 13.35
26	Tier 4	\$ 17.20	\$ 13.35
27	Tier 5	\$ 6.22	\$ 13.35
28	Tier 6	\$ 9.05	\$ 13.35



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 50,522,620
31	Tier 1 3	76,647,990
32	Tier 2	152,115,970
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 279,286,580</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622
4	MFR Bills	Growth	158,528
<b>5</b>	<b>MFR Costs to Recover</b>		
6	Flow		\$ 161,112,328
7	BOD		10,049,844
8	TSS		23,265,158
9	Ammonia		2,468,876
10	Capacity		12,262,069
11	Customer Billing		1,038,595
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 210,196,871</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 7.83
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.40
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 13,662,756
18	Variable Rate - All flow		261,621,942
<b>19</b>	<b>Total MFR Revenue</b>		<b>\$ 275,284,699</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 July 2021	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<b>Commercial/Industrial Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637
4	Comm/Ind Bills	Growth	424,056
<b>5</b>	<b>Commercial/Industrial Costs to Recover</b>		
6	Flow		\$ 131,764,358
7	BOD		7,205,438
8	TSS		16,680,422
9	Ammonia		1,770,110
10	Capacity		10,028,430
11	Customer Billing		2,778,200
<b>12</b>	<b>Total Comm/Ind Costs to Recover</b>		<b>\$ 170,226,958</b>
<b>13</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
14	Calculated Comm/Ind Variable Rate (per 1,000 gal)		\$ 7.66
15	Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.40
<b>16</b>	<b>Commercial/Industrial Revenue Check</b>		
17	Fixed Charge		\$ 29,927,030
18	Variable Rate - All flow		213,965,298
<b>19</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 243,892,328</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021	
<b>1</b>	<b>Industrial Sewer Surcharge</b>		
<b>2</b>	<b>Industrial Surcharge Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019
4	Industrial Surcharge Bills Forecast	Growth	3,210
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703
<b>8</b>	<b>Industrial Surcharge Costs to Recover</b>		
9	Flow		\$ 13,678,705
10	BOD		7,481,420
11	TSS		2,535,317
12	Ammonia		338,873
13	Capacity		1,041,070
14	Customer Billing		21,030
15	Industrial Pretreatment Program		3,324,711
<b>16</b>	<b>Total Industrial Surcharge Costs to Recover</b>		<b>\$ 28,421,126</b>
<b>17</b>	<b>Industrial Surcharge Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,029.55
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 100.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 6.4046
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
<b>25</b>	<b>Industrial Surcharge Revenue Check</b>		
26	Monthly Fixed Charge		\$ 571,662
27	Monthly Industrial Program Charge		322,930
28	Variable Rate - All flow		17,086,261
29	Variable Rate - Loadings		10,357,811
<b>30</b>	<b>Total Industrial Surcharge Revenue</b>		<b>\$ 28,338,664</b>



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		July 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	\$	304,735
10 BOD		19,651
11 TSS		45,492
12 Ammonia		4,828
13 Capacity		23,193
14 Customer Billing		68,319
<b>15 Total Sewer Only Costs to Recover</b>	<b>\$</b>	<b>466,218</b>

**16 Sewer Only (Unmetered) Rates**

	FYE 2021 Rates	FYE 2022 Rates
17 Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs \$	41.67
18 Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs \$	83.34
19 Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs \$	41.67
20 Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs \$	83.34
21 Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs \$	83.34

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
<b>29 Total Sewer Only Revenue</b>	<b>\$</b>	<b>402,872</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		July 2021
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849      2,922,313
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 1,764,936
6	BOD	262,386
7	TSS	1,622,791
8	Ammonia	296,498
9	Capacity	-
10	Customer Billing	1,101
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 3,947,712</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2022 Rates</b>
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable R	\$ 1.3509
14	Proposed Contract Sewer - Contributed Capital without Collection Sy: \$	1.64      \$ 1.6500
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,821,816
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,821,816</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 July 2021
<b>1</b>	<b>Contract Sewer - Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	70,636,923
<b>4</b>	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,244,951
6	Collection System	84,344,443
<b>7</b>	<b>Total Collection System Costs</b>	<b>\$ 116,589,394</b>
<b>8</b>	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2022 Rates</b>
9	Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate	\$ 3.0015
10	Proposed Contract Sewer - Contributed Capital with Collection System <i>N/A</i>	\$ 3.0000





Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		July 2021
<b>1</b>	<b>Contract Sewer - No Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>	
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	322,296      324,234
<b>4</b>	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 1,138,732
6	BOD	133,910
7	TSS	309,998
8	Ammonia	32,897
9	Capacity	158,045
10	Customer Billing	865
<b>11</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$ 1,774,447</b>
<b>12</b>	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2022 Rates</b>
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 5.4728
14	Proposed Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 6.25      \$ 6.2500
<b>15</b>	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 2,026,460
<b>17</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$ 2,026,460</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 July 2021	
<b>1</b>	<b>Contract Sewer - Connection-based Billing</b>		
<b>2</b>	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
<b>4</b>	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	195,327
6	BOD		22,970
7	TSS		53,174
8	Ammonia		5,643
9	Capacity		27,110
10	Customer Billing		157
<b>11</b>	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>304,380</b>
<b>12</b>	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	22.82
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 25.00
<b>15</b>	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	333,600
<b>17</b>	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>333,600</b>



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
<i>(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>				
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	<b>Fixed Revenue to Recover</b>			
5	Customer (Billing & Collecting)		\$	39,404,225
6	Capacity (Meter & Supply)			40,954,520
7	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>80,358,745</b>
8	Per Bill		\$	7.588
9	Per MEU per month - Capacity		\$	5.326
		<b>Total Fixed Charge (5/8")</b>	\$	<b>12.92</b>
			\$	<b>11.50</b>

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 12.92	\$ 11.50
12	3/4"	1.00	\$ 12.37	12.92	11.50
13	1"	1.70	\$ 13.00	16.65	14.24
14	1 1/2"	2.70	\$ 15.06	21.97	18.16
15	2"	3.30	\$ 15.69	25.17	20.50
16	3"	8.30	\$ 28.11	51.80	40.06
17	4"	16.70		96.54	72.92
18	6"	40.00		220.64	164.07
19	8"	50.00		273.90	203.19
20	10"	66.70		362.85	268.52
21	12"	93.30		504.52	372.57
22	16"	229.20		1,228.35	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	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 49,166,930	\$ 43,763,134
38	3/4"	312	278
39	1"	17,128,049	14,648,854
40	1 1/2"	3,153,437	2,606,573
41	2"	4,218,760	3,436,018
42	3"	726,329	561,713
43	4"	1,475,744	1,114,681
44	6"	2,212,562	1,645,282
45	8"	2,071,560	1,536,766
46	10"	215,004	159,109
47	12"	6,091	4,498
48	16"	14,829	10,916
49	<b>Total MEU Revenue</b>	<b>\$ 80,389,606</b>	<b>\$ 69,487,822</b>



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		April 2022

**1 Single Family Residential**

SFR Units of Service	Escalation	FYE 2019	FYE 2022
SFR Customer Flow (kGal) Forecast	Growth	22,210,637	22,344,168
SFR Bills	Growth	4,576,059	4,603,570

**5 SFR Costs to Recover**

6 Flow	\$	169,830,397
7 BOD		9,618,567
8 TSS		22,052,508
9 Ammonia		2,313,965
10 Capacity		13,033,774
11 Customer Billing		34,932,428
<b>12 Total SFR Costs to Recover</b>	<b>\$</b>	<b>251,781,639</b>

13 Calculated SFR Uniform Rate (per 1,000 gal)	\$	9.13
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**14 SFR Tier Allocation**

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	\$ 5.10
24 Tier 2		\$ 0.41	\$ 12.10
25 Tier 3		\$ 0.33	\$ 12.10
26 Tier 4		\$ 17.20	\$ 12.10
27 Tier 5		\$ 6.22	\$ 12.10
28 Tier 6		\$ 9.05	\$ 12.10



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 April 2022
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 57,963,893
31	Tier 1 3	55,843,535
32	Tier 2	137,872,902
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 251,680,331</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022	
		April 2022	
1	<b>Multifamily Residential</b>		
2	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b> <b>FYE 2022</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622      25,155,956
4	MFR Bills	Growth	158,528      159,481
5	<b>MFR Costs to Recover</b>		
6	Flow		\$ 191,201,842
7	BOD		11,957,757
8	TSS		27,415,573
9	Ammonia		2,876,710
10	Capacity		14,673,943
11	Customer Billing		1,210,161
12	<b>Total MFR Costs to Recover</b>		<b>\$ 249,335,986</b>
13	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 9.29
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 8.80
16	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 15,369,920
18	Variable Rate - All flow		221,372,413
19	<b>Total MFR Revenue</b>		<b>\$ 236,742,332</b>



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		\$	156,372,813
7 BOD			8,573,354
8 TSS			19,656,145
9 Ammonia			2,062,515
10 Capacity			12,000,961
11 Customer Billing			3,237,132
<b>12 Total Comm/Ind Costs to Recover</b>		<b>\$</b>	<b>201,902,920</b>

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)		\$ 9.08
15 Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 8.80

**16 Commercial/Industrial Revenue Check**

17 Fixed Charge	\$	33,688,331
18 Variable Rate - All flow		181,047,560
<b>19 Total Commercial/Industrial Revenue</b>	<b>\$</b>	<b>214,735,891</b>





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	\$	16,233,355
10	BOD		8,901,731
11	TSS		2,987,608
12	Ammonia		394,851
13	Capacity		1,245,842
14	Customer Billing		24,504
15	Industrial Pretreatment Program		3,873,920

16	<b>Total Industrial Surcharge Costs to Recover</b>	\$	<b>33,661,811</b>
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17	Industrial Surcharge Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2022 Rates
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,199.62
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 300.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 7.6007
21	Proposed Industrial Surcharge Flow Rate (per 1,000 gal)	\$ 4.9010	\$ 9.2600
22	Calculated Industrial Surcharge BOD Rate (per lb)	\$ 0.8440	\$ 0.5279
23	Calculated Industrial Surcharge TSS Rate (per lb)	\$ 0.3331	\$ 0.3987
24	Calculated Industrial Surcharge Ammonia Rate (per lb)	\$ -	\$ 0.7286

**25 Industrial Surcharge Revenue Check**

26	Monthly Fixed Charge	\$	642,118
27	Monthly Industrial Program Charge		968,790
28	Variable Rate - All flow		19,777,347
29	Variable Rate - Loadings		12,285,708

30	<b>Total Industrial Surcharge Revenue</b>	\$	<b>33,673,963</b>
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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	\$	361,648
10 BOD		23,382
11 TSS		53,608
12 Ammonia		5,625
13 Capacity		27,755
14 Customer Billing		79,605
<b>15 Total Sewer Only Costs to Recover</b>	<b>\$</b>	<b>551,622</b>

**16 Sewer Only (Unmetered) Rates**

	FYE 2021 Rates	FYE 2022 Rates
17 Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs \$	49.30
18 Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs \$	98.60
19 Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs \$	49.30
20 Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs \$	98.60
21 Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs \$	98.60

22 Proposed Sewer Only - SFR Fixed Charge (per month)	\$	30.51	\$	43.00
23 Proposed Sewer Only - Duplex Fixed Charge (per month)	\$	64.71	\$	86.00
24 Proposed Sewer Only - MFR Fixed Charge (per month)	\$	37.85	\$	43.00
25 Proposed Sewer Only - Commercial Fixed Charge (per month)	\$	71.41	\$	86.00
26 Proposed Sewer Only - Industrial Fixed Charge (per month)	\$	71.39	\$	86.00

**27 Sewer Only Revenue Check**

28 Monthly Charge - all connections	\$	481,208
<b>29 Total Sewer Only Revenue</b>	<b>\$</b>	<b>481,208</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022
		April 2022
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,922,313
	2,904,849	
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 2,056,486
6	BOD	305,729
7	TSS	1,890,860
8	Ammonia	345,476
9	Capacity	-
10	Customer Billing	1,282
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 4,599,835</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates    FYE 2022 Rates</b>
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable R	\$ 1.5741
14	Proposed Contract Sewer - Contributed Capital without Collection Sy: \$	1.64    \$ 1.6500
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,821,816
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,821,816</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2022 April 2022
1	<b>Contract Sewer - Contributed Capital with Collection System</b>	
2	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	70,636,923
4	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,244,951
6	Collection System	84,344,443
7	<b>Total Collection System Costs</b>	<b>\$ 116,589,394</b>
8	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates    FYE 2022 Rates</b>
9	<b>Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate</b>	<b>\$ 3.2247</b>
10	<b>Proposed Contract Sewer - Contributed Capital with Collection System N/A</b>	<b>\$ 3.2300</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 April 2022	
<b>1</b>	<b>Contract Sewer - No Contributed Capital with Collection System</b>	<hr/>	
<b>2</b>	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>	<hr/>	
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	322,296	324,234
<b>4</b>	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>	<hr/>	
5	Flow	\$	1,347,805
6	BOD		159,332
7	TSS		365,301
8	Ammonia		38,331
9	Capacity		189,132
10	Customer Billing		1,008
<b>11</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$</b>	<b>2,100,908</b>
<b>12</b>	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$	6.4797
14	Proposed Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 6.25	\$ 6.4800
<b>15</b>	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>	<hr/>	
16	Variable Rate - All flow	\$	2,101,034
<b>17</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$</b>	<b>2,101,034</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2022 April 2022	
<b>1</b>	<b>Contract Sewer - Connection-based Billing</b>		
<b>2</b>	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
<b>4</b>	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	231,189
6	BOD		27,330
7	TSS		62,660
8	Ammonia		6,575
9	Capacity		32,442
10	Customer Billing		183
<b>11</b>	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>360,380</b>
<b>12</b>	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2022 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	27.01
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 27.01
<b>15</b>	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	360,421
<b>17</b>	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>360,421</b>



Houston Combined Utility System  
Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year: FYE 2023
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April 2023

1	<b>Retail Customer Classes</b>	Escalation	FYE 2019	FYE 2023
	<i>(Includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>			
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	<b>Fixed Revenue to Recover</b>			
5	Customer (Billing & Collecting)			\$ 39,375,910
6	Capacity (Meter & Supply)			44,841,072
7	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 84,216,982</b>
8	<b>Per Bill</b>			<b>\$ 7.568</b>
9	<b>Per MEU per month - Capacity</b>			<b>\$ 5.820</b>
	<b>Total Fixed Charge (5/8")</b>			<b>\$ 13.39 \$ 13.00</b>

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 13.39	\$ 13.00
12	3/4"	1.00	\$ 12.37	13.39	13.00
13	1"	1.70	\$ 13.00	17.47	16.81
14	1 1/2"	2.70	\$ 15.06	23.29	22.24
15	2"	3.30	\$ 15.69	26.78	25.50
16	3"	8.30	\$ 28.11	55.88	52.66
17	4"	16.70		104.77	98.29
18	6"	40.00		240.37	224.87
19	8"	50.00		298.57	279.20
20	10"	66.70		395.76	369.92
21	12"	93.30		550.57	514.42
22	16"	229.20		1,341.51	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	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 51,057,421	\$ 49,570,312
38	3/4"	324	315
39	1"	18,007,536	17,327,228
40	1 1/2"	3,349,587	3,198,575
41	2"	4,497,591	4,282,620
42	3"	785,105	739,865
43	4"	1,604,754	1,505,501
44	6"	2,415,234	2,259,490
45	8"	2,262,660	2,115,868
46	10"	234,973	219,631
47	12"	6,660	6,223
48	16"	16,227	15,153
49	<b>Total MEU Revenue</b>	<b>\$ 84,238,072</b>	<b>\$ 81,240,780</b>





Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023
		April 2023

**1 Single Family Residential**

SFR Units of Service	Escalation	FYE 2019	FYE 2023
SFR Customer Flow (kGal) Forecast	Growth	22,210,637	22,388,856
SFR Bills	Growth	4,576,059	4,612,777

**5 SFR Costs to Recover**

6 Flow	\$	180,920,285
7 BOD		10,335,560
8 TSS		22,934,287
9 Ammonia		2,312,301
10 Capacity		14,270,669
11 Customer Billing		34,907,327
<b>12 Total SFR Costs to Recover</b>	<b>\$</b>	<b>265,680,429</b>

<b>13 Calculated SFR Uniform Rate (per 1,000 gal)</b>	<b>\$</b>	<b>9.68</b>
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**14 SFR Tier Allocation**

SFR Tier Demand	Tier breakpoint	Tier % of kGal	
15 Tier 1	3	49%	10,971,612
16 Tier 2		51%	11,417,244
17 Tier 3		0%	-
18 Tier 4		0%	-
19 Tier 5		0%	-
20 Tier 6		0%	-

SFR Volume Rates (per 1,000 gal)		FYE 2021 Rates	FYE 2023 Rates
22 Tier 1	3	\$ 0.20	\$ 5.40
23 Tier 2		\$ 0.41	\$ 12.25
24 Tier 3		\$ 0.33	\$ 12.25
25 Tier 4		\$ 17.20	\$ 12.25
26 Tier 5		\$ 6.22	\$ 12.25
27 Tier 6		\$ 9.05	\$ 12.25



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023 April 2023
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 66,960,805
31	Tier 1 3	59,246,706
32	Tier 2	139,861,234
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 266,068,745</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622
4	MFR Bills	Growth	158,528
<b>5</b>	<b>MFR Costs to Recover</b>		
6	Flow		\$ 203,687,281
7	BOD		12,849,119
8	TSS		28,511,797
9	Ammonia		2,874,642
10	Capacity		16,066,489
11	Customer Billing		1,209,291
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 265,198,618</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 9.84
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 9.02
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 20,912,079
18	Variable Rate - All flow		227,360,537
<b>19</b>	<b>Total MFR Revenue</b>		<b>\$ 248,272,616</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<b>Commercial/Industrial Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637
4	Comm/Ind Bills	Growth	424,056
<b>5</b>	<b>Commercial/Industrial Costs to Recover</b>		
6	Flow		\$ 166,583,925
7	BOD		9,212,434
8	TSS		20,442,105
9	Ammonia		2,061,032
10	Capacity		13,139,842
11	Customer Billing		3,234,806
<b>12</b>	<b>Total Comm/Ind Costs to Recover</b>		<b>\$ 214,674,143</b>
<b>13</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
14	Calculated Comm/Ind Variable Rate (per 1,000 gal)		\$ 9.62
15	Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 9.02
<b>16</b>	<b>Commercial/Industrial Revenue Check</b>		
17	Fixed Charge		\$ 45,606,390
18	Variable Rate - All flow		185,944,897
<b>19</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 231,551,287</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
<b>1</b>	<b>Industrial Sewer Surcharge</b>		
<b>2</b>	<b>Industrial Surcharge Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Industrial Surcharge Customer Flow (kgal) For	Growth	2,123,019
4	Industrial Surcharge Bills Forecast	Growth	3,210
5	Industrial Surcharge BOD Forecast (lb)	Growth	16,764,065
6	Industrial Surcharge TSS Forecast (lb)	Growth	7,449,306
7	Industrial Surcharge Ammonia Forecast (lb)	Growth	538,703
<b>8</b>	<b>Industrial Surcharge Costs to Recover</b>		
9	Flow		\$ 17,293,390
10	BOD		9,565,288
11	TSS		3,107,069
12	Ammonia		394,567
13	Capacity		1,364,072
14	Customer Billing		24,487
15	Industrial Pretreatment Program		3,871,134
<b>16</b>	<b>Total Industrial Surcharge Costs to Recover</b>		<b>\$ 35,620,006</b>
<b>17</b>	<b>Industrial Surcharge Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,196.37
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 600.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 8.0809
21	Proposed Industrial Surcharge Flow Rate (per 1,000 gal)	\$ 4.9010	\$ 9.2800
22	Calculated Industrial Surcharge BOD Rate (per lb)	\$ 0.8440	\$ 0.5661
23	Calculated Industrial Surcharge TSS Rate (per lb)	\$ 0.3331	\$ 0.4138
24	Calculated Industrial Surcharge Ammonia Rate (per lb)	\$ -	\$ 0.7267
<b>25</b>	<b>Industrial Surcharge Revenue Check</b>		
26	Monthly Fixed Charge		\$ 883,877
27	Monthly Industrial Program Charge		1,941,454
28	Variable Rate - All flow		19,859,703
29	Variable Rate - Loadings		13,068,160
<b>30</b>	<b>Total Industrial Surcharge Revenue</b>		<b>\$ 35,753,194</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
1	<b>Sewer Only (Unmetered)</b>		
2	<b>Sewer Only Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Sewer Only - SFR Bills Forecast	Growth	8,580
4	Sewer Only - Duplex Bills Forecast	Growth	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152
6	Sewer Only - Commercial Bills Forecast	Growth	684
7	Sewer Only - Industrial Bills Forecast	Growth	-
8	<b>Sewer Only Costs to Recover</b>		
9	Flow		\$ 385,263
10	BOD		25,125
11	TSS		55,751
12	Ammonia		5,621
13	Capacity		30,389
14	Customer Billing		79,547
15	<b>Total Sewer Only Costs to Recover</b>		<b>\$ 581,697</b>
16	<b>Sewer Only (Unmetered) Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
17	Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs	\$ 51.88
18	Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs	\$ 103.76
19	Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs	\$ 51.88
20	Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs	\$ 103.76
21	Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs	\$ 103.76
22	Proposed Sewer Only - SFR Fixed Charge (per month)	\$ 30.51	\$ 48.00
23	Proposed Sewer Only - Duplex Fixed Charge (per month)	\$ 64.71	\$ 96.00
24	Proposed Sewer Only - MFR Fixed Charge (per month)	\$ 37.85	\$ 48.00
25	Proposed Sewer Only - Commercial Fixed Charge (per month)	\$ 71.41	\$ 96.00
26	Proposed Sewer Only - Industrial Fixed Charge (per month)	\$ 71.39	\$ 96.00
27	<b>Sewer Only Revenue Check</b>		
28	Monthly Charge - all connections		\$ 538,236
29	<b>Total Sewer Only Revenue</b>		<b>\$ 538,236</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849      2,928,158
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 2,055,008
6	BOD	305,510
7	TSS	1,889,501
8	Ammonia	345,228
9	Capacity	-
10	Customer Billing	1,282
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 4,596,527</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2023 Rates</b>
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable R	\$ 1.5698
14	Proposed Contract Sewer - Contributed Capital without Collection Sy: \$	1.64      \$ 1.6500
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,831,460
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,831,460</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023
		April 2023
<b>1</b>	<b>Contract Sewer - Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	70,778,197
<b>4</b>	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,245,854
6	Collection System	84,346,805
<b>7</b>	<b>Total Collection System Costs</b>	<b>\$ 116,592,658</b>
<b>8</b>	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2023 Rates</b>
9	Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate	\$ 3.2171
10	Proposed Contract Sewer - Contributed Capital with Collection System <i>N/A</i>	\$ 3.2400





Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2023 April 2023	
1	<b>Contract Sewer - No Contributed Capital with Collection System</b>		
2	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>		
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	322,296	324,882
4	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>		
5	Flow	\$	1,422,986
6	BOD		171,209
7	TSS		379,908
8	Ammonia		38,303
9	Capacity		207,080
10	Customer Billing		1,007
11	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$</b>	<b>2,220,493</b>
12	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$	6.8348
14	Proposed Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 6.25	\$ 6.8400
15	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>		
16	Variable Rate - All flow	\$	2,222,194
17	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$</b>	<b>2,222,194</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2023 April 2023	
<b>1</b>	<b>Contract Sewer - Connection-based Billing</b>		
<b>2</b>	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
<b>4</b>	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	244,085
6	BOD		29,368
7	TSS		65,166
8	Ammonia		6,570
9	Capacity		35,521
10	Customer Billing		183
<b>11</b>	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>380,892</b>
<b>12</b>	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2023 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	28.55
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 28.55
<b>15</b>	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	380,971
<b>17</b>	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>380,971</b>



Houston Combined Utility System  
 Wastewater Rate Design - Monthly Meter Charge

Line No.	Description	Test Year FYE 2024	
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April 2024

1	<b>Retail Customer Classes</b>	Escalation	FYE 2019	FYE 2024
	<i>(Includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>			
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	<b>Fixed Revenue to Recover</b>			
5	Customer (Billing & Collecting)		\$	39,674,159
6	Capacity (Meter & Supply)			48,764,720
7	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>88,438,879</b>
8	<b>Per Bill</b>		\$	<b>7.610</b>
9	<b>Per MEU per month - Capacity</b>		\$	<b>6.317</b>
		<b>Total Fixed Charge (5/8")</b>	\$	<b>13.93</b>
			\$	<b>13.75</b>

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 13.93	\$ 13.75
12	3/4"	1.00	\$ 12.37	13.93	13.75
13	1"	1.70	\$ 13.00	18.35	18.05
14	1 1/2"	2.70	\$ 15.06	24.67	24.19
15	2"	3.30	\$ 15.69	28.46	27.8B
16	3"	8.30	\$ 28.11	60.04	58.58
17	4"	16.70		113.10	110.16
18	6"	40.00		260.28	253.23
19	8"	50.00		323.44	314.63
20	10"	66.70		428.93	417.18
21	12"	93.30		596.95	580.51
22	16"	229.20		1,455.37	1,414.99

23	Account Projection	Escalation	FYE 2019	FYE 2024
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	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 53,222,728	\$ 52,534,998
38	3/4"	338	333
39	1"	18,952,442	18,642,593
40	1 1/2"	3,555,156	3,485,984
41	2"	4,789,299	4,691,696
42	3"	845,239	824,686
43	4"	1,735,809	1,690,687
44	6"	2,620,520	2,549,540
45	8"	2,456,036	2,389,137
46	10"	255,176	248,186
47	12"	7,235	7,036
48	16"	17,640	17,150
49	<b>Total MEU Revenue</b>	<b>\$ 88,457,618</b>	<b>\$ 87,082,025</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024
		April 2024

**1 Single Family Residential**

SFR Units of Service	Escalation	FYE 2019	FYE 2024
SFR Customer Flow (kGal) Forecast	Growth	22,210,637	22,433,634
SFR Bills	Growth	4,576,059	4,622,003

**5 SFR Costs to Recover**

6 Flow		\$	192,552,078
7 BOD			11,076,381
8 TSS			23,929,529
9 Ammonia			2,329,814
10 Capacity			15,519,370
11 Customer Billing			35,171,728
<b>12 Total SFR Costs to Recover</b>		<b>\$</b>	<b>280,578,900</b>

<b>13 Calculated SFR Uniform Rate (per 1,000 gal)</b>	<b>\$</b>	<b>10.25</b>
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**14 SFR Tier Allocation**

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%	-

SFR Volume Rates (per 1,000 gal)		FYE 2021 Rates	FYE 2024 Rates
23 Tier 1	3	\$ 0.20	\$ 6.00
24 Tier 2		\$ 0.41	\$ 12.50
25 Tier 3		\$ 0.33	\$ 12.50
26 Tier 4		\$ 17.20	\$ 12.50
27 Tier 5		\$ 6.22	\$ 12.50
28 Tier 6		\$ 9.05	\$ 12.50



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024 April 2024
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 71,465,223
31	Tier 1 3	65,961,333
32	Tier 2	143,000,976
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 280,427,532</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622
4	MFR Bills	Growth	158,528
<b>5</b>	<b>MFR Costs to Recover</b>		
6	Flow		\$ 216,782,818
7	BOD		13,770,104
8	TSS		29,749,077
9	Ammonia		2,896,413
10	Capacity		17,472,326
11	Customer Billing		1,218,451
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 281,889,189</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 10.43
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 9.48
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 23,533,153
18	Variable Rate - All flow		239,433,331
<b>19</b>	<b>Total MFR Revenue</b>		<b>\$ 262,966,484</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<b>Commercial/Industrial Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637
4	Comm/Ind Bills	Growth	424,056
<b>5</b>	<b>Commercial/Industrial Costs to Recover</b>		
6	Flow		\$ 177,293,999
7	BOD		9,872,752
8	TSS		21,329,198
9	Ammonia		2,076,642
10	Capacity		14,289,595
11	Customer Billing		3,259,307
<b>12</b>	<b>Total Comm/Ind Costs to Recover</b>		<b>\$ 228,121,493</b>
<b>13</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
14	Calculated Comm/Ind Variable Rate (per 1,000 gal)		\$ 10.20
15	Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 9.48
<b>16</b>	<b>Commercial/Industrial Revenue Check</b>		
17	Fixed Charge		\$ 51,247,563
18	Variable Rate - All flow		195,818,530
<b>19</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 247,066,092</b>





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	\$	18,405,223
10	BOD		10,250,898
11	TSS		3,241,901
12	Ammonia		397,555
13	Capacity		1,483,430
14	Customer Billing		24,672
15	Industrial Pretreatment Program		3,900,453

16	<b>Total Industrial Surcharge Costs to Recover</b>	\$	<b>37,704,133</b>
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17	Industrial Surcharge Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2024 Rates
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,203.02
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 800.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 8.5832
21	Proposed Industrial Surcharge Flow Rate (per 1,000 gal)	\$ 4.9010	\$ 9.4300
22	Calculated Industrial Surcharge BOD Rate (per lb)	\$ 0.8440	\$ 0.6055
23	Calculated Industrial Surcharge TSS Rate (per lb)	\$ 0.3331	\$ 0.4309
24	Calculated Industrial Surcharge Ammonia Rate (per lb)	\$ -	\$ 0.7307

**25 Industrial Surcharge Revenue Check**

26	Monthly Fixed Charge	\$	997,990
27	Monthly Industrial Program Charge		2,593,783
28	Variable Rate - All flow		20,221,072
29	Variable Rate - Loadings		13,892,271

30	<b>Total Industrial Surcharge Revenue</b>	\$	<b>37,705,117</b>
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Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
<b>1</b>	<b>Sewer Only (Unmetered)</b>		
<b>2</b>	<b>Sewer Only Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Sewer Only - SFR Bills Forecast	Growth	8,580
4	Sewer Only - Duplex Bills Forecast	Growth	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152
6	Sewer Only - Commercial Bills Forecast	Growth	684
7	Sewer Only - Industrial Bills Forecast	Growth	-
<b>8</b>	<b>Sewer Only Costs to Recover</b>		
9	Flow		\$ 410,033
10	BOD		26,926
11	TSS		58,171
12	Ammonia		5,664
13	Capacity		33,048
14	Customer Billing		80,150
<b>15</b>	<b>Total Sewer Only Costs to Recover</b>		<b>\$ 613,991</b>
<b>16</b>	<b>Sewer Only (Unmetered) Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
17	Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs	\$ 54.65
18	Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs	\$ 109.30
19	Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs	\$ 54.65
20	Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs	\$ 109.30
21	Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs	\$ 109.30
22	Proposed Sewer Only - SFR Fixed Charge (per month)	\$ 30.51	\$ 52.00
23	Proposed Sewer Only - Duplex Fixed Charge (per month)	\$ 64.71	\$ 104.00
24	Proposed Sewer Only - MFR Fixed Charge (per month)	\$ 37.85	\$ 52.00
25	Proposed Sewer Only - Commercial Fixed Charge (per month)	\$ 71.41	\$ 104.00
26	Proposed Sewer Only - Industrial Fixed Charge (per month)	\$ 71.39	\$ 104.00
<b>27</b>	<b>Sewer Only Revenue Check</b>		
28	Monthly Charge - all connections		\$ 584,256
<b>29</b>	<b>Total Sewer Only Revenue</b>		<b>\$ 584,256</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,904,849      2,934,014
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 2,070,572
6	BOD	307,823
7	TSS	1,903,811
8	Ammonia	347,842
9	Capacity	-
10	Customer Billing	1,291
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 4,631,340</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2024 Rates</b>
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable R	\$ 1.5785
14	Proposed Contract Sewer - Contributed Capital without Collection Sy: \$	1.64      \$ 1.6500
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,841,123
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,841,123</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
		April 2024
<b>1</b>	<b>Contract Sewer - Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	70,919,753
<b>4</b>	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,246,830
6	Collection System	84,349,358
<b>7</b>	<b>Total Collection System Costs</b>	<b>\$ 116,596,188</b>
<b>8</b>	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2024 Rates</b>
9	Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate	\$ 3.2226
10	Proposed Contract Sewer - Contributed Capital with Collection System <i>N/A</i>	\$ 3.2500



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2024
		April 2024
<b>1</b>	<b>Contract Sewer - No Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>	
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	322,296 325,532
<b>4</b>	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 1,503,458
6	BOD	183,481
7	TSS	396,394
8	Ammonia	38,593
9	Capacity	225,200
10	Customer Billing	1,015
<b>11</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$ 2,348,141</b>
<b>12</b>	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates FYE 2024 Rates</b>
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 7.2133
14	Proposed Contract Sewer - No Contributed Capital with Collection Sy: \$ 6.25	\$ 7.2200
<b>15</b>	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 2,350,340
<b>17</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$ 2,350,340</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2024 April 2024	
<b>1</b>	<b>Contract Sewer - Connection-based Billing</b>		
<b>2</b>	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
<b>4</b>	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	257,889
6	BOD		31,473
7	TSS		67,994
8	Ammonia		6,620
9	Capacity		38,629
10	Customer Billing		184
<b>11</b>	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>402,788</b>
<b>12</b>	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2024 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	30.19
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 30.19
<b>15</b>	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	402,855
<b>17</b>	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>402,855</b>



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
	<i>(Includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>			
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)			\$ 40,895,870
6	Capacity (Meter & Supply)			52,382,821
7	<b>Total Fixed Charge Revenue to Recover</b>			<b>\$ 93,278,691</b>
8	Per Bill			\$ 7.828
9	Per MEU per month - Capacity			\$ 6.772
		<b>Total Fixed Charge (5/8")</b>		<b>\$ 14.60</b> \$ 14.50

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 14.60	\$ 14.50
12	3/4"	1.00	\$ 12.37	14.60	14.50
13	1"	1.70	\$ 13.00	19.35	19.18
14	1 1/2"	2.70	\$ 15.06	26.12	25.85
15	2"	3.30	\$ 15.69	30.18	29.85
16	3"	8.30	\$ 28.11	64.04	63.21
17	4"	16.70		120.92	119.25
18	6"	40.00		278.70	274.70
19	8"	50.00		346.42	341.42
20	10"	66.70		459.50	452.84
21	12"	93.30		639.63	630.30
22	16"	229.20		1,559.90	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	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 55,894,181	\$ 55,511,344
38	3/4"	355	352
39	1"	20,025,243	19,849,311
40	1 1/2"	3,771,642	3,732,655
41	2"	5,088,901	5,033,257
42	3"	903,354	891,646
43	4"	1,859,538	1,833,857
44	6"	2,811,586	2,771,233
45	8"	2,635,795	2,597,752
46	10"	273,910	269,939
47	12"	7,768	7,655
48	16"	18,945	18,666
49	<b>Total MEU Revenue</b>	<b>\$ 93,291,217</b>	<b>\$ 92,517,667</b>





Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025
		April 2025

**1 Single Family Residential**

SFR Units of Service	Escalation	FYE 2019	FYE 2025
SFR Customer Flow (kGal) Forecast	Growth	22,210,637	22,478,501
SFR Bills	Growth	4,576,059	4,631,247

**5 SFR Costs to Recover**

6 Flow		\$	204,541,112
7 BOD			11,808,708
8 TSS			25,151,539
9 Ammonia			2,401,556
10 Capacity			16,670,830
11 Customer Billing			36,254,793
<b>12 Total SFR Costs to Recover</b>		<b>\$</b>	<b>296,828,539</b>

<b>13 Calculated SFR Uniform Rate (per 1,000 gal)</b>	<b>\$</b>	<b>10.86</b>
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**14 SFR Tier Allocation**

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%	-

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	\$ 13.00
25 Tier 3		\$ 0.33	\$ 13.00
26 Tier 4		\$ 17.20	\$ 13.00
27 Tier 5		\$ 6.22	\$ 13.00
28 Tier 6		\$ 9.05	\$ 13.00



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025
		April 2025
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 75,779,223
31	Tier 1 3	72,151,804
32	Tier 2	149,018,457
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 296,949,484</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622
4	MFR Bills	Growth	158,528
<b>5</b>	<b>MFR Costs to Recover</b>		
6	Flow		\$ 230,280,551
7	BOD		14,680,530
8	TSS		31,268,274
9	Ammonia		2,985,603
10	Capacity		18,768,686
11	Customer Billing		1,255,972
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 299,239,616</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 11.04
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.00
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 25,550,093
18	Variable Rate - All flow		253,071,938
<b>19</b>	<b>Total MFR Revenue</b>		<b>\$ 278,622,031</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Commercial/Industrial</b>		
2	<b>Commercial/Industrial Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637
4	Comm/Ind Bills	Growth	424,056
5	<b>Commercial/Industrial Costs to Recover</b>		
6	Flow		\$ 188,333,006
7	BOD		10,525,501
8	TSS		22,418,417
9	Ammonia		2,140,588
10	Capacity		15,349,812
11	Customer Billing		3,359,673
12	<b>Total Comm/Ind Costs to Recover</b>		<b>\$ 242,126,996</b>
13	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
14	Calculated Comm/Ind Variable Rate (per 1,000 gal)		\$ 10.80
15	Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.00
16	<b>Commercial/Industrial Revenue Check</b>		
17	Fixed Charge		\$ 55,605,129
18	Variable Rate - All flow		206,972,750
19	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 262,577,879</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025 April 2025
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**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	\$	19,551,203
10	BOD		10,928,648
11	TSS		3,407,455
12	Ammonia		409,797
13	Capacity		1,593,493
14	Customer Billing		25,432
15	Industrial Pretreatment Program		4,020,560
16	<b>Total Industrial Surcharge Costs to Recover</b>	<b>\$</b>	<b>39,936,589</b>

17	Industrial Surcharge Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2025 Rates
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,237.59
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 1,000.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 9.0995
21	Proposed Industrial Surcharge Flow Rate (per 1,000 gal)	\$ 4.9010	\$ 9.7100
22	Calculated Industrial Surcharge BOD Rate (per lb)	\$ 0.8440	\$ 0.6442
23	Calculated Industrial Surcharge TSS Rate (per lb)	\$ 0.3331	\$ 0.4520
24	Calculated Industrial Surcharge Ammonia Rate (per lb)	\$ -	\$ 0.7517

**25 Industrial Surcharge Revenue Check**

26	Monthly Fixed Charge	\$	1,085,088
27	Monthly Industrial Program Charge		3,248,713
28	Variable Rate - All flow		20,863,129
29	Variable Rate - Loadings		14,747,174
30	<b>Total Industrial Surcharge Revenue</b>	<b>\$</b>	<b>39,944,105</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Sewer Only (Unmetered)</b>		
2	<b>Sewer Only Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Sewer Only - SFR Bills Forecast	Growth	8,580
4	Sewer Only - Duplex Bills Forecast	Growth	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152
6	Sewer Only - Commercial Bills Forecast	Growth	684
7	Sewer Only - Industrial Bills Forecast	Growth	-
8	<b>Sewer Only Costs to Recover</b>		
9	Flow		\$ 435,563
10	BOD		28,706
11	TSS		61,141
12	Ammonia		5,838
13	Capacity		35,500
14	Customer Billing		82,618
15	<b>Total Sewer Only Costs to Recover</b>		<b>\$ 649,366</b>
16	<b>Sewer Only (Unmetered) Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
17	Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs	\$ 57.68
18	Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs	\$ 115.36
19	Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs	\$ 57.68
20	Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs	\$ 115.36
21	Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs	\$ 115.36
22	Proposed Sewer Only - SFR Fixed Charge (per month)	\$ 30.51	\$ 56.00
23	Proposed Sewer Only - Duplex Fixed Charge (per month)	\$ 64.71	\$ 112.00
24	Proposed Sewer Only - MFR Fixed Charge (per month)	\$ 37.85	\$ 56.00
25	Proposed Sewer Only - Commercial Fixed Charge (per month)	\$ 71.41	\$ 112.00
26	Proposed Sewer Only - Industrial Fixed Charge (per month)	\$ 71.39	\$ 112.00
27	<b>Sewer Only Revenue Check</b>		
28	Monthly Charge - all connections		\$ 630,457
29	<b>Total Sewer Only Revenue</b>		<b>\$ 630,457</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025
		April 2025
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,939,882
		2,904,849
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 2,134,331
6	BOD	317,302
7	TSS	1,962,435
8	Ammonia	358,554
9	Capacity	-
10	Customer Billing	1,331
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 4,773,953</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	
		FYE 2021 Rates      FYE 2025 Rates
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable R	\$ 1.6239
14	Proposed Contract Sewer - Contributed Capital without Collection Sy: \$	\$ 1.64      \$ 1.6500
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,850,805
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,850,805</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2025
		April 2025
<b>1</b>	<b>Contract Sewer - Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	71,061,593
<b>4</b>	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,247,858
6	Collection System	84,352,047
<b>7</b>	<b>Total Collection System Costs</b>	<b>\$ 116,599,905</b>
<b>8</b>	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2025 Rates</b>
9	Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate	\$ 3.2648
10	Proposed Contract Sewer - Contributed Capital with Collection System <i>N/A</i>	\$ 3.2700





Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025
		April 2025
<b>1</b>	<b>Contract Sewer - No Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>	
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	322,296      326,183
<b>4</b>	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 1,590,911
6	BOD	195,612
7	TSS	416,636
8	Ammonia	39,782
9	Capacity	241,908
10	Customer Billing	1,046
<b>11</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$ 2,485,896</b>
<b>12</b>	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2025 Rates</b>
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable R	\$ 7.6212
14	Proposed Contract Sewer - No Contributed Capital with Collection Sy: \$ 6.25	\$ 7.6300
<b>15</b>	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 2,488,776
<b>17</b>	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$ 2,488,776</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2025 April 2025	
1	<b>Contract Sewer - Connection-based Billing</b>		
2	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
4	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	272,890
6	BOD		33,553
7	TSS		71,466
8	Ammonia		6,824
9	Capacity		41,495
10	Customer Billing		190
11	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>426,417</b>
12	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2025 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	31.96
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 31.96
15	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	426,474
17	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>426,474</b>



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
	<i>(includes Single Family Residential, Multifamily Residential, Commercial, Industrial without Surcharge, Industrial with Surcharge)</i>			
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)		\$	41,722,801
6	Capacity (Meter & Supply)			55,345,432
7	<b>Total Fixed Charge Revenue to Recover</b>		\$	<b>97,068,233</b>
8	Per Bill		\$	7.971
9	Per MEU per month - Capacity		\$	7.140
		<b>Total Fixed Charge (5/8")</b>	\$	<b>15.12</b>

10	Meter Size	Meter Factor	SFR FY20	Calculated	Proposed
11	5/8"	1.00	\$ 12.37	\$ 15.12	\$ 15.12
12	3/4"	1.00	\$ 12.37	15.12	15.12
13	1"	1.70	\$ 13.00	20.11	20.13
14	1 1/2"	2.70	\$ 15.06	27.25	27.28
15	2"	3.30	\$ 15.69	31.54	31.57
16	3"	8.30	\$ 28.11	67.24	67.32
17	4"	16.70		127.22	127.37
18	6"	40.00		293.59	293.95
19	8"	50.00		365.00	365.44
20	10"	66.70		484.24	484.84
21	12"	93.30		674.17	675.01
22	16"	229.20		1,644.55	1,646.61

23	Account Projection	Escalation	FYE 2019	FYE 2026
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	
	MEU Revenue	Calculated	Proposed
36			
37	5/8"	\$ 58,000,702	\$ 58,000,702
38	3/4"	368	368
39	1"	20,853,388	20,874,127
40	1 1/2"	3,942,680	3,947,020
41	2"	5,328,859	5,333,927
42	3"	950,391	951,522
43	4"	1,960,334	1,962,646
44	6"	2,967,723	2,971,362
45	8"	2,782,718	2,786,073
46	10"	289,234	289,593
47	12"	8,204	8,214
48	16"	20,013	20,038
49	<b>Total MEU Revenue</b>	<b>\$ 97,104,613</b>	<b>\$ 97,145,591</b>



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		\$	214,126,690
7	BOD			12,399,347
8	TSS			26,096,411
9	Ammonia			2,450,115
10	Capacity			17,613,681
11	Customer Billing			36,987,880
12	<b>Total SFR Costs to Recover</b>		\$	<b>309,674,124</b>

13	<b>Calculated SFR Uniform Rate (per 1,000 gal)</b>		\$	<b>11.33</b>
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**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	\$ 7.00
24	Tier 2		\$ 0.41	\$ 13.35
25	Tier 3		\$ 0.33	\$ 13.35
26	Tier 4		\$ 17.20	\$ 13.35
27	Tier 5		\$ 6.22	\$ 13.35
28	Tier 6		\$ 9.05	\$ 13.35



Houston Combined Utility System  
Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026
		April 2026
29	<b>SFR Revenue Check</b>	
30	Monthly Fixed Charge	\$ 79,419,507
31	Tier 1 3	77,263,016
32	Tier 2	153,336,554
33	Tier 3	-
34	Tier 4	-
35	Tier 5	-
36	Tier 6	-
37	<b>Total SFR Revenue</b>	<b>\$ 310,019,076</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026 April 2026	
<b>1</b>	<b>Multifamily Residential</b>		
<b>2</b>	<b>MFR Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	MFR Customer Flow (kgal) Forecast	Growth	25,005,622
4	MFR Bills	Growth	158,528
<b>5</b>	<b>MFR Costs to Recover</b>		
6	Flow		\$ 241,072,378
7	BOD		15,414,809
8	TSS		32,442,934
9	Ammonia		3,045,971
10	Capacity		19,830,185
11	Customer Billing		1,281,368
<b>12</b>	<b>Total MFR Costs to Recover</b>		<b>\$ 313,087,646</b>
<b>13</b>	<b>MFR Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
14	Calculated MFR Variable Rate (per 1,000 gal)		\$ 11.52
15	Proposed MFR Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.40
<b>16</b>	<b>MFR Revenue Check</b>		
17	Monthly Fixed Charge		\$ 27,366,755
18	Variable Rate - All flow		263,721,205
<b>19</b>	<b>Total MFR Revenue</b>		<b>\$ 291,087,960</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026 April 2026	
<b>1</b>	<b>Commercial/Industrial</b>		
<b>2</b>	<b>Commercial/Industrial Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Comm/Ind Customer Flow (kgal) Forecast	Growth	20,450,637
4	Comm/Ind Bills	Growth	424,056
<b>5</b>	<b>Commercial/Industrial Costs to Recover</b>		
6	Flow		\$ 197,159,011
7	BOD		11,051,957
8	TSS		23,260,613
9	Ammonia		2,183,870
10	Capacity		16,217,950
11	Customer Billing		3,427,607
<b>12</b>	<b>Total Comm/Ind Costs to Recover</b>		<b>\$ 253,301,008</b>
<b>13</b>	<b>Commercial/Industrial Volume Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
14	Calculated Comm/Ind Variable Rate (per 1,000 gal)		\$ 11.27
15	Proposed Comm/Ind Variable Rate (per 1,000 gal)	\$ 6.76	\$ 10.40
<b>16</b>	<b>Commercial/Industrial Revenue Check</b>		
17	Fixed Charge		\$ 59,525,048
18	Variable Rate - All flow		215,682,163
<b>19</b>	<b>Total Commercial/Industrial Revenue</b>		<b>\$ 275,207,211</b>





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	\$	20,467,447
10	BOD		11,475,269
11	TSS		3,535,464
12	Ammonia		418,083
13	Capacity		1,683,616
14	Customer Billing		25,946
15	Industrial Pretreatment Program		4,101,855
16	<b>Total Industrial Surcharge Costs to Recover</b>	<b>\$</b>	<b>41,707,680</b>

17	Industrial Surcharge Volume Rates (per 1,000 gal)	FYE 2021 Rates	FYE 2026 Rates
18	Calculated Monthly Industrial Program Charge (per bill)		\$ 1,260.09
19	Proposed Monthly Industrial Program Charge (per bill)	\$ -	\$ 1,200.00
20	Calculated Industrial Surcharge Flow Rate (per 1,000 gal)		\$ 9.5069
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	\$ 0.4681
24	Calculated Industrial Surcharge Ammonia Rate (per lb)	\$ -	\$ 0.7654

**25 Industrial Surcharge Revenue Check**

26	Monthly Fixed Charge	\$	1,163,735
27	Monthly Industrial Program Charge		3,906,253
28	Variable Rate - All flow		21,206,264
29	Variable Rate - Loadings		15,431,081
30	<b>Total Industrial Surcharge Revenue</b>	<b>\$</b>	<b>41,707,333</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
1	<b>Sewer Only (Unmetered)</b>		
2	<b>Sewer Only Units of Service</b>	<b>Escalation</b>	<b>FYE 2019</b>
3	Sewer Only - SFR Bills Forecast	Growth	8,580
4	Sewer Only - Duplex Bills Forecast	Growth	12
5	Sewer Only - MFR Bills Forecast	Growth	1,152
6	Sewer Only - Commercial Bills Forecast	Growth	684
7	Sewer Only - Industrial Bills Forecast	Growth	-
8	<b>Sewer Only Costs to Recover</b>		
9	Flow		\$ 455,975
10	BOD		30,142
11	TSS		63,438
12	Ammonia		5,956
13	Capacity		37,508
14	Customer Billing		84,289
15	<b>Total Sewer Only Costs to Recover</b>		<b>\$ 677,308</b>
16	<b>Sewer Only (Unmetered) Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
17	Calculated Sewer Only - SFR Fixed Charge (per month)	1.0 SFEs	\$ 60.05
18	Calculated Sewer Only - Duplex Fixed Charge (per month)	2.0 SFEs	\$ 120.10
19	Calculated Sewer Only - MFR Fixed Charge (per month)	1.0 SFEs	\$ 60.05
20	Calculated Sewer Only - Commercial Fixed Charge (per month)	2.0 SFEs	\$ 120.10
21	Calculated Sewer Only - Industrial Fixed Charge (per month)	2.0 SFEs	\$ 120.10
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	<b>Sewer Only Revenue Check</b>		
28	Monthly Charge - all connections		\$ 676,840
29	<b>Total Sewer Only Revenue</b>		<b>\$ 676,840</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026
		April 2026
<b>1</b>	<b>Contract Sewer - Contributed Capital without Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital without Collection System Units of Service</b>	
3	Contract Sewer - Capital w/o Coll. Sys. Customer Flow (kgal) Forecast	2,945,762
		2,904,849
<b>4</b>	<b>Contract Sewer - Capital w/o Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 2,177,487
6	BOD	323,718
7	TSS	2,002,116
8	Ammonia	365,803
9	Capacity	-
10	Customer Billing	1,358
<b>11</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Costs to Recover</b>	<b>\$ 4,870,482</b>
<b>12</b>	<b>Contract Sewer - Cap w/o Coll. Sys. Vol. Rates (per 1,000 gal)</b>	
		FYE 2021 Rates      FYE 2026 Rates
13	Calculated Contract Sewer - Contributed Capital without Collection System Variable Rate	\$ 1.6534
14	Proposed Contract Sewer - Contributed Capital without Collection System Variable Rate	\$ 1.6500
		\$ 1.64
<b>15</b>	<b>Contract Sewer - Contributed Capital without Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 4,860,507
<b>17</b>	<b>Total Contract Sewer - Contributed Capital without Collection System Revenue</b>	<b>\$ 4,860,507</b>



Houston Combined Utility System  
**Wastewater Rate Design - Volume Rates**

Line No.	Description	Test Year FYE 2026
		April 2026
<b>1</b>	<b>Contract Sewer - Contributed Capital with Collection System</b>	
<b>2</b>	<b>Contract Sewer - Contributed Capital with Collection System Units of Service</b>	
3	Collection System Flow	71,203,716
<b>4</b>	<b>Contract Sewer - Contributed Capital w/ Coll. Sys. Costs to Recover</b>	
5	Lift Station	\$ 32,248,845
6	Collection System	84,354,629
<b>7</b>	<b>Total Collection System Costs</b>	<b>\$ 116,603,473</b>
<b>8</b>	<b>Contract Sewer - Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	<b>FYE 2021 Rates      FYE 2026 Rates</b>
9	Calculated Contract Sewer - Contributed Capital with Collection System Variable Rate	\$ 3.2911
10	Proposed Contract Sewer - Contributed Capital with Collection System <i>N/A</i>	\$ 3.3000



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026
1	<b>Contract Sewer - No Contributed Capital with Collection System</b>	
2	<b>Contract Sewer - No Contributed Capital with Collection System Units of Service</b>	
3	Contract Sewer - No Capital w/ Coll. Sys. Customer Flow (kgal) Forecast	326,835
		322,296
4	<b>Contract Sewer - No Capital w/ Coll. Sys. Costs to Recover</b>	
5	Flow	\$ 1,660,094
6	BOD	205,396
7	TSS	432,288
8	Ammonia	40,586
9	Capacity	255,590
10	Customer Billing	1,067
11	<b>Total Contract Sewer - No Contributed Capital with Collection System Costs to Recover</b>	<b>\$ 2,595,021</b>
12	<b>Contract Sewer - No Cap w/ Coll. Sys. Vol. Rates (per 1,000 gal)</b>	
		FYE 2021 Rates      FYE 2026 Rates
13	Calculated Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 7.9399
14	Proposed Contract Sewer - No Contributed Capital with Collection System Variable Rate	\$ 6.25      \$ 7.9400
15	<b>Contract Sewer - No Contributed Capital with Collection System Revenue Check</b>	
16	Variable Rate - All flow	\$ 2,595,072
17	<b>Total Contract Sewer - No Contributed Capital with Collection System Revenue</b>	<b>\$ 2,595,072</b>



Houston Combined Utility System  
 Wastewater Rate Design - Volume Rates

Line No.	Description	Test Year FYE 2026 April 2026	
<b>1</b>	<b>Contract Sewer - Connection-based Billing</b>		
<b>2</b>	<b>Contract Sewer - Connection-based Billing Units of Service</b>		
3	Contract Sewer - Connection-based Billing Connections Forecast	1,112	1,112
<b>4</b>	<b>Contract Sewer - Connection-based Billing Costs to Recover</b>		
5	Flow	\$	284,757
6	BOD		35,232
7	TSS		74,151
8	Ammonia		6,962
9	Capacity		43,841
10	Customer Billing		194
<b>11</b>	<b>Total Contract Sewer - Connection-based Billing Costs to Recover</b>	<b>\$</b>	<b>445,136</b>
<b>12</b>	<b>Contract Sewer - Connection-Based Rates</b>	<b>FYE 2021 Rates</b>	<b>FYE 2026 Rates</b>
13	Calculated Contract Sewer - Connection-based Billing Monthly Charge (per connection)	\$	33.36
14	Proposed Contract Sewer - Connection-based Billing Monthly Charge	\$8.86/\$24.71	\$ 33.36
<b>15</b>	<b>Contract Sewer - Connection-based Billing Revenue Check</b>		
16	All Connections	\$	445,156
<b>17</b>	<b>Total Contract Sewer - Connection-based Billing Revenue</b>	<b>\$</b>	<b>445,156</b>

# **EXHIBIT B**

## Chapter 47 WATER AND SEWERS

### **Amend Subsection (a) of Section 47-61 (Charges for treated water service generally) to read as follows:**

- (a) *Generally.* Except as otherwise specifically provided for in this chapter and as further defined below, the charge for treated water service furnished by the city in any given month to any given customer shall include all water that passes through the customer's meter and shall be the monthly water charge applicable to such customer, plus any applicable miscellaneous charges accruing in accordance with this chapter or the appendices of this Code, provided, however, single-family residential customers may be charged the conservation rate as defined in subsection (b) of this section. Single-family residential customers using more than 3,000 gallons in a month will be charged at the incremental rate for all their water usage and are not eligible for the conservation rate in that month.

### **Amend the definitions of *basic service* and *customer* in Subsection (b) of Section 47-61 (Charges for treated water service generally) to read as follows:**

*Basic service* means fire protection, metering, administrative, billing, and other services related to water service that the customer receives and pays for regardless of the customer's consumption or lack of consumption of treated water furnished by the city. Fire protection included in basic service does not include metered or unmetered fire lines.

*Customer* means any person who has applied for or contracted with the city for water service, the owner of a property with a meter connected for water service, or any person who resides at the address where the city provides the water service at the time the monthly charges are incurred. A customer may have more than one meter and more than one property with water service.

### **Amend Subsection (b) of Section 47-61 (Charges for treated water service generally) by adding, in alphabetical order position, new definitions that read as follows:**

*Conservation rate* means the reduced volume rate charged to single-family residential users for water usage of 3,000 gallons or less in a month.

*Defined charge* means the monthly charge for basic service.

*TCEQ public health service fee* means the fee per connection for public water systems pursuant to 30 Texas Administrative Code (TAC) §290.51(a)(3)-(6). The fee is included in each customer's bill for treated water connections and pays for services provided by the Texas Commission on Environmental Quality, including: scheduling of analysis of drinking water for chemical content; collection of samples of drinking water for chemical analyses; review of system data for evaluation of sampling waivers; inspection of public water systems; review of plans for new systems and major improvements to existing systems; and, provision of technical assistance as needed.



**Amend Subsections (c) through (f) of Section 47-61 (Charges for treated water service generally) to read as follows:**

- (c) *Residential water service.* Each residential customer shall incur monthly charges for water for each meter serving the customer's premises. Multifamily residential customer meters under umbrella accounts may be exempt from certain basic service charges
- (1) *Single-family residential customers.* Each single-family residential customer's monthly water charge shall be calculated using the total of the applicable defined charge, the charge for additional quantities, and the TCEQ public health service fee set forth below:
- a. *Defined charge.* The customer's defined charge shall be calculated using the chart set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable incremental rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee.*
- (2) *Multifamily residential customers.* Each multifamily residential customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities as set forth below.
- a. *Defined charge.* The customer's defined charge shall be calculated using the chart set forth for this provision in the city fee schedule, referencing the customer's meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the incremental rate set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee.*
- (d) *Non-residential water service.* Non-residential customers shall incur monthly water charges for each meter based upon the customer's meter size, measured by diameter in inches, the charge for additional quantities, plus the TCEQ public health service fee, if applicable, in accordance with the applicable rates set out in the city fee schedule.
- (1) *Resale customers.* Each resale customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities, and the TCEQ public health service fee, if applicable, as set forth below.
- a. *Defined charge.* The customer's defined charge shall be calculated using the chart set forth for this provision in the city fee schedule, referencing the customer's meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee* for treated water connections only.
- (2) *Outdoor customers.* Each outdoor customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities, and the TCEQ public health service fee, if applicable, as set forth below:

- a. *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee* for treated water connections only.
- (3) *Commercial and industrial customers.* With the exception of a customer with a metered fire connection, which shall be billed as provided in section 47-64(a) of this Code, each commercial customer's monthly water charge and each industrial customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities, and the TCEQ public health service fee, if applicable, as set forth below:
- a. *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee* for treated water connections only.
- (4) *Emergency backup service customer.* Each EBS customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities, and the TCEQ public health service fee, if applicable, as set forth below:
- a. *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee* for treated water connections only.
- (6) *Transient meter customers.* Each transient meter customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities, and the TCEQ public health service fee, if applicable, as set forth below:
- a. *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
  - c. *TCEQ public health service fee* for treated water connections only.
- (e) *Emergency backup service (EBS) customer.*
- (1) *Eligibility and applications.* Any person desiring to become an EBS customer must apply to the director. Each EBS application must:
- a. Be made in a form prescribed by the director; and
  - b. Include engineering drawings and detailed specifications of the applicant's proposed installation of EBS equipment.

- (2) Action upon applications. The director shall examine each EBS application. An application shall be approved if the director determines that:
- a. The applicant can qualify as an EBS customer;
  - b. The requested EBS service is practical and sound from an engineering point of view;
  - c. The proposed installation of EBS equipment meets city standards; and
  - d. The application otherwise complies with this Code.

The director shall allow an applicant to modify its application or its proposed installation of EBS equipment so as to meet any requirements for approval.

(3) *EBS equipment.*

- a. All installations of EBS equipment shall include measuring equipment, valves, backflow prevention devices, a locking mechanism, a proper vault and such other items as are necessary in the judgment of the director. All such installations shall conform to city standards as to location, materials and workmanship.
- b. When the director has approved an application, the applicant shall furnish, deliver and install the EBS equipment at its own expense in strict compliance with this Code and the plans and specifications approved by the director. The applicant shall provide reasonable opportunities for the director to inspect the work as it progresses and shall so notify the director at appropriate times. When the completed installation has been inspected and approved by the director, the applicant shall:
  1. Convey to the city the complete installation (excluding back flow prevention devices) free and clear of liens and encumbrances by written documents approved by the director.
  2. Deliver all keys to the locking mechanism to the director. To the extent an existing, city-owned installation is to be used for the applicant's EBS installation, the foregoing provisions may be modified by the director.

(4) *Monthly billing and charges.* Each EBS customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities as set forth below:

- a. *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
- b. *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule.
- c. *Rates and charges.* Rates and charges for each EBS customer begin to accrue on the day its installation is conveyed to the city.

- (5) *Opening and closing connections.* In the event of an emergency, the EBS customer may notify the director of the emergency and request that the EBS connection be unlocked and opened. If the director determines that an emergency exists, the city shall unlock and open the EBS connection. Under no circumstances shall the EBS customer unlock or open the connection or otherwise operate or tamper with the installation. When the emergency has ceased or is deemed to have ceased, the city shall close and lock the EBS connection. The emergency shall be deemed to have ceased when the EBS customer so notifies the director or when 30 days have elapsed after the date of EBS customer notified the director of the emergency, whichever first occurs. If the director determines that an extension of time will not cause undue hardship to the other customers of the city, the director may extend the time the EBS connection is open upon written request of the EBS customer and

a showing by that customer that an emergency still exists and that all practicable steps are being taken to correct the circumstances causing the emergency. However, if at any time the director determines that an emergency has actually ceased and consults with the EBS customer, the director may close and lock the connection.

- (6) *Termination of service.* Service to an EBS customer shall be terminated, after reasonable notice to the customer and an opportunity to be heard, if the customer fails to pay any rates or charges within the time allowed or if the customer fails to comply with the other terms of service applicable to such customer. Upon such termination, the connection shall be permanently closed, locked and disconnected, and the rates and charges shall cease accruing.

(f) *Contract treated water service.*

- (1) *Eligibility and applications.* Applications for contract treated water service shall be made on forms prescribed by the director. Each application shall include the nonrefundable processing fee stated for this provision in the city fee schedule. Any customer or potential customer is eligible for contract treated water service under this subsection if:

- a. The customer is a municipality or conservation and reclamation district organized under article XVI, section 59 of the Texas Constitution that proposes to resell water purchased from the city;
- b. The customer would otherwise be a commercial customer and has minimum water consumption equal to at least 150,000,000 gallons per month;
- c. The customer is a private utility company holding a certificate of convenience and necessity from the state that (i) resells water to single family or multi-family dwellings only and (ii) maintains a water distribution system in public rights-of-way or public easements; or
- d. The customer would otherwise be a commercial customer and is in compliance with a conservation plan pursuant to chapters 288 and 295 of title 30 Texas Administrative Code to reduce its minimum water consumption from 150,000,000 or more gallons per month while continuing to provide the same or higher levels of production or services.

- (2) *Contract requirements.* Upon receipt of a completed application, the department shall determine water availability and, if sufficient water is available for the customer, shall secure a written agreement from the applicant, which shall include:

- a. The term of the agreement;
- b. The minimum monthly quantity of water to be taken by the customer. This minimum for customers other than those described under items (1)a, (1)c and (1)d of this subsection shall be 150,000,000 gallons per month. Customers defined under items (1)a, (1)c and (1)d of this subsection shall be permitted to change the minimum monthly quantity only in accordance with the terms of their contracts;
- c. The designation of the point or points of delivery;

- d. Rates as described in subsection (f)(3) of this section; and
- e. Any special requirements regarding metering or facilities desired by the parties.

No agreement for contract treated water service shall be valid unless approved by the city council.

- (3) *Rates and charges.* Treated water supply contract customers shall incur monthly water charges for each meter including a defined charge based on the customer's meter size, measured by diameter in inches, and the volume charge for metered water usage. The contract rate for all water supplied under an untreated water supply contract is as stated in the city fee schedule for the volume of water, including minimum monthly amount and amounts in excess of the minimum monthly amount, as specified in the contract for each customer type as set out below, for treated water supply with airgap or treated water supply without airgap.

For contract treated water customers, the monthly charge shall equal:

$$P \times R$$

plus

$$(P-M) \times F$$

Where:

P = The total water delivery to such customer during the month expressed in units of 1,000 gallons, except if the minimum monthly amount of water specified in the customer's contract is greater than P, P shall equal M;

M = The minimum monthly amount of water specified in the customer's contract expressed in units of 1,000 gallons; and

R = The applicable rate stated for this provision in the city fee schedule contract treated water service with or without airgap. An airgap shall be required of every customer unless the director determines that this requirement be waived because of prior conditions, excessive pressure, or health and safety concerns.

F = The contract treated water service monthly charge factor stated for this provision in the city fee schedule.

A contract treated water service charge premium per thousand gallons shall apply to amounts taken in excess of the minimum monthly amount.

In the event a billing period is longer or shorter than 30 days, a daily charge shall be determined using the formula specified above, but with P defined as average daily amount of water delivered during the billing period and M defined as the

monthly minimum divided by 30. Such daily charge shall then be multiplied by the number of days in the billing period.

**Amend Subsection (c) of Section 47-62 (Groundwater reduction plan agreements) to read as follows:**

- (c) GRP participants purchasing treated water from the city are subject to the minimum purchase requirements of their contracts in accordance with their location in Regulatory Areas 1 and 2, or Regulatory Area 3, all defined in the subsidence district regulations, as set forth in the city fee schedule. Standard contract treated water rates, rate classifications, and premiums apply to GRP participants that purchase treated water from the city.

**Amend Section 47-64 to read as follows:**

**Sec. 47-64. Service charges for metered fire connection or unmetered connection for fire sprinkling systems and other fire suppression systems.**

- (a) *Metered fire connection.* Each metered fire connection customer's monthly water charge shall be the total of the defined charge and the charge for additional quantities using the rates for industrial customers without surcharge as stated in the city fee schedule, and the TCEQ public health service fee, if applicable, as set forth below:
  - (1) *Defined charge.* The customer's defined charge shall be calculated using the charts set forth for this provision in the city fee schedule, referencing the customer's monthly water usage and meter size, measured by diameter in inches.
  - (2) *Charge for additional quantities.* The customer's charge for additional quantities shall be calculated using customer's monthly water usage multiplied by the applicable rates set forth for this provision in the city fee schedule for industrial water use.
  - (3) *TCEQ public health service fee* for treated water connections only.
- (b) *Unmetered fire connection.* Each person with an unmetered connection serving a fire sprinkler system under the provisions of subsection (b) of section 47-4 of this Code shall pay the monthly service charge stated for this provision in the city fee schedule for the corresponding size of the diameter of each unmetered sprinkler service line connected to the city's water main. The charge for a fire line with a city approved backflow prevention device with a bypass meter will be the same as for unmetered fire lines.
- (c) *Billing and enforcement.* Billing for charges made under this section shall be made on a monthly basis. Payment shall be due and made in accordance with the provisions of this Code, and payment of such charges shall be enforced by any and all means available to the city under other provisions of this Code, including termination of service.
- (d) *Water supply for private fire suppression.* The department may supply water for private fire suppression systems if in the opinion of the utility official the connection will not cause appreciable reduction in the pressure of the city's water system. The director shall determine all conditions necessary for connecting such private fire protection to the city's water system to ensure the safety of the public water system. The cost for a city employee to participate in or witness any test of a fire suppression system as required by this Code or any other ordinance of the city is stated for this provision in the city fee schedule.

**Amend Subsection (b) of Section 47-84 (Statement of policy; standard untreated water rates) to read as follows:**

- (b) *Contracts.* All contracts for untreated water supply shall be in the form approved by the city council. In the event any untreated water customer requests terms, conditions or amendments not included in the approved form, the director shall follow appropriate procedures for review of the proposed changes and consideration of the proposed contract by the city council. The policy of the city is that the provisions of this division shall be deemed a part of every city contract for sale of untreated water for industrial, municipal, or agricultural use.

**Amend Sections 47-122 and 47-123 to read as follows:**

**Sec. 47-122. Rates for users taking city water.**

- (a) *Residential users.* Each residential user shall incur monthly sanitary charges for each meter serving the user's premises, except certain multifamily residential users with umbrella accounts authorized to receive different basic service charges as set forth in section 47-71 of this Code.
  - (1) *Single-family residential user.* Each single-family residential user's monthly sanitary charge shall be calculated using the total of the applicable basic service charge and the volume charge set forth below:
    - a. *Basic service charge.* The user's basic service charge shall be based on meter size, measured by meter diameter in inches, as set forth in the chart stated for this provision in the city fee schedule.
    - b. *Volume charge.* The user's volume charge, regardless of meter size, shall be calculated using the user's monthly water usage as set forth in the chart stated for this provision in the city fee schedule.
  - (2) *Multifamily residential user.* Each multifamily residential user's monthly sanitary charge shall be calculated using the total of the applicable basic service charge and the volume charge set forth below:
    - a. *Basic service charge.* The user's basic service charge shall be based on meter size, measured by meter diameter in inches, as set forth in the chart stated for this provision in the city fee schedule.
    - b. *Volume charge.* The user's volume charge, regardless of meter size, shall be the user's monthly water usage multiplied by the wastewater volume rate stated for this provision in the city fee schedule for each 1,000 gallon increment.
- (b) *Non-residential users.* Each non-residential user shall incur monthly sanitary charges for each meter serving the user's premises.
  - (1) *Commercial user.* Each commercial user's monthly sanitary charge shall be calculated using the total of the applicable basic service charge and volume charge set forth below:
    - a. *Basic service charge.* The user's basic service charge shall be based on meter size, measured by diameter in inches, as set forth in the chart stated for this provision in the city fee schedule.
    - b. *Volume charge.* The user's volume charge, regardless of meter size, shall be the user's monthly water usage multiplied by the wastewater volume rate stated for this provision in the city fee schedule.
  - (2) *Industrial user.* In addition to any applicable charges under section 47-143 of this Code, each industrial user's monthly sanitary charge shall be calculated using the total of the applicable basic service charge and volume charge set forth below:

- a. *Basic service charge.* The user's basic service charge shall be based on meter size as set forth in the chart stated for this provision in the city fee schedule.
- b. *Volume charge.* The user's volume charge, regardless of meter size, shall be the user's monthly water usage multiplied by the wastewater volume rate, and the flow rate, if applicable, plus the industrial waste program charge, all as stated for this provision in the city fee schedule and as described further below:
  - [1] *Industrial users without industrial waste surcharge.* The user's volume charge shall be the user's monthly usage multiplied by the wastewater volume rate stated for this provision in the city fee schedule, plus the user's monthly usage multiplied by the wastewater volume rate stated for this provision in the city fee schedule for all flow to the city's public water system.
  - [2] *Industrial users with an industrial waste surcharge.* The user's volume charge shall be the user's monthly usage multiplied by the wastewater volume rate for BOD per pound, TSS per pound, and Ammonia per pound, as stated for this provision in the city fee schedule.
  - [3] *All industrial waste permittees shall pay the industrial waste program charge.*

**Sec. 47-123. Rates for users not receiving water from city.**

The monthly sanitary sewer service charge for each user who has a private water supply or receives water from a source other than the city's water system and whose water supply is not self-metered and billed as provided in section 47-128 of this Code shall be as stated for this provision in the city fee schedule, according to the following categories and customer types:

- (1) Single family residence.
- (2) Duplex residence.
- (3) Multiple dwelling units, per single family unit.
- (4) Commercial user rate, per commercial equivalent. Each commercial user shall pay each month the cost of a single commercial equivalent unless such commercial user requires additional commercial equivalents of service as determined by the table in section 47-1002 of this Code.
- (5) Industrial user rate, per commercial equivalent. Each industrial user shall pay the cost of a single commercial equivalent unless such industrial user requires additional commercial equivalents of service as determined by the table in section 47-1002 of this Code.

**Amend Section 47-140 to read as follows:**

**Sec. 47-140. Wholesale wastewater service rates for municipalities and conservation and reclamation districts.**

- (a) *Wholesale contracts.* Municipalities and conservation and reclamation districts ('municipalities') may purchase wholesale wastewater service from the city at rates established herein or as set forth in the city fee schedule for the applicable customer type, including specified per connection rates. In case of conflict between this section and a wholesale contract entered into before the effective date hereof, the provisions of the wholesale contract prevail.
- (b) *Rate for municipalities that have made capital contributions and that discharge directly into a city treatment plant.* The rate established in this subsection is applicable only for wholesale wastewater services the city provides to municipalities that meet the following requirements:
  - (1) The municipality discharges directly into a city treatment plant;



- (2) The municipality has purchased permanent treatment capacity in the city's wastewater treatment system; and
- (3) The municipality has executed a contract with the city for wholesale wastewater treatment services.

The wholesale wastewater rate for municipalities meeting these criteria is stated for this provision in the city fee schedule, per 1,000 gallons for municipalities without a collection system. If the contract does not require that charges be based on metered quantities, monthly quantities (in 1,000 gallon units) shall be determined by the formula:

$$0.250 \times A \times B$$

Where:

- A = The number of calendar days in the particular month; and
- B = The number of residential equivalent units connected to the municipality's collection system. (Conversion factors for residential equivalent units are provided in the wholesale wastewater service contracts.)

- (c) *Rate for municipalities that have made capital contributions and that discharge into the city wastewater collection system.* The rate established in this subsection is applicable only for wholesale wastewater services the city provides to municipalities that meet the following requirements:

- (1) The municipality discharges directly into the city wastewater collection system;
- (2) The municipality has purchased permanent sewage treatment capacity in the city's wastewater treatment system; and
- (3) The municipality has executed a contract with the city for wholesale wastewater treatment services.

The wholesale wastewater rate for municipalities meeting these criteria is stated for this provision in the city fee schedule, per 1,000 gallons for municipalities with a capital contribution. If the contract does not require that charges be based on metered quantities, monthly quantities (in 1,000 gallon units) shall be determined by the formula:

$$0.250 \times A \times B$$

Where:

- A = the number of calendar days in the particular month; and
- B = the number of residential equivalent units connected to the municipality's collection system. (Conversion factors for residential equivalent units are provided in the wholesale wastewater service contracts.)

- (d) *Rate for other municipalities.* The wholesale rate for wastewater service for municipalities not eligible for the rate specified in any other subsection of this section shall be the rate per 1,000 gallons stated for this provision in the city fee schedule.

**Amend Subsection (a)(2) of Section 47-142 (City's allocated unit costs) to read as follows:**

**Sec. 47-142. City's allocated unit costs.**

- (a) The following items shall be used to compute allocated unit costs but shall not be deemed to be exclusive of other pertinent factors:

- (1) The total proposed sewer division budget for the current year will be used as a basis for figuring operation and maintenance expenditures plus the following:
    - a. An appropriate percentage for old age benefits and pension payments based on salaries.
    - b. Vehicular replacements based on an appropriate replacement plan.
    - c. An approved percentage for indirect costs to other departments based on the proposed sewer division budget for the current year.
    - d. An appropriate percentage of the actual water/sewer billing costs.
    - e. The annual debt service for retirement of sanitary sewer bonds.
  - (2) The city's allocated unit costs will be computed annually for processing each of the following operational-functions of the system: Volume of flow, removal of BOD, removal of suspended solids, removal of ammonia.
- (b) The allocated unit costs shall be evaluated annually to examine increases or decreases in operation and maintenance costs and annual debt service.

**Amend Section 47-143 to read as follows:**

**Sec. 47-143. Computation of user charge.**

- (a) The user charges to be determined to each establishment that produces industrial waste shall be computed by use of the following formula:

$$UC = BC + Q \times R$$

Formula values are as follows:

UC = User charge (in dollars).

BC = Basic Service Charge defined in 47-122(b)(2)(a) (in dollars)

Q = Billable quantity of wastewater in thousand gallon units

R =  $[X + (BOD \times 8.337 \times Y/1000) + (SS \times 8.337 \times Z/1000) + (NH_3 \times 8.337 \times W/1000)]$   
per thousand gallons OR the rate per thousand gallons specified in section 47-122(b)(2)b, whichever is greater

W = The fee stated for this provision in the city fee schedule, per pound of NH<sub>3</sub>

X = The fee stated for this provision in the city fee schedule, per thousand gallons

Y = The fee stated for this provision in the city fee schedule, per pound of BOD

Z = The fee stated for this provision in the city fee schedule, per pound of SS

BOD = Biochemical Oxygen Demand in milligrams per liter based on the results of a five-day analytical test for BOD at 20 degrees Centigrade

SS = Suspended solid content of the waste delivered, measured in milligrams per liter

NH<sub>3</sub> = Ammonia nitrogen (ammonia) content of the waste delivered, measured in milligrams per liter

- (b) When an industry produces both domestic and process waste with one connection to the sewer system, the waste so delivered shall be considered as industrial waste with uniform rate; or by user charge computations, in compliance with the above, based on the combined volume, BOD, suspended solids, and ammonia content.

- (c) A permittee may reduce his user charge rate by obtaining greater removals in pretreatment or plant operation procedure, but once the pretreatment or plant procedure is established to obtain uniform or lower rate, written consent from the director to increase the delivered strength shall be required, and charges for a higher rate based on tests by the city may be made without other notice to the industry.
- (d) Establishments that produce industrial waste shall be billed monthly or bimonthly for industrial waste disposal, according to the established procedures.
- (e) During periods while the city is sampling the content of the industrial waste discharge or attempting to obtain information from the industrial user regarding the quality of water the industrial user is discharging to the city system, the industrial user shall not alter its discharge practices, increase the use of process water, dilute or attempt to dilute its industrial waste discharge or otherwise alter the quality and content of the discharge in a manner which reduces the industrial waste surcharge or attempts to achieve compliance with discharge limitations. The city will exclude the results of samples that may have been impacted by dilution from the averages used for establishment of the user charge.

**Amend Article III of Chapter 47 by adding a new Section 47-145 to read as follows:**

**Sec. 47-145. Industrial waste program charge.**

In addition to the charges set out above, each industrial waste customer with an industrial waste discharge permit must pay a monthly industrial waste program charge in the amount set out in the city fee schedule. The industrial waste program charge funds the city's management of the industrial waste program.

# **EXHIBIT C**

**TABLE 1 - PROPOSED WATER MONTHLY SERVICE CHARGES AND FUTURE ADJUSTMENTS**

Meter Size	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	<i>Charges</i>	<i>Future Adjustments</i>				
5/8-inch	\$6.25	+\$0.32	+\$0.25	+\$0.14	+\$0.11	+\$0.03
3/4-inch	6.25	+0.32	+0.25	+0.14	+0.11	+0.03
1-inch	8.80	+0.41	+0.39	+0.24	+0.21	+0.11
1 1/2-inch	12.43	+0.54	+0.60	+0.39	+0.36	+0.20
2-inch	14.61	+0.62	+0.73	+0.47	+0.45	+0.26
3-inch	32.76	+1.29	+1.77	+1.18	+1.20	+0.77
4-inch	63.27	+2.40	+3.52	+2.38	+2.46	+1.62
6-inch	147.88	+5.50	+8.36	+5.71	+5.95	+3.97
8-inch	184.20	+6.83	+10.44	+7.13	+7.45	+4.98
10-inch	244.84	+9.05	+13.91	+9.52	+9.95	+6.67
12-inch	341.44	+12.59	+19.44	+13.31	+13.94	+9.35
TCEQ Fee per connection	0.21	+0.00	+0.00	+0.00	+0.00	+0.00

**TABLE 2 - PROPOSED WATER MONTHLY SERVICE CHARGES AND FUTURE ADJUSTMENTS: SPECIAL CUSTOMER TYPES**

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
<b>Transient:</b>						
1-inch	\$95.00	+\$11.96	+\$10.33	+\$10.30	+\$10.28	+\$10.27
2-inch	185.00	+20.00	+20.00	+20.00	+20.00	+20.00
3-inch	460.00	+51.36	+50.24	+50.31	+50.37	+50.40
<b>Resale:</b>						
5/8- and 3/4-inch	\$24.05	+\$0.20	+\$0.10	+\$0.06	+\$0.02	+\$0.00
1-inch	39.00	+0.27	+0.13	+0.10	+0.07	+0.04
1 1/2-inch	60.40	+0.31	+0.20	+0.16	+0.12	+0.11
2-inch	73.25	+0.33	+0.23	+0.20	+0.16	+0.15
3-inch	180.00	+0.83	+0.52	+0.49	+0.48	+0.46
4-inch	360.00	+1.00	+1.00	+1.00	+1.00	+1.00
6-inch	859.00	+1.76	+2.34	+2.40	+2.45	+2.49
8-inch	1075.00	+0.25	+2.91	+3.00	+3.08	+3.13
<b>Metered Fire:</b>						
5/8-inch	\$4.70	+\$0.23	+\$0.12	+\$0.07	+\$0.03	+\$0.01
3/4-inch	4.70	+0.23	+0.12	+0.07	+0.03	+0.01
1-inch	6.15	+0.27	+0.17	+0.13	+0.08	+0.07
1 1/2-inch	8.20	+0.35	+0.24	+0.20	+0.17	+0.14
2-inch	9.45	+0.38	+0.29	+0.24	+0.21	+0.19
3-inch	20.00	+0.48	+0.66	+0.62	+0.58	+0.58
4-inch	37.00	+1.37	+1.28	+1.25	+1.23	+1.21
6-inch	85.00	+3.00	+3.00	+3.00	+3.00	+3.00
8-inch	105.00	+4.30	+3.74	+3.75	+3.76	+3.77
10-inch	140.00	+4.87	+4.98	+5.00	+5.03	+5.05
<b>Unmetered Fire:</b>						
5/8- and 3/4-inch	\$6.70	+\$0.21	+\$0.09	+\$0.05	+\$0.00	+\$0.00
1-inch	9.55	+0.23	+0.12	+0.09	+0.04	+0.02
1 1/2-inch	13.60	+0.29	+0.17	+0.13	+0.10	+0.07
2-inch	16.05	+0.30	+0.20	+0.16	+0.13	+0.10
3-inch	36.00	+0.87	+0.45	+0.41	+0.38	+0.37
4-inch	70.00	+1.35	+0.86	+0.84	+0.81	+0.79
6-inch	165.00	+2.00	+2.00	+2.00	+2.00	+2.00
8-inch	205.00	+3.05	+2.49	+2.50	+2.51	+2.52
10-inch	275.00	+1.60	+3.31	+3.34	+3.36	+3.38
12-inch	380.00	+5.79	+4.61	+4.67	+4.73	+4.75

**TABLE 3 - PROPOSED SINGLE FAMILY RESIDENTIAL WATER VOLUME RATES AND FUTURE ADJUSTMENTS**

Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
<i>Month of Increase</i>	<i>Rates</i>		<i>Future Adjustments</i>			
<b>Conservation Rate for customers with usage up to 3,000 gallons per month:</b>						
First 1 kgal	\$1.00	+\$0.20	+\$0.15	+\$0.15	+\$0.15	+\$0.10
Next 1 kgal						
Next 1 kgal						
<i>* Single family residential customers who use 3,000 gallons or less per month receive a conservation credit.</i>						
<b>Customers with usage over 3,000 gallons per month:</b>						
First 1 kgal	\$5.50	+\$0.60	+\$0.50	+\$0.45	+\$0.50	+\$0.45
Next 1 kgal						
Next 1 kgal						
Next 1 kgal						
Next 1 kgal						
Next 1 kgal						
Next 6 kgal	8.00	+0.65	+0.55	+0.60	+0.60	+0.60
Next 8 kgal	11.00	+0.65	+0.55	+0.60	+0.60	+0.60
Over 20 kgal	15.00	+0.65	+0.55	+0.45	+0.45	+0.40

**TABLE 4 - PROPOSED SINGLE FAMILY RESIDENTIAL WATER BILLS AND FUTURE ADJUSTMENTS**

Billed Usage	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bills	Incremental Bill Amount				
Meter Charge + TCEQ Fee	\$6.46	+\$0.32	+\$0.25	+\$0.14	+\$0.11	+\$0.03
1,000 gallons	7.46	+0.52	+0.40	+0.29	+0.26	+0.13
2,000 gallons	8.46	+0.72	+0.55	+0.44	+0.41	+0.23
3,000 gallons	9.46	+0.92	+0.70	+0.59	+0.56	+0.33
4,000 gallons	28.46	+2.72	+2.25	+1.94	+2.11	+1.83
5,000 gallons	33.96	+3.32	+2.75	+2.39	+2.61	+2.28
6,000 gallons	39.46	+3.92	+3.25	+2.84	+3.11	+2.73



**TABLE 5 - PROPOSED RETAIL WATER VOLUME RATES AND FUTURE ADJUSTMENTS**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
Month of Increase		Rates		Future Adjustments			
Multifamily Residential	All Usage	\$5.45	+\$0.49	+\$0.45	+\$0.40	+\$0.47	+\$0.38
Commercial/Industrial	All Usage	5.55	+0.60	+0.55	+0.50	+0.57	+0.47
Irrigation	Block 1	---	---	---	---	---	---
	Block 2	---	---	---	---	---	---
	All Usage	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Transient	All Usage	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Resale	All Usage	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Emergency Backup	All Usage	10.00	+0.45	+0.42	+0.35	+0.44	+0.34
Metered Fire	All Usage	10.00	+0.45	+0.42	+0.35	+0.44	+0.34

**TABLE 6 - PROPOSED WHOLESALE WATER VOLUME RATES AND FUTURE ADJUSTMENTS**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Contract w/Airgap	Minimum	\$3.35	+\$0.35	+\$0.05	+\$0.10	+\$0.15	+\$0.10
	Excess	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
Contract w/o Airgap	Minimum	4.05	+0.15	+0.05	+0.05	+0.15	+0.15
	Excess	0.85	+0.05	+0.05	+0.05	+0.05	+0.05
GRP Areas 1 & 2	All Usage	2.68	+0.28	+0.04	+0.08	+0.12	+0.08
GRP Area 3	All Usage	1.01	+0.11	+1.14	+0.06	+0.09	+0.06
Contract Untreated	All Usage	0.85	+0.00	+0.00	+0.00	+0.00	+0.00

**TABLE 7 - PROPOSED WASTEWATER MONTHLY SERVICE CHARGES AND FUTURE ADJUSTMENTS**

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	<i>Charges</i>		<i>Future Adjustments</i>			
5/8-inch	\$10.00	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.62
3/4-inch	10.00	+1.50	+1.50	+0.75	+0.75	+0.62
1-inch	12.45	+1.79	+2.57	+1.24	+1.13	+0.93
1 1/2-inch	15.93	+2.23	+4.08	+1.95	+1.66	+1.40
2-inch	18.03	+2.47	+5.00	+2.38	+1.97	+1.69
3-inch	35.46	+4.60	+12.60	+5.92	+4.63	+4.03
4-inch	64.76	+8.16	+25.37	+11.87	+9.09	+7.97
6-inch	146.02	+18.05	+60.80	+28.36	+21.47	+18.89
8-inch	180.90	+22.29	+76.01	+35.43	+26.79	+23.58
10-inch	239.14	+29.38	+101.40	+47.26	+35.66	+31.40
12-inch	331.92	+40.65	+141.85	+66.09	+49.79	+43.87
16-inch	805.89	+98.31	+348.49	+162.30	+122.00	+107.56

TABLE 8 - PROPOSED WASTEWATER MONTHLY SERVICE CHARGES AND FUTURE ADJUSTMENTS: SPECIAL CUSTOMER TYPES						
Meter Size	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
<b>Industrial with Surcharge:</b>						
Industrial Program	\$100.00	+\$200.00	+\$300.00	+\$200.00	+\$200.00	+\$200.00
<b>Sewer Only:</b>						
Single Family Res.	\$36.00	+\$7.00	+\$5.00	+\$4.00	+\$4.00	+\$4.00
Duplex	72.00	+14.00	+10.00	+8.00	+8.00	+8.00
Multifamily Res.	36.00	+7.00	+5.00	+4.00	+4.00	+4.00
Commercial	72.00	+14.00	+10.00	+8.00	+8.00	+8.00
Industrial	72.00	+14.00	+10.00	+8.00	+8.00	+8.00

TABLE 9 - EXISTING AND PROPOSED SINGLE FAMILY RESIDENTIAL WASTEWATER VOLUME RATES AND FUTURE ADJUSTMENTS						
Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Rates		Future Adjustments			
First 1 kgal	\$4.00	+\$1.10	+\$0.30	+\$0.60	+\$0.55	+\$0.45
Next 1 kgal						
Next 1 kgal						
Next 1 kgal	10.50	+1.60	+0.15	+0.25	+0.50	+0.35
Over 5 kgal						

**TABLE 10 - EXISTING AND PROPOSED SINGLE FAMILY RESIDENTIAL WASTEWATER BILLS AND FUTURE ADJUSTMENTS**

Billable Volume	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	
Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	<i>Bills</i>	<i>Incremental Bill Amounts</i>				
Meter Charge only	\$10.00	+\$1.50	+\$1.50	+\$0.75	+\$0.75	+\$0.62
1,000 gallons	14.00	+2.60	+1.80	+1.35	+1.30	+1.07
2,000 gallons	18.00	+3.70	+2.10	+1.95	+1.85	+1.52
3,000 gallons	22.00	+4.80	+2.40	+2.55	+2.40	+1.97
4,000 gallons	32.50	+6.40	+2.55	+2.80	+2.90	+2.32
5,000 gallons	43.00	+8.00	+2.70	+3.05	+3.40	+2.67
6,000 gallons	53.50	+9.60	+2.85	+3.30	+3.90	+3.02

**TABLE 11 - PROPOSED RETAIL WASTEWATER VOLUME RATES  
AND FUTURE ADJUSTMENTS**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		September 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Multifamily Residential	All Flow	\$7.40	+\$1.40	+\$0.22	+\$0.46	+\$0.52	+\$0.40
Commercial	All Flow	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial (no surcharge)	First 2 kgal	---	---	---	---	---	---
	Over 2 kgal	---	---	---	---	---	---
	All Usage	7.40	+1.40	+0.22	+0.46	+0.52	+0.40
Industrial with Surcharge	All Flow	8.00	+1.26	+0.02	+0.15	+0.28	+0.14
	BOD (per lb)	0.4437	+0.08	+0.04	+0.04	+0.04	+0.03
	TSS (per lb)	0.3384	+0.06	+0.02	+0.02	+0.02	+0.02
	Ammonia (per lb)	0.6253	+0.10	-0.00	+0.00	+0.02	+0.01

**TABLE 12 - PROPOSED WHOLESALE WASTEWATER VOLUME RATES AND FUTURE ADJUSTMENTS**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		Month of Increase	September 2021	April 2022	April 2023	April 2024	April 2025
		Rates		Future Adjustments			
Capital without Collection System	All Flow	\$1.65	+\$0.00	+\$0.00	+\$0.00	+\$0.00	+\$0.00
Capital with Collection System	All Flow	3.00	+0.23	+0.01	+0.01	+0.02	+0.03
No Capital with Collection System	All Flow	6.25	+0.23	+0.36	+0.38	+0.41	+0.31
Connection-based	All Connections	25.00	+2.01	+1.54	+1.64	+1.77	+1.40



# Attachment 4

I, PATRICIA JEFFERSON-DANIEL, City Secretary of the City of Houston, Texas, do hereby certify that the within and foregoing is a true and correct copy of the Table of Water and Wastewater Rates passed and adopted by Ordinance 2021-515 by the City Council of said City on the 23rd day of June, 2021, as the same appears in the records in my office

WITNESS my hand and the Seal of said City this 1st day of September, 2021.



A handwritten signature in blue ink, reading "Patricia J. Daniel", is written over a horizontal line.


Patricia Jefferson-Daniel  
City Secretary of the City of Houston



**TABLE OF WATER AND WASTEWATER RATES**  
**September 1, 2021**

In accordance with Section 4 of Ordinance No. 2021-515, the following are the final rates and charges for water and wastewater services for Fiscal Years Ending (FYE) 2022 – 2026 as adopted by Houston Public Works, and as recommended by the Amended Rate Study dated August 2021. These final rates and charges do not in any case deviate from the scheduled dates or exceed the maximum rates and charges for any customer type authorized by Ordinance No. 2021-515. Upon publication of this document on the City Secretary's website as of September 1, 2021, the rates and charges set forth below are final and shall be implemented in accordance with their respective effective dates without further action of City Council.

As noted in Ordinance No. 2021-515, Section 5.2 of the Master Ordinance and Ordinance No. 2010-305, collectively, require certain automatic annual adjustments to the water and wastewater rates based on inflationary indices described therein. Those automatic adjustments were not altered by Ordinance 2021-515 and will continue to occur annually as required by the Master Ordinance.

DocuSigned by:  
  
Signed \_\_\_\_\_  
Carol Ellinger Haddock, P.E.  
Director, HPW

**Table 1 - Water Monthly Service Charges and Future Adjustments**

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
5/8-inch	\$6.25	+\$0.32	+\$0.19	+\$0.17	+\$0.14	+\$0.03
3/4-inch	6.25	+0.32	+0.19	+0.17	+0.14	+0.03
1-inch	8.80	+0.40	+0.32	+0.28	+0.25	+0.05
1 1/2-inch	12.43	+0.52	+0.50	+0.45	+0.42	+0.06
2-inch	14.61	+0.59	+0.60	+0.56	+0.52	+0.07
3-inch	32.76	+1.20	+1.49	+1.40	+1.34	+0.17
4-inch	63.27	+2.21	+2.99	+2.81	+2.72	+0.32
6-inch	147.88	+5.02	+7.14	+6.72	+6.56	+0.75
8-inch	184.20	+6.21	+8.93	+8.41	+8.19	+0.95
10-inch	244.84	+8.23	+11.90	+11.22	+10.94	+1.26
12-inch	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



**Table 2 - Water Monthly Service Charges and Future Adjustments: Special Customer Types**

Meter Size	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Charges		Future Adjustments			
<b>Transient:</b>						
1-inch	\$95.00	+\$11.96	+\$7.75	+\$12.88	+\$7.71	+\$12.84
2-inch	185.00	+20.00	+15.00	+25.00	+15.00	+25.00
3-inch	460.00	+51.36	+37.69	+62.86	+37.78	+62.99
<b>Resale:</b>						
5/8- and 3/4-inch	\$24.05	+\$0.20	+\$0.09	+\$0.06	+\$0.03	+\$0.00
1-inch	39.00	+0.27	+0.12	+0.10	+0.07	+0.04
1 1/2-inch	60.40	+0.31	+0.19	+0.16	+0.13	+0.11
2-inch	73.25	+0.33	+0.22	+0.20	+0.17	+0.15
3-inch	180.00	+0.83	+0.51	+0.50	+0.48	+0.46
4-inch	360.00	+1.00	+1.00	+1.00	+1.00	+1.00
6-inch	859.00	+1.76	+2.34	+2.40	+2.45	+2.49
8-inch	1075.00	+0.25	+2.91	+3.00	+3.08	+3.13
<b>Metered Fire:</b>						
5/8-inch	\$4.70	+\$0.23	+\$0.08	+\$0.05	+\$0.09	+\$0.01
3/4-inch	4.70	+0.23	+0.08	+0.05	+0.09	+0.01
1-inch	6.15	+0.27	+0.11	+0.09	+0.18	+0.07
1 1/2-inch	8.20	+0.35	+0.16	+0.14	+0.31	+0.14
2-inch	9.45	+0.38	+0.19	+0.17	+0.38	+0.19
3-inch	20.00	+0.48	+0.44	+0.41	+1.01	+0.58
4-inch	37.00	+1.37	+0.85	+0.84	+2.07	+1.21
6-inch	85.00	+3.00	+2.00	+2.00	+5.00	+3.00
8-inch	105.00	+4.30	+2.49	+2.50	+6.26	+3.77
10-inch	140.00	+4.87	+3.32	+3.33	+8.36	+5.05
<b>Unmetered Fire:</b>						
5/8- and 3/4-inch	\$6.70	+\$0.21	+\$0.05	+\$0.05	+\$0.04	+\$0.00
1-inch	9.55	+0.23	+0.07	+0.09	+0.09	+0.02
1 1/2-inch	13.60	+0.29	+0.09	+0.14	+0.17	+0.07
2-inch	16.05	+0.30	+0.11	+0.16	+0.22	+0.10
3-inch	36.00	+0.87	+0.23	+0.42	+0.59	+0.37
4-inch	70.00	+1.35	+0.44	+0.84	+1.24	+0.79
6-inch	165.00	+2.00	+1.00	+2.00	+3.00	+2.00
8-inch	205.00	+3.05	+1.24	+2.50	+3.76	+2.52
10-inch	275.00	+1.60	+1.65	+3.33	+5.03	+3.38
12-inch	380.00	+5.79	+2.30	+4.66	+7.05	+4.75

**Table 3 - Single Family Residential Water Volume Rates and Future Adjustments**

Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Rates		Future Adjustments			
<b>Customers with usage up to 3,000 gallons per month:</b>						
First 1 kgal	\$1.00	+\$0.20	+\$0.10	+\$0.20	+\$0.15	+\$0.10
Next 1 kgal						
Next 1 kgal						
<i>* Single family residential customers who use 3,000 gallons or less per month receive a conservation credit.</i>						
<b>Customers with Usage over 3,000 gallons per month:</b>						
First 1 kgal	\$5.50	+\$0.60	+\$0.40	+\$0.50	+\$0.50	+\$0.50
Next 1 kgal						
Next 1 kgal						
Next 1 kgal						
Next 1 kgal						
Next 6 kgal	8.00	+0.65	+0.45	+0.65	+0.55	+0.70
Next 8 kgal	11.00	+0.65	+0.35	+0.80	+0.50	+0.70
Over 20 kgal	15.00	+0.65	+0.35	+0.65	+0.35	+0.50

**Table 4 - Sample Single Family Residential Water Bills and Future Adjustments**

Billed Usage	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bill Amount	Increase to Bill Amount				
Meter Charge + TCEQ Fee	\$6.46	+\$0.32	+\$0.19	+\$0.17	+\$0.14	+\$0.03
1,000 gallons	7.46	+0.52	+0.29	+0.37	+0.29	+0.13
2,000 gallons	8.46	+0.72	+0.39	+0.57	+0.44	+0.23
3,000 gallons	9.46	+0.92	+0.49	+0.77	+0.59	+0.33
4,000 gallons	28.46	+2.72	+1.79	+2.17	+2.14	+2.03
5,000 gallons	33.96	+3.32	+2.19	+2.67	+2.64	+2.53
6,000 gallons	39.46	+3.92	+2.59	+3.17	+3.14	+3.03



**Table 5 - Retail Water Volume Rates and Future Adjustments**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Multifamily Residential	All Usage	\$5.45	+\$0.49	+\$0.36	+\$0.45	+\$0.47	+\$0.42
Commercial/Industrial	All Usage	5.55	+0.60	+0.40	+0.60	+0.57	+0.52
Irrigation	Block 1	---	---	---	---	---	---
	Block 2	---	---	---	---	---	---
	All Usage	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Transient	All Usage	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Resale	All Usage	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Emergency Backup	All Usage	10.00	+0.45	+0.27	+0.45	+0.44	+0.39
Metered Fire	All Usage	10.00	+0.45	+0.27	+0.45	+0.44	+0.39



**Table 6 - Wholesale Water Volume Rates and Future Adjustments**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Contract w/Airgap	Minimum	\$3.35	+\$0.35	+\$0.02	+\$0.11	+\$0.17	+\$0.10
	Excess	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
Contract w/o Airgap	Minimum	4.05	+0.15	+0.02	+0.05	+0.15	+0.15
	Excess	0.85	+0.05	+0.02	+0.08	+0.05	+0.05
GRP Areas 1 & 2	All Usage	2.68	+0.28	+0.02	+0.08	+0.14	+0.08
GRP Area 3	All Usage	1.01	+0.11	+1.12	+0.07	+0.10	+0.06
Contract Untreated	All Usage	0.8500	0.0000	0.0000	0.0000	0.0000	0.0000

**Table 7 - Wastewater Monthly Service Charges and Future Adjustments**

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

**Table 8 - Wastewater Monthly Service Charges and Future Adjustments:  
Special Customer Types**

<b>Meter Size</b>	<b>FYE 2022</b>		<b>FYE 2023</b>	<b>FYE 2024</b>	<b>FYE 2025</b>	<b>FYE 2026</b>
<i>Month of Increase</i>	<i>Sept. 2021</i>	<i>April 2022</i>	<i>April 2023</i>	<i>April 2024</i>	<i>April 2025</i>	<i>April 2026</i>
	<i>Charges</i>	<i>Future Adjustments</i>				
<b>Industrial with Surcharge:</b>						
Industrial Program	\$100.00	+\$200.00	+\$200.00	+\$200.00	+\$200.00	+\$250.00
<b>Sewer Only:</b>						
Single Family Res.	\$36.00	+\$5.00	+\$4.00	+\$5.00	+\$5.00	+\$5.00
Duplex	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Multifamily Res.	36.00	+5.00	+4.00	+5.00	+5.00	+5.00
Commercial	72.00	+10.00	+8.00	+10.00	+10.00	+10.00
Industrial	72.00	+10.00	+8.00	+10.00	+10.00	+10.00

**Table 9 - Single Family Residential Wastewater Volume Rates and Future Adjustments**

Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Rates		Future Adjustments			
First 1 kgal	\$4.00	+\$0.50	+\$0.30	+\$1.00	+\$0.75	+\$0.40
Next 1 kgal						
Next 1 kgal						
Next 1 kgal	10.50	+0.75	+0.25	+0.75	+0.30	+0.70
Next 1 kgal						
Over 5 kgal						

**Table 10 - Sample Single Family Residential Wastewater Bills and Future Adjustments**

Billed Usage	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
Month of Increase	Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
	Bill Amount	Increase to Bill Amount				
Meter Charge only	\$10.00	+\$1.50	+\$1.00	+\$1.10	+\$0.60	+\$0.60
1,000 gallons	14.00	+2.00	+1.30	+2.10	+1.35	+1.00
2,000 gallons	18.00	+2.50	+1.60	+3.10	+2.10	+1.40
3,000 gallons	22.00	+3.00	+1.90	+4.10	+2.85	+1.80
4,000 gallons	32.50	+3.75	+2.15	+4.85	+3.15	+2.50
5,000 gallons	43.00	+4.50	+2.40	+5.60	+3.45	+3.20
6,000 gallons	53.50	+5.25	+2.65	+6.35	+3.75	+3.90



**Table 11 - Retail Wastewater Volume Rates and Future Adjustments**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Multifamily Residential	All Flow	\$7.40	+\$0.66	+\$0.29	+\$0.90	+\$0.53	+\$0.60
Commercial	All Flow	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial (no surcharge)	First 2 kgal	---	---	---	---	---	---
	Over 2 kgal	---	---	---	---	---	---
	All Usage	7.40	+0.66	+0.29	+0.90	+0.53	+0.60
Industrial with Surcharge	All Flow	8.00	+0.60	+0.10	+0.65	+0.25	+0.25
	BOD (per lb)	0.4437	+0.0512	+0.0376	+0.0638	+0.0402	+0.0386
	TSS (per lb)	0.3384	+0.0347	+0.0122	+0.0349	+0.0184	+0.0180
	Ammonia (per lb)	0.6253	+0.0549	-0.0126	+0.0351	+0.0079	-0.0080

**Table 12 - Wholesale Wastewater Volume Rates and Future Adjustments**

Customer Type	Rate Block	FYE 2022		FYE 2023	FYE 2024	FYE 2025	FYE 2026
		Sept. 2021	April 2022	April 2023	April 2024	April 2025	April 2026
		<i>Rates</i>		<i>Future Adjustments</i>			
Capital without Collection System	All Flow	\$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 with Collection System	All Flow	6.25	+0.00	+0.15	+0.67	+0.40	+0.44
Connection-based	All Connections	25.00	+0.30	+1.42	+2.87	+1.71	+1.93