

City of Hitchcock, TX

Cost of Service and Rate Design Study Water and Wastewater Utility

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Overview

- Introduction
- Background
- Methodology
- Findings
- Recommendations

“When the well is dry, we learn the worth of water.”

- Ben Franklin -



Economic Reality of Water



- Water has an inherent value to fund infrastructure necessary for treatment and distribution



- Water is critical to a variety of industries, and as a result, the economy



- Water is a fundamental building block for communities



- Water is a commodity which we cannot live without

Background

- 2018 actual water and wastewater revenues = \$2,289,791
- 2020 projected “revenue requirement” = \$2,948,980
- **Current rates are not sufficient to meet projected cost of service.**



Project Approach

- Step 1: Determine Revenue Requirements
- Step 2: Functionalize Revenue Requirements into Cost Components
- Step 3: Allocation Cost Components to Customer Classes
- Step 4: Design Rates



Step 1: Revenue Requirements

- Expenses – Off-sets = Revenue Requirements
- Used FYE2020 Budget as Starting Point
- Added Administrative Fee transfer to compensate the General Fund for services provided to the utilities
- Capital Project Funding Incorporated into Projections



Step 1: Revenue Requirements

- Capital Project Funding – Water
 - Approximately \$5.3M in Future Water Capital Projects



Step 1: Revenue Requirements

Total CIP	Total Amount
Vehicle & Equipment Replacement	\$200,000
*Main Elevated Storage Tank	350,000
*Elevated Storage Tank -Redfish	50,000
*Monitoring Plan	16,000
*Nitrification Action Plan	16,000
Neville Ground Storage Tank	400,000
Recoat Elevated Storage Tank - Neville	385,000
Replace 3-12" at Neville Water Plant	35,000
Booster Pump Replacement - Neville	185,000
Upgrade Water Tower - MLK	165,000
Recoating Redfish Elevated Storage Tank	250,000
Water Line Replacement -FM 519	980,000
Water Line Replacement -HWY6	225,000
Water Line Replacement - FM2004	575,000
Water Line Replacement - Delaney Road	555,000
Water Line Replacement -Matranda	145,000
Water Line Replacement - White	165,000
Water Line Replacement - 2nd St.	625,000
	\$5,322,000

*These items are included in the FY2020 proposed budget



Step 1: Revenue Requirements

- Capital Project Funding – Water
 - \$5.322M in future water capital projects
 - Assumed \$50,000 per year in rate structure to fund vehicles and equipment
 - Assumed \$867,000 in projects funded by other sources
 - Assumes issuance of \$4.255M in new debt



Step 1: Revenue Requirements

- Capital Project Funding – Wastewater
 - \$4.7M in Future Water Capital Projects



Step 1: Revenue Requirements

Total CIP	Total Amount
Smoke Testing and I&I repairs	\$650,000
Silt Removal fom Aeration Basin	120,000
SCADA Sytem (Lift Stations)	140,000
Automatic Bar Screen & Wash	169,000
Upgrade Lift Station Controls And Electrical	180,000
Rehab Storm Water Clarifier	160,000
Rehab 2 WWTP Manholes	50,000
Purchase Crane Truck	90,000
Equipment & Vehicle Replacement	300,000
Painting of WWTP piping and facilities	75,000
Trailer Mounted 6' diesel bypass pump	85,000
Upgrade gravity line from Delesandri to WWTP	1,200,000
Sanitary Sewer Improvements	750,000
	\$4,701,500



Step 1: Revenue Requirements

- Capital Project Funding – Wastewater
 - \$4.7M in future water capital projects
 - Assumed \$75,000 per year in rate structure to fund vehicles and equipment
 - Assumed \$100,000 in 2020 and \$137,500 each year thereafter for smoke testing and I&M repairs
 - Assumed annual lease payments for crane truck and trailer mounted 6' diesel bypass pump
 - Assumed \$754,000 in projects funded by other sources
 - Assumes issuance of \$2.35M in new debt



Step 1: Revenue Requirements

	2020	2021	2022	2023	2024	2025
Water	\$1,658,026	\$1,663,087	\$1,754,124	\$2,090,757	\$2,168,415	\$2,262,155
Wastewater	\$1,290,954	\$1,409,806	\$1,574,959	\$1,646,295	\$1,720,233	\$1,809,406

2018 actual revenues were \$2,289,791



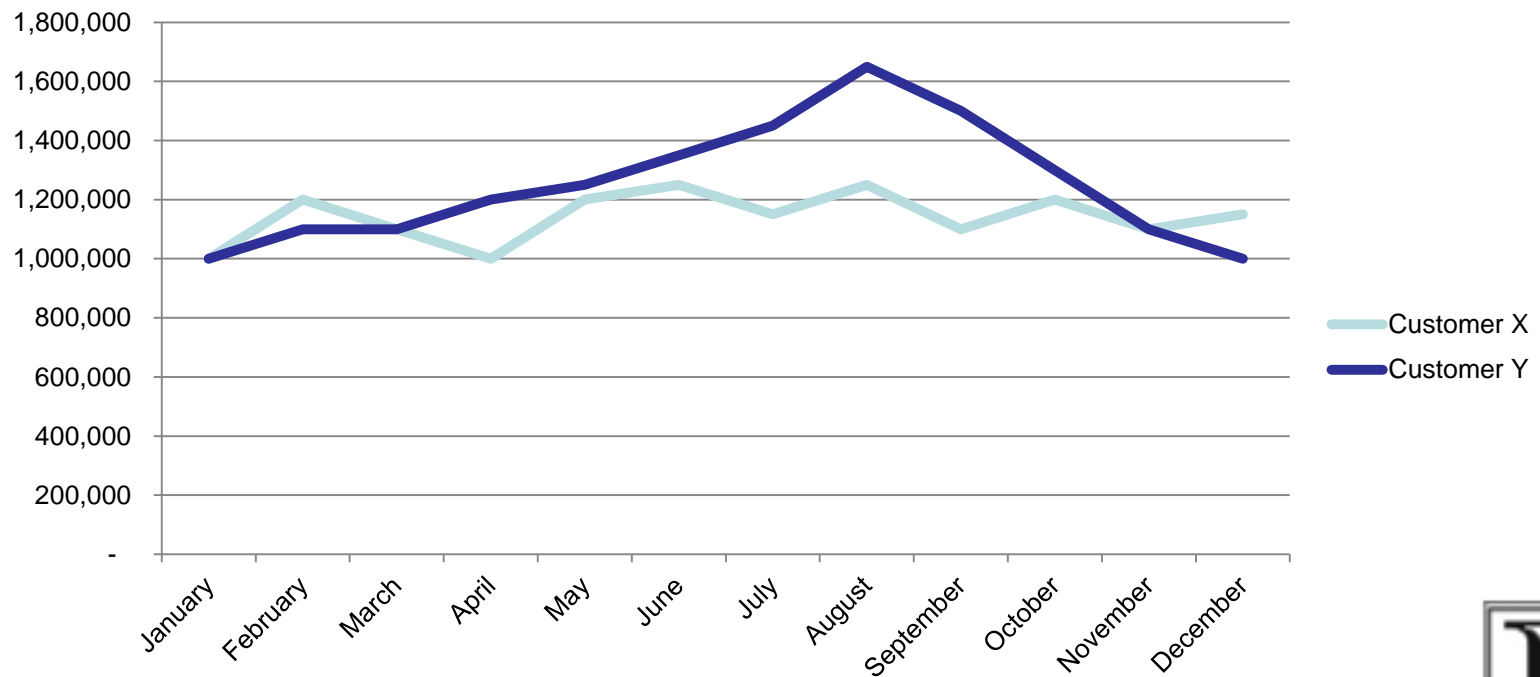
Step 2: Functionalization

- Recognizes Peaking Nature of Utility Systems
- Identifies Functional Nature of Costs
- Based Upon AWWA Described Methodology –
Base/Extra Capacity
 - Base Costs of Service
 - Extra Capacity Costs of Service
 - Customer Costs of Service



Step 3: Cost Allocation

- Recognizes different usage patterns of customer classes



Step 4: Rate Design

- Recovers Cost of Service from Each Class of Customers
- Packaged to Mitigate Financial Impact to Customers
- Policy Changes:
 - Base Fee Charged Base on Meter Size (*except multi-family which are based on apartment units*)
 - Tiered Rate Structure for Residential Customers
 - Use winter averaging for wastewater volumetric billing for residential customers



Step 4: Rate Design

- Water Utility

- Base Fee – Monthly Service Availability Charge:

- ✓ Recommend charging customers based upon meter size to recognize the relative cost and potential burden larger meters put on the utility system.
 - ✓ Apartments would continue to pay based upon number of apartment units.
 - ✓ Current customer count by meter size:

	Customer Count	% of Total Meters
5/8"	1,897	79%
3/4"	389	16%
1"	45	2%
1.5"	4	0%
2"	51	2%
3"	6	0%
4"	3	0%
6"	5	0%
	2,400	



Step 4: Rate Design

- Water Utility
 - Base Fee

Water	Current	2020	2021	2022	2023	2024	2025
Base Fee							
5/8"	\$18.00	\$18.50	\$19.00	\$19.50	\$20.00	\$20.50	\$22.83
3/4"	\$18.00	\$20.35	\$20.90	\$21.45	\$22.00	\$22.55	\$25.12
1"	\$18.00	\$25.90	\$26.60	\$27.30	\$28.00	\$28.70	\$31.97
1.5"	\$18.00	\$33.30	\$34.20	\$35.10	\$36.00	\$36.90	\$41.10
2"	\$18.00	\$53.65	\$55.10	\$56.55	\$58.00	\$59.45	\$66.22
3"	\$18.00	\$203.50	\$209.00	\$214.50	\$220.00	\$225.50	\$251.17
4"	\$18.00	\$259.00	\$266.00	\$273.00	\$280.00	\$287.00	\$319.67
6"	\$18.00	\$388.50	\$399.00	\$409.50	\$420.00	\$430.50	\$479.50



Step 4: Rate Design

- Water Utility

- Volumetric Rate:

- Charged based upon customer class:

- ✓ Non-residential – includes commercial, apartments, schools, etc.

- ✓ Residential – includes single family residential customers

- Recognizes different burden placed on the system and therefore cost of service for each customer class

- Residential rates have a “tiered” rate structure:

- ✓ Strengthens conservation pricing to encourage more efficient water use

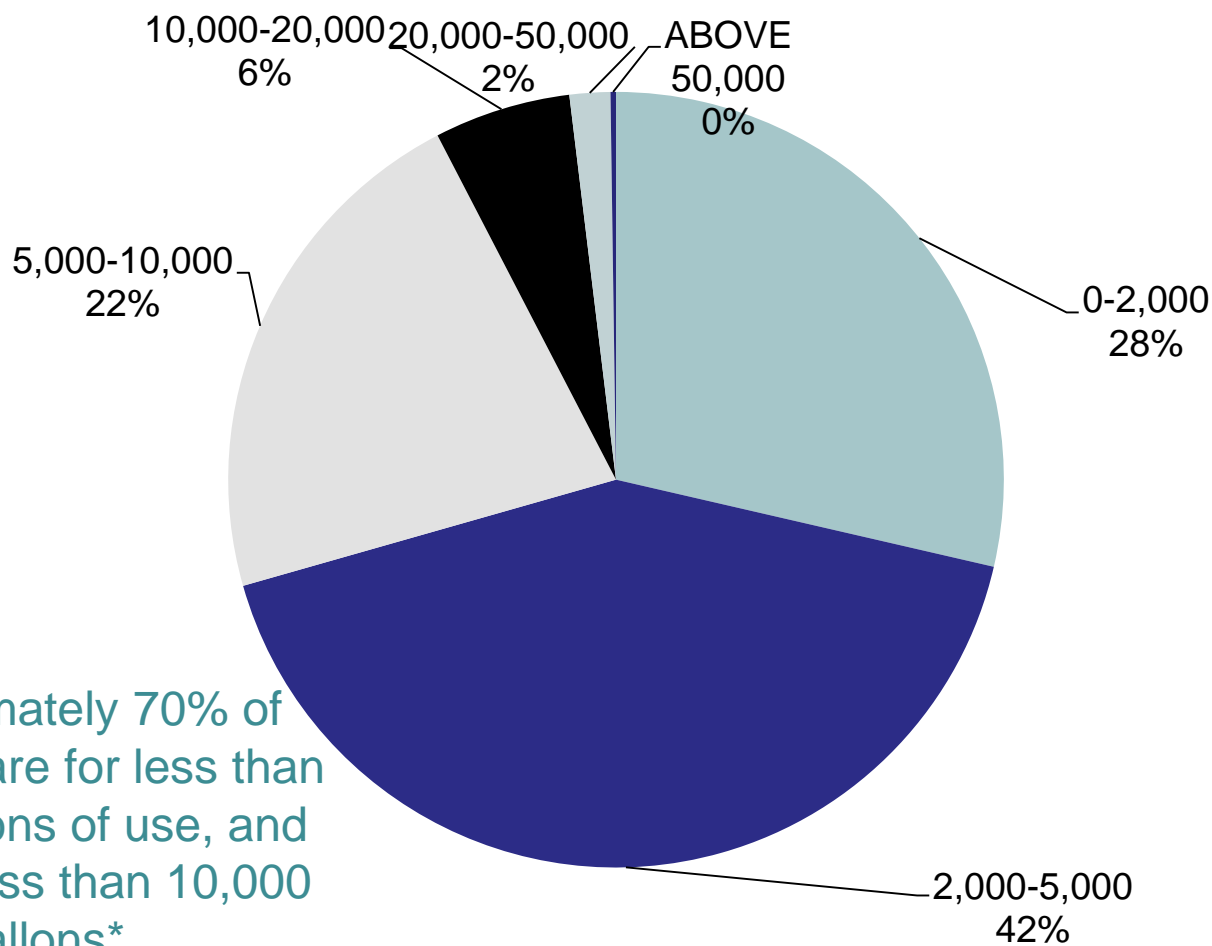
- ✓ Creates more affordable rates for customers using smaller amounts of water (typically indoor domestic use)

- ✓ Requires customers placing a greater burden on the system to pay for that additional burden



Step 4: Rate Design

- Water Bills by Consumption Range - Residential

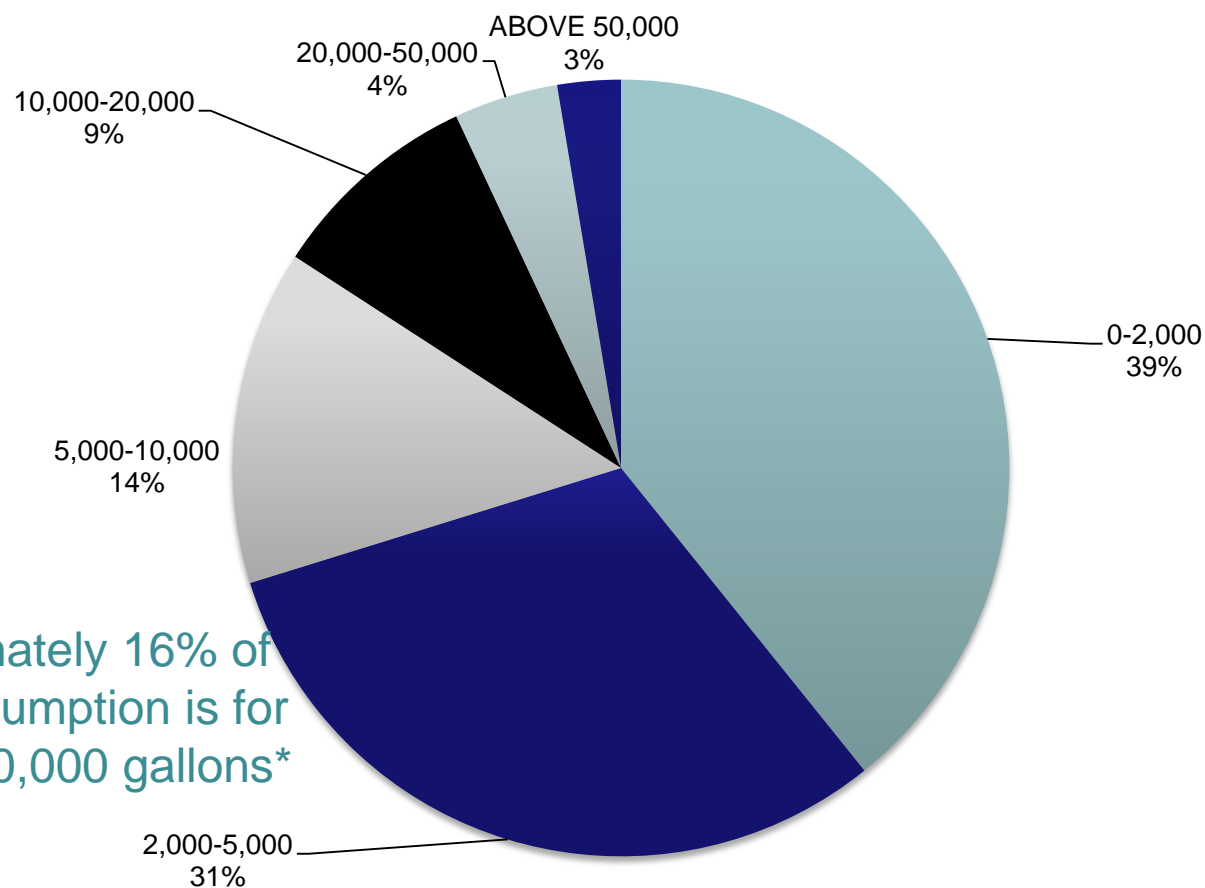


Approximately 70% of water bills are for less than 5,000 gallons of use, and 92% are less than 10,000 gallons



Step 4: Rate Design

- Water Consumption by Consumption Range - Residential



Approximately 16% of water consumption is for use over 10,000 gallons

Step 4: Rate Design

- Water Utility
 - Volumetric Charge

Water	Current	2020	2021	2022	2023	2024	2025
Volumetric Rate, Non-Residential							
	\$4.00	\$5.87	\$5.69	\$5.99	\$7.79	\$7.96	\$7.93
Volumetric Rate, Residential							
0-2,000	\$4.00	\$4.00	\$4.07	\$4.15	\$4.57	\$4.85	\$5.00
2,000-5,000	\$4.00	\$4.20	\$4.28	\$4.36	\$4.80	\$5.09	\$5.25
5,000-10,000	\$4.00	\$4.83	\$4.92	\$5.01	\$5.52	\$5.85	\$6.04
10,000-20,000	\$4.00	\$7.00	\$7.13	\$7.26	\$8.01	\$8.49	\$8.76
20,000-50,000	\$4.00	\$10.16	\$10.34	\$10.53	\$11.61	\$12.30	\$12.70
ABOVE 50,000	\$4.00	\$14.72	\$15.00	\$15.27	\$16.84	\$17.84	\$18.41



Step 4: Rate Design

- Wastewater Utility

- Base Fee – Monthly Service Availability Charge

- ✓ Same charge for all customers, regardless of meter size and customer class.

- Volumetric Charge

- ✓ Wastewater consumption is not metered. Assumptions of use have to be made.
 - ✓ Recommend charging commercial customers based upon 100% water consumption.
 - ✓ Assumes that 100% of water is sent back to the city as wastewater
 - ✓ Assumes commercial customers that are irrigating have a separate irrigation meter that is not billed for wastewater



Step 4: Rate Design

- Wastewater Utility

- Volumetric Charge

- ✓ Recommend charging residential customers based on winter average
 - ✓ Assumes that in the winter months, customers are not irrigating and thus their winter use is indicative of the wastewater they are sending back to the city as wastewater.
 - ✓ Winter average is set using November, January and February metered water consumption for each customer.
 - ✓ New averages are set each year and are used to calculate the wastewater bill for each month for the following year.
 - ✓ Customers are billed either their individual winter average from the prior winter months or their actual water usage, whichever is lower.
 - ✓ New customers on the system who do not have an individual winter average yet will pay the city-wide average or their actual water use, whichever is lower, until such time as their individual winter average is established.



Step 4: Rate Design

- Wastewater Utility

Wastewater	Current	2020	2021	2022	2023	2024	2025
Base Fee, per month	\$18.00	\$18.50	\$19.00	\$19.50	\$20.00	\$20.50	\$21.00
Volumetric Fee, per thousand gallons	\$3.00	\$3.65	\$4.10	\$4.78	\$4.92	\$5.07	\$5.29
Freddieville Fee, per LUE, per month	\$30.00	\$35.35	\$37.90	\$41.54	\$42.70	\$43.88	\$45.37



Average Bill Analysis

- Water

Average Bill- Water - Residential	Current	2020	2021	2022	2023	2024	2025
2,000 Gallons	\$26.00	\$26.50	\$27.15	\$27.80	\$29.15	\$30.19	\$32.84
5,000 Gallons	\$38.00	\$39.10	\$39.98	\$40.86	\$43.56	\$45.46	\$48.59
10,000 Gallons	\$58.00	\$63.25	\$64.58	\$65.91	\$71.18	\$74.72	\$78.79
20,000 Gallons	\$98.00	\$133.29	\$135.91	\$138.53	\$151.27	\$159.57	\$166.35
50,000 Gallons	\$218.00	\$437.94	\$446.20	\$454.46	\$499.69	\$528.68	\$547.26
100,000 Gallons	\$418.00	\$1,174.18	\$1,196.06	\$1,217.94	\$1,341.70	\$1,420.70	\$1,467.80



Average Bill Analysis

- Wastewater

Average Bill- Wastewater - Residential	Current	2020	2021	2022	2023	2024	2025
2,000 Gallons	\$24.00	\$25.81	\$27.20	\$29.06	\$29.85	\$30.64	\$31.57
5,000 Gallons	\$33.00	\$36.77	\$39.50	\$43.40	\$44.62	\$45.86	\$47.43
10,000 Gallons	\$48.00	\$55.04	\$60.00	\$67.31	\$69.25	\$71.22	\$73.87



Recommendations

- Adopt six-year plan as outlined.
- Continually monitor performance and make adjustments to “plan” as necessary.
- Charge city accounts for water and wastewater services received.
- Charge churches for water and wastewater services received (they currently do not pay a base fee for water).
- Charge water base fees based on meter size.
- Charge residential customers for wastewater based upon winter average.
- Allow city manager to provide leak adjustments for water and wastewater bills as appropriate.
- Implement shorter lag time between meter reading and billing to customers.
- Shorten shut-off policy for non-payment from 60 days to 30 days.
- Update analysis every 3-5 years.

