

City of Pearland

Utility Billing Process and System Review

Report / December 2020

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December 16, 2020

Mr. John McCarter
Interim Director of Finance
City of Pearland
3519 Liberty Drive
Pearland, TX 77581

Dear Mr. McCarter:

Raftelis Financial Consultants, Inc. (Raftelis) is excited to provide this Utility Billing Process and System Review report to the City of Pearland. The major objectives of the review include the following:

- Assess the organization and structure of Pearland's utility billing and meter services groups ("meter-to-cash" operations) to determine where enhancements could be made to improve performance, streamline operations, or improve customer service
- Review meter-to-cash processes for performance gaps and inefficiencies; identify recommended changes to address these areas
- Compare Pearland's meter-to-cash operations with national industry data and peers, noting any significant differences
- Analyze a subset of billing data to confirm the accuracy of bills in the sample

The document summarizes key findings and recommendations. It also highlights key themes that shape the organization and meter-to-cash operations. While most water utilities provide similar services, local and regional differences necessitate different structures and alignments to service their customer bases. This means that there is no one right way to run meter-to-cash operations at a utility, rather only collections of best practices and comparative metrics that must be interpreted for each organization.

It has been a pleasure working with you, and we thank you and the team at the City of Pearland for the opportunity to assist with this important project.

Sincerely,

A handwritten signature in black ink that reads "Michelle Ferguson".

Michelle Ferguson
Senior Manager - Organizational Assessment

A handwritten signature in blue ink that reads "Seth Garrison".

Seth Garrison
Project Manager

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Executive Summary

Over the last five-plus years, utility billing and associated meter services (collectively referred to as “meter-to-cash” activities) at the City of Pearland have been in a state of perpetual transition. In conjunction with adding several new staff to deal with rapid account growth, all meter-to-cash managers and supervisors are new hires or started their current position within the last eight months, including the Water Billing and Collections Manager, Assistant Water Billing and Collections Manager, Customer Service Supervisor, and Interim Finance Director. The City also realigned oversight of Finance-related functions and staff to report directly to the City Manager. Additionally, the City implemented a new billing system (New World™) and is in the midst of replacing all customer water meters with solid-state meters as part of a multi-year conversion to Advanced Meter Infrastructure (AMI). Solid-state meters employ state-of-the-art technology designed to provide highly accurate readings on demand to the City and its customers.

Each of these changes is individually significant, and the relatively rapid pace of change has led to well-publicized challenges. Perhaps the most significant of these challenges includes a 2018 decision to adopt a meter reading schedule that differed from the billing schedule, producing a growing backlog of unbilled consumption. The ongoing ramifications of this decision have caused members of the public to voice concern and express confusion about the City’s billing practices.

In early 2020, the City Council hired a firm, Olson & Olson, LLP, to conduct a third-party investigation to identify why changes to billing and reading dates were made, leading to the growing backlog of unbilled consumption. The City later authorized the implementation of the “32/30 Plan” to resynchronize meter reads and bills. An outside consultant, who shortly afterward accepted the position of Water Billing and Collections Manager, was hired to help implement the 32/30 Plan and manage the utility billing operations after the departure of the previous two managers within a series of weeks. Several months later, the City hired Raftelis, a leader in utility and local government financial and management consulting, to perform an independent Utility Billing Process and System Review to evaluate meter-to-cash processes and operations.

Under the direction of the new Water Billing and Collections Manager and several of her new managers, the City has taken several good-faith steps to create effective, accurate, and streamlined meter-to-cash functions. While the actions have laid a foundation for improvement, they are just the beginning of an ongoing process. This report provides recommendations for additional steps and provides a framework to establish a continuous improvement cycle with meter-to-cash activities. The common thread between these recommendations is that significant culture change needs to continue across the meter-to-cash operations to manage the complexity of processes and provide customers a high level of service.

While there has been significant focus on past individual decisions and their ramifications, such as the decision that created the lag between meter reading and billing, broader cultural and process challenges also contribute. Attending to these challenges will require sustained focus and attention over time. It will also require patience. There are no simple solutions that can immediately transform utility billing operations. Rather, diligent management oversight, continued focus on cultivating a culture of continuous improvement, and patience are required to fully transform the meter-to-cash function and restore relationships with the community. This is an ongoing process that will occur over the next several years, particularly as AMI and other investments come to fruition.

City staff recognize the need to foster a culture of continuous improvement in the organization, particularly by increasing awareness about how meter-to-cash staff rely on each other, empowering staff to exercise independent judgment, and formalizing processes and service expectations. Achieving a sustained positive transformation will require continued attention and enhancements regarding performance measurement, training, and accountability. It will be difficult to make significant progress unless meter-to-cash staff move

away from a mindset of doing things “because they are told to” and toward a mindset of participatory decision-making.

Raftelis engaged in a detailed review of meter-to-cash processes for this assessment and found no systemic billing errors based on an analysis of consumption and billing data. However, several processes are ripe for improvement. For example, the City may wish to adjust the 32/30 Plan to avoid future required readjustments and additional customer confusion, while specific processes directly affected by the AMI implementation should be adjusted to better support operations. Alternatives to the 32/30 Plan include disregarding unbilled consumption and only billing the current period consumption; calculating the total outstanding unbilled consumption and charging for this usage over time; and billing the full “catch up” amounts. It is important to emphasize that the unbilled consumption is an actuarial loss for the City – that is, it does not represent a reduction of funds already collected but rather a reduction in anticipated revenue. The benefits and tradeoffs of each option are explained in detail in this report.

Other processes associated with customer service require additional refinement. While Customer Service Representatives (CSRs) generally apply the same approaches, the small differences between how they handle inaccurate meter inquiries, for example, erodes trust for some customers. To improve consistency, the City would benefit from reviewing and updating standard operating procedures (SOPs) to include written customer service scripts and process flow diagrams. CSRs also do not have ready access to consumption information and must ask Meter Services staff to visit customer locations to pull meter profiles (a history of prior meter readings). In situations where CSRs must follow up with a customer, such as to report meter profile results, CSRs often write themselves individual reminder notes, and there is little automation setting deadlines for follow-up or reminding staff that follow-ups are due.

AMI implementation will create lasting and significant operational changes for meter-to-cash staff. Daily drive-by meter reads will be eliminated, and all meter-to-cash staff will gain the capabilities to rapidly locate information, conduct meter profiles, and diagnose meter errors. They will know nearly instantaneously, but certainly within a matter of hours or days, when meter issues and errors occur. Adjustments to the current division of labor and responsibilities among meter-to-cash staff are warranted to maximize the use of positions and improve customer service. Raftelis recommends a new approach in the meter services area where technicians are proactively initiating work orders to repair metering issues that they are alerted to in the new AMI meter management dashboard(s). Work orders to investigate and correct meter issues should be issued and corrected before read data enters the billing system. This will dramatically reduce the need for re-reads and follow up work orders generated by Utility Billing that delay billing and cause additional work for staff. In short, AMI represents a completely different paradigm that will enable the City and its customers to move beyond the present meter-to-cash process.

Technology and project management related to AMI requires additional focus and staff support in the near term to help ensure the system is implemented and rolled out effectively. AMI is a complex undertaking that will require significant coordination among many City staff and functions, including but not limited to Water Billing and Collections, Meter Services, Communications, and Information Technology. Developing a robust management and communication structure to support this work is essential to providing effective service in the future.

Below is a summary of the recommendations related to management and cultural practices, staffing and structure, process improvements, and technology. The recommendations in each section are designed to build upon prior successes and continue enhancing the reliability, accuracy, transparency, and effectiveness of the meter-to-cash process.

Table 1: List of Report Recommendations

| Number | Recommendation |
|--|---|
| Management and Cultural Practices | |
| 1 | Foster a culture of engagement and continuous improvement. |
| 2 | Establish formal performance measures to track service delivery. |
| 3 | Review and update written standard operating procedures (SOPs) regularly. |
| 4 | Develop an enhanced training program. |
| 5 | Improve external communications plans for meter-to-cash activities. |
| Process Improvements | |
| 6 | Consider alternative options to the 32/30 Plan. |
| 7 | Synchronize meter reading and billing cycles. |
| 8 | Implement a streamlined meter-to-cash process. |
| 9 | Reorder billing cycles. |
| 10 | Enhance delinquent account notifications. |
| 11 | Create designated morning and afternoon call-takers to streamline CSR workload. |
| Structure and Staffing | |
| 12 | Transition to a centralized staffing structure over time. |
| 13 | Adjust staffing to reflect short-term needs and prepare for AMI implementation. |
| 14 | Pilot a 4-10 schedule for meter-to-cash staff. |
| Technology | |
| 15 | Create an inclusive AMI Implementation Team. |
| 16 | Continue engaging Tyler Technologies to resolve inefficiencies and errors in New World. |

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Introduction

Purpose of the Utility Billing Process and System Review

The City of Pearland is a rapidly growing community with approximately 122,460 residents,¹ a population increase of 34% compared to the 2010 Decennial Census. The City provides an array of services to residents, including water and wastewater (sewer) utility services. Like many other communities across the country that provide utility services, the City supports utility operations by regularly billing customers for services based on the quantity of water consumed. The process for metering service, translating meter readings into bills, collecting revenue, and interacting with customers regarding billing is referred to as the meter-to-cash cycle in the utility industry.



Figure 1: The Utility Meter to Cash Cycle

The City’s meter-to-cash operations have faced well-publicized challenges in recent years, including a reportedly excessive number of broken meters (includes meters that fail to transmit readings), allegedly inaccurate meter readings, turnover in senior positions, and delays between meter reading and billing. Residents and utility customers have voiced concerns about these issues during City Council meetings as well as directly to elected officials and senior City staff. The City Council, concerned about the situation, has taken a significant interest in meter-to-cash activities and has directed staff to provide regular and detailed reports regarding utility billing developments and emerging issues. Staff have complied with this request.

¹ 2019 Population Estimates Program. United States Census Bureau.
<https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html>

A decision to set the utility billing cycle at 28 days in 2018 has garnered the most attention. It culminated in a significant gap between meter readings and billings, which compounded over time. This growing divide created a range of problems. In a typical utility billing operation, the frequency with which meters are read generally aligns with the frequency with which bills are generated and sent to customers. This means that a billing cycle of 28-32 days will reflect a corresponding 28-32 days of consumption, understanding that reading and billing periods normally fluctuate from month-to-month based on the number of days in the month and when weekends and holidays fall on the calendar. When the City adopted a 28-day meter reading cycle but retained a monthly billing cycle, utility bills fell out of sync with actual consumption. Because consumption was tracked via meter reads at shorter intervals while the billing period remained constant, an increasing lag began to develop between the amount of water customers were using and when they received bills related to that consumption. The following figure illustrates this pattern: the number of days between consumption (Meter Reads) and the billing for that consumption (Billing Period) is captured in the Billing Lag (Days) row.

| Month | January | | | | February | | | | March | | | | | April | | | | | | | | | | | | | | |
|--------------------------------|---------|---|-----|----|----------|----|----|---|-------|-----|----|----|----|-------|---|---|-----|----|----|----|----|----|----|----|---|---|-----|----|
| Day | 1 | 2 | ... | 28 | 29 | 30 | 31 | 1 | 2 | ... | 25 | 26 | 27 | 28 | 1 | 2 | ... | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 1 | 2 | ... | 22 |
| Meter Reads (every 28 days) | 1 | | | | 2 | | | | 3 | | | | 4 | | | | | | | | | | | | | | | |
| Billing Period (every 30 days) | 1 | | | | 2 | | | | 3 | | | | 4 | | | | | 5 | | | | | | | | | | |
| Billing Lag (Days) | | | | | 1 | 2 | | | | | | 1 | 2 | 3 | 4 | | | | | 1 | 2 | 3 | 4 | 5 | 6 | | | |

Figure 2: Example Illustration of Billing Lag

In 2019, the City started receiving customer complaints about billings for water consumption lagging readings, resulting in an accrual of unbilled consumption. Currently, consumption billings lag meter readings by approximately two months, and the City has faced ongoing communications challenges between and among residents, elected officials, and staff about this situation. The complexity of the meter-to-cash cycle exacerbates these communication challenges.

To better understand and address the complex challenges impacting the meter-to-cash process, the City adopted a multi-faceted approach, including the following:

- Engaging Olson & Olson, LLP to investigate how the billing cycle gap occurred
- Hiring an independent consultant with significant utility billing experience, Nancy Massey, who later accepted the position as Water Billing and Collections Manager
- Developing and adopting the 32/30 plan designed to recover unbilled consumption from customers gradually; it includes a “True-Up Plan” option enabling customers to pay for unbilled consumption with a single lump-sum payment
- Implementing proactive communications, including creating a website and animated video describing the billing gap and the 32/30 Plan, publishing an online performance dashboard capturing key meter-to-cash indicators, providing regular quarterly updates at City Council meetings, and strengthening internal communications between the City Council and staff
- Engaging Raftelis, a nationally known utility and local government consulting firm, through a competitive process to assess the organization of meter-to-cash operations and to determine where enhancements could be made to improve performance, streamline operations, or improve customer service

Meter-to-cash operations are a high-profile service that requires accurate and consistent practices and communications with customers. They are also highly complex, requiring many subprocesses and several pieces of integrated technology to function precisely. The goal of this study is to help the City ensure that its meter-to-cash operations are organized for success and are appropriate to meet current and anticipated needs. This study is timely due to several recent changes in City leadership positions, staff involved in the meter-to-cash process, information systems, meter upgrades, and the ongoing installation of a new

Advanced Meter Infrastructure remote meter reading network. This is a significant amount of change, and managing these changes effectively is essential to streamline meter-to-cash operations.

Review Methodology

To conduct this study, Raftelis utilized several methods designed to gather insights and information regarding meter-to-cash operations, strengths, and opportunity areas for improvement, including individual and group interviews with key staff and stakeholders, independent billing data analysis (separate from the utility billing software), and process mapping.

On September 29, 2020, Raftelis held a kick-off meeting with the Deputy City Manager, Interim Finance Director, Utility Billing Manager, and several people involved with meter-to-cash activities to review expectations, goals, and activities associated with the Utility Billing Process and System Review.

Following the kick-off meeting, Raftelis conducted virtual interviews with 39 additional stakeholders in the meter-to-cash process, listed in the table below.

Table 2: List of Stakeholders Interviewed

| Name | Title |
|------------------|---|
| Kevin Cole | Mayor |
| Adrian Hernandez | Councilmember |
| Luke Orlando | Councilmember |
| Tony Carbone | Councilmember |
| Trent Perez | Councilmember |
| Clay Pearson | City Manager |
| Trent Epperson | Deputy City Manager |
| Jon Branson | Former Deputy City Manager |
| Joshua Lee | Director of Communications |
| Robert Upton | Director of Engineering |
| Clarence Wittwer | Director of Public Works |
| John McCarter | Interim Finance Director |
| Eric Hammond | Assistant Director of Public Works |
| Paul Yeates | Cyber & Risk Intelligence Specialist |
| John Hines | Distribution & Collections Superintendent |
| Joe Rivera | Meter Services Supervisor |
| Dante Prescod | Right-of-Way Superintendent |
| Nancy Massey | Water Billing & Collections Manager |
| Dara Eng | Water Billing & Collections Assistant Manager |
| Jennifer Quiroga | Billing Supervisor |
| Alyssa Mayo | Billing Specialist |
| Karla Hipolito | Billing Specialist |
| Ruben Ruiz | Billing Specialist |
| Lori Flores | Customer Service Superintendent |
| Carl Byrd | Customer Service Representative I |
| Elliot Garza | Customer Service Representative I |

| Name | Title |
|-------------------------|--|
| Marcella Sanchez | Customer Service Representative I |
| Melanie Bevans | Customer Service Representative I |
| Rita Moore | Customer Service Representative I |
| Trisha Hollis | Customer Service Representative I |
| Cheryl Dayhoff | Customer Service Representative II |
| Latisha Garcia | Customer Service Representative II |
| Renata Dorsey | Customer Service Representative II |
| Wendy Henry | Utility Field Services Technician Lead |
| Durell Sparrow | Utility Field Services Technician |
| Gabriel Bonilla | Utility Field Services Technician |
| Jerome Curry | Utility Field Services Technician |
| Steven Ramos | Utility Field Services Technician |
| Jimmy Davis | Pearland Resident |

In addition to interviews, Raftelis requested and received background information and data regarding various organizational structure, staffing, and operational elements. This documentation included but was not limited to the following:

- Organizational charts
- Staff summaries and relevant personnel information
- Performance and benchmarking data
- Financial data
- Meter and billing data
- Process and Standard Operating Procedure (SOP) information
- Background memoranda and prior reports regarding utility billing and the meter-to-cash process
- Granular data and summary reports regarding meter reads, bills, and customer service calls

Raftelis compared quantitative and qualitative organizational and staffing information to benchmarking data from other organizations, including the Texas cities of Frisco, Cedar Park, League City, McKinney, Plano, and Sugar Land. Benchmarking and best practices information from industry-leading organizations such as the American Water Works Association (AWWA) was utilized, including the “Ten Attributes of Effectively Managed Water Sector Utilities” as presented in the Effective Utility Management (EUM) framework.² The EUM framework is a set of organizational, operational, and management guidelines for water and wastewater utilities universally endorsed by major industry associations.

² AMWA, APWA, AWWA, NACWA, NAWC, WEF and the US Environmental Protection Agency, June 2008



Figure 3: EUM's Ten Attributes of Effectively Managed Water Sector Utilities

Raftelis relies heavily on subjective observations and experience gained from working with well over 1,000 water and wastewater utilities and 32 of the 50 largest utilities in the U.S. to form opinions and identify areas for consideration. The Raftelis assessment team includes individuals with diverse backgrounds in local government and utility management, engineering, operations, strategic planning, performance improvement, and finance. Key members of Raftelis involved in this assessment included the following:

- Michelle Ferguson, Senior Manager and Project Director, has over 20 years of experience in local government management and consulting in a variety of roles. She leads Raftelis' Organizational Assessment Practice. Ms. Ferguson has a background in public administration and has worked with utilities and local governments across the U.S. on a range of operations, strategic planning, and management consulting assignments.
- Seth Garrison, Senior Manager and Project Manager, has performed utility management, operations, and business process reviews all over the world for utilities in every size range from those serving less than 1,500 customers to those serving over one million customers. He has a background in utility management, performance assessment, and asset management and is a former utility manager, regulator, and current board member of a large regional water and wastewater utility similar in size to Pearland's utility. Mr. Garrison is a certified Lean Six Sigma Black Belt with extensive experience performing process mapping and improvement activities to enhance the efficiency and effectiveness of utility organizations.
- Joshua Rauch, Manager, has a multidisciplinary background in public administration, public policy, and performance improvement in local government. He has conducted organizational reviews, financial assessments, and business process reviews for dozens of utilities and public government operations.

This project team has over 50 years of combined experience in local government and utility management, and was assisted by a diverse team of experts from Raftelis that boasts more than 140 consultants

specializing in public sector management, finances, human resources (HR), communications, information technology (IT) and operations.

About Meter Services and Utility Customer Services

Organizational Structure

Two distinct groups work together to perform utility billing and meter-to-cash functions in Pearland. The Meter Services Division in the Public Works Department performs drive-by (Automated Meter Reading or AMR) and manual meter reading. These staff also complete work orders and tasks related to meter installation, replacement, and maintenance; locating and inspections; turn-on and shut-off activities; re-reads; and removing and exchanging meters for testing. Meter Services comprises seven (7) full-time equivalent (FTE) employees, as illustrated in the following figure.

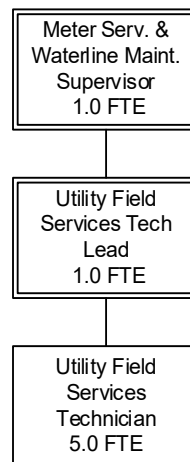


Figure 4: Meter Reading Organizational Structure, FY2021

The Meter Services and Waterline Maintenance Supervisor is responsible for the overall activities of the group and allocation of resources. The position oversees work assignments and schedules for meter services technicians, including the Utility Field Services Technician Lead. The Supervisor prepares and loads meter read data from the City's Badger® and Neptune® meters, helps facilitate work order requests from Utility Billing, and manages the City's relationship with third-party meter testing providers. This position plays a key coordinating role in the rollout and implementation of AMI in conjunction with several City Engineering, Information Technology, and Utility Billing staff.

The Utility Field Services Technician Lead assists the Supervisor with delegating workload assignments among technicians, managing meter read data and work order requests, recording daily activities performed by staff, and providing Utility Billing with daily reports regarding meter usage. The Lead also serves as a working technician and assists with meter inspections, reads, rechecks, testing, and replacements. This is especially important when there are vacancies or technicians are absent for any number of reasons.

Utility Field Services Technicians perform meter reading and complete work orders as directed by the Supervisor and Lead. Technicians rotate between two shifts: the first shift performs regular meter reading, inspections, replacements, and associated tasks from 6:30 AM to 4:30 PM, while the second shift focuses on customer service requests, such as turn-ons, shut-offs, and daily work orders, from 7:30 AM to 5:30 PM. Typically, only one technician is assigned to the second shift on a rotating basis to provide consistent and equitable coverage.

Data collected through the meter reading process is forwarded to the Utility Customer Services Division in the Finance Department, typically via email, for processing and collection activities. Utility Billing Customer Services consists of approximately 20.5 FTEs dedicated to tracking water consumption, utility billing, answering customer service requests and inquiries, and managing customer information and account databases, as illustrated in the following figure.

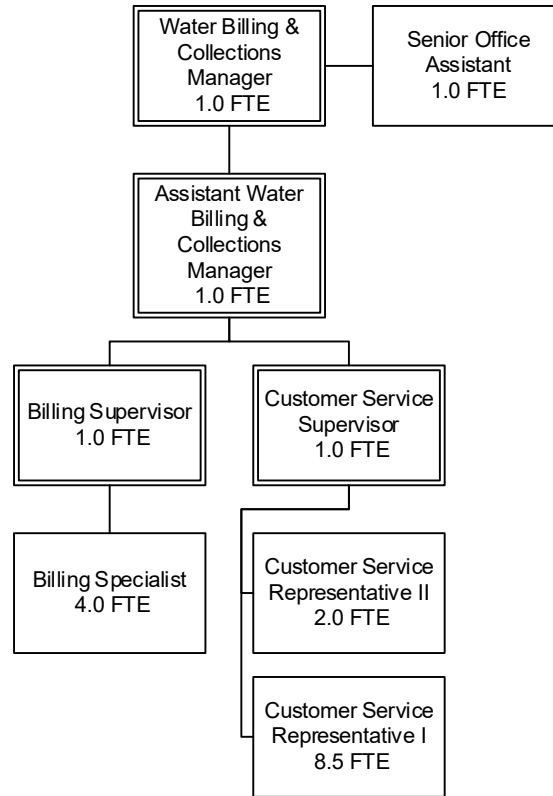


Figure 5: Utility Customer Services Organizational Structure, FY2021

The Water Billing and Collections Manager is responsible for daily management of the division and directly oversees the Senior Office Assistant and Assistant Water Billing and Collections Manager. Other core responsibilities assigned to the Water Billing and Collections Manager include annual budget preparation for the division, customer service de-escalation and conflict resolution, general oversight of the utility billing process, and ensuring effective staff performance and professional development. The Senior Office Assistant provides frontline clerical support for the Manager by greeting walk-in customers, maintaining appropriate records and files, assisting with correspondence and communication, and providing additional staff support for customer payments and inquiries as necessary.

The Assistant Water Billing and Collections Manager supervises the billing process and customer service functions, including the Billing Supervisor and Customer Service Supervisor. The Assistant Manager develops policies and standard operating procedures (SOPs) for billing and customer service functions, ensures processes are carried out efficiently and effectively, ensures payments are processed accurately, and engages in more complex customer service resolution functions.

The Billing Supervisor and Billing Specialists carry out regular billing functions, including data entry, import/export, analysis, and auditing related to consumption. These staff are responsible for setting up payment plans and dealing with delinquent accounts, compiling queries and reports to validate billing data, approving bills for issuance, and processing payments.

The Customer Service Supervisor and Customer Service Representatives (CSRs) serve as the division's frontline staff for responding to customer inquiries. CSRs assist customers in person at the City Hall Annex and Public Safety Building, as well as over the phone and via email. Common customer service requests and issues assigned to CSRs include new account registrations and service terminations, establishing payment plans for delinquent accounts, reviewing consumption patterns, and performing meter audits to identify aberrations in consumption patterns. CSRs also perform some other functions, such as validating and distributing garage sale signs to residents.

Staffing

Overall authorized staffing levels in the meter-to-cash function have increased by 7.5 FTEs since FY2017. This growth aligns with overall population, development, and utility billing account increases in the community.

Table 3: Meter-to-Cash Authorized Staffing, FY2017 through FY2021

| Authorized Positions | FY2017 | FY2018 | FY2019 | FY2020 | FY2021 | Percent Change FY2017 - FY2021 |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|-----------------------------------|
| Finance - Utility Customer Services | 13.0 | 16.0 | 18.0 | 18.5 | 20.5 | 58% |
| Public Works - Meter Services | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 0% |
| Total | 20.0 | 23.0 | 25.0 | 25.5 | 27.5 | 38% |

Budget

Meter-to-cash functions are supported by the City's Water and Sewer Fund, an enterprise fund designed to recover the cost of operations and services through fees and charges. The Water and Sewer Fund receives revenues from a variety of sources, but the bulk of revenue comes from water and sewer charges, which are based on meter consumption. The FY2021 Budget includes a 16% increase in water sale revenues compared to FY2017 Actuals, while sewer revenues are projected to increase 11% over the same timeframe. The table below illustrates revenue trends according to the City's budget documents.

Table 4: Meter-to-Cash Revenues – All Funds, FY2017 through FY2021

| Revenues | FY2017 Actual | FY2018 Actual | FY2019 Actual | FY2020 Amended | FY2021 Budget | Percent Change FY2017 - FY2021 |
|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------------------------|
| Sale of Water | \$22,061,002 | \$25,920,698 | \$24,180,338 | \$25,621,326 | \$25,728,066 | 16% |
| Sewer Revenues | \$20,256,189 | \$23,762,116 | \$23,802,264 | \$23,408,352 | \$22,414,905 | 11% |
| Total | \$42,317,191 | \$49,682,814 | \$47,982,602 | \$49,029,678 | \$48,142,971 | 14% |

Overall expenses among meter-to-cash functions have remained relatively consistent over the last several years; however, the FY2021 Budget reflects a 45% increase in expenses compared to FY2017 Actuals because of additional staff positions described above. Conversely, the FY2021 Budget reflects a 43% decline in Meter Services expenses as AMI meter replacements near completion.

Table 5: Meter-to-Cash Expenses – All Funds, FY2017 through FY2021

| Expenses | FY2017 Actual | FY2018 Actual | FY2019 Actual | FY2020 Amended | FY2021 Budget | Percent Change FY2017 - FY2021 |
|--|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---|
| Finance - Utility Customer Services | \$1,410,743 | \$1,245,700 | \$1,827,022 | \$1,726,145 | \$2,041,057 | 45% |
| Public Works - Meter Services | \$1,295,624 | \$938,159 | \$587,082 | \$671,191 | \$736,887 | -43% |
| Total | \$2,706,367 | \$2,183,859 | \$2,414,104 | \$2,397,336 | \$2,777,944 | 3% |

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Analysis and Recommendations

Using information gathered during the study process, Raftelis conducted a variety of quantitative and qualitative analyses designed to assess meter-to-cash operations and effectiveness. The recommendations in the following sections are designed to support the City's ongoing efforts to rebuild trust with the community and establish a utility billing operation that maximizes transparency and communication. Broadly, these recommendations are intended to help the City continue developing a culture of continuous improvement in meter-to-cash operations, prompt additional policy discussion and process improvement regarding the 32/30 Plan and AMI implementation, align staffing with future AMI needs, and fully realize technology assets at the City's disposal.

Management and Cultural Practices

Recommendation 1: Foster a culture of engagement and continuous improvement.

Past practices and management styles among meter-to-cash staff created a work environment that encouraged employees to focus only on their specific assignments and carry out tasks without fully considering impacts. This cultural environment has reinforced process inefficiencies, contributed to miscommunication among staff, and reduced staff's ability to make effective decisions.

The meter-to-cash process is complex and requires all employees to be actively engaged in making sure it operates as intended. While many of the recommendations in this report describe specific operational and process-related challenges that the City should address, it will be difficult to make significant progress unless meter-to-cash staff move away from a mindset of doing things "because they are told to" and toward a mindset of participatory decision-making. Achieving consistent, accurate, and accountable performance in meter-to-cash activities requires a culture focused on continuous improvement, particularly as the City seeks to implement significant changes such as AMI.

New managers in the utility billing area have already begun the culture change process, but fully realizing change will take time because the current environment developed over many years and is deeply engrained. The process of developing an engagement and continuous improvement culture varies from organization to organization depending on historical practices, personnel, and service level expectations. However, all high-performing organizations share some common traits:

- Encouraging employees to give managers/supervisors feedback
- Utilizing multiple feedback channels, such as creating an anonymous feedback mechanism that will allow employees to give feedback privately and without judgment
- Leveraging online/digital platforms to solicit employee feedback, such as anonymous surveys
- Conducting small group sessions to discuss employee experiences and perceptions
- Promoting peer-to-peer feedback
- Empowering staff to offer input on decisions and making them part of process changes
- Nurturing a continuous improvement mindset
- Providing continuous improvement and process improvement training
- Providing multiple paths for peer and manager communication across functions, including regular staff meetings among all meter-to-cash personnel

Seeking greater engagement and equipping employees with tools to critically approach assignments will foster stronger practices and empower staff to resolve problems without excessive direction. If successfully practiced, a culture of continuous improvement will empower staff to think through challenges and offer

suggestions that leverage their understanding and direct experience to offer solutions. This will create a better meter-to-cash process.

Raftelis acknowledges that the City has already taken several important steps to build a culture of continuous improvement. Turnover among management staff in the meter-to-cash process and the selection of new managers/supervisors/leads creates an opportunity to refresh and reframe cultural practices. Additionally, staff have implemented more frequent internal meetings and provide regular updates to customers and stakeholders regarding meter-to-cash operations. This focus on communication and assessing performance is essential to continuous improvement and represents a good foundation for continuing to transform culture.

Going forward, the City should continue to encourage additional interaction among staff as described above and ensure that management staff appropriately model and support continuous improvement by inviting and utilizing staff feedback to make decisions. If leadership tells employees that involvement is important but fails to engage with staff or utilize feedback, employees are unlikely to trust the process, and the Department's culture is likely to revert to a less efficient state. Managers and supervisors must be personally accountable for feedback by inspiring employees to change and demonstrating their own willingness to adapt.

Recommendation 2: Establish formal performance measures to track service delivery.

One of the most effective management tools an organization can implement to better understand and enhance operations involves performance measurement. In the meter-to-cash area, effective performance measurement provides invaluable insights regarding customer service and efficiency. While the City currently tracks meter-to-cash data, which can be used to evaluate performance and overall service levels, specific performance measurement indicators for the meter-to-cash function have not been formalized.

Performance indicators generally fall into one of three categories: workload, efficiency, and outcome measures described below:

- **Workload** measures describe quantities or the number of times a specific task or process was executed. The City currently maintains valuable workload-related data, including the number of meters read per cycle, the number of customer service phone calls received each month, and the number of work orders issued/completed.
- **Efficiency** measures describe how effectively organizations accomplish tasks and/or how well resources are utilized. These measures are often tracked as ratios, such as the average number of labor hours required to read meters, the average length of customer service calls, or the average cost of providing services.
- **Outcome** measures describe how well a program or service accomplishes its intended purpose or lives up to its strategic goals. For example, tracking the proportion of meters that trigger exceptions or follow-up reads provides valuable insights regarding the overall effectiveness of meter infrastructure. Other outcome measures, such as the proportion of customers satisfied with service delivery, indicate how customers perceive the meter-to-cash program.

To help demonstrate effective and consistent service delivery, the City should identify a formal list of workload, efficiency, and outcome measures and ensure data relevant to each measure is regularly tracked. The American Water Works Association publishes several meter-to-cash metrics that it develops from utility data. Based on this best practice guidance, AWWA references, a review of the City's current data-gathering capabilities, and the ongoing AMI implementation, Raftelis has identified the following performance measures as key performance indicators (KPIs) that should be formally tracked. In the table below, an asterisk (*) next to the measure name denotes that the measure is tracked by AWWA in their Utility Benchmarking Performance Management for Water and Wastewater report.

Table 6: Recommended KPIs for Meter-to-Cash

| Measure | Description |
|---|--|
| Workload | |
| Number of accounts by type and status* | Track and summarize the number of customer accounts by type (residential, commercial, etc.) as well as whether the accounts are active or inactive. Evaluate trends to identify growth in the overall customer base. |
| Number of meters with size, type, and date of installation | Track and summarize the number of water meters with size and date of installation. Most accounts in the City now use Badger water meters or endpoints as a component of AMI implementation. Continuing to inventory meters by size and date of installation will enable staff to examine growth trends in greater detail, as well as evaluate maintenance needs and longevity trends among meters. |
| Number of customer service interactions by type | Categorizing customer service interactions by type will enable the City to analyze how patterns change over time and inform more effective staff training and customer outreach efforts. Common types of interactions include bill payment, bill dispute/question, water quality or service questions, and service request. |
| Number of work orders generated and completed and backlog | Meter services will transition from meter reading and meter maintenance to proactive meter surveillance and maintenance with the implementation of AMI. Tracking the number, type, and backlog of work orders will help ensure that the group has the correct resources and those resources are being used appropriately. |
| Efficiency | |
| Percentage of bills with exceptions and exception type* | Under AMI, meter reading will be largely automated, and the bulk of meter data will be collected remotely at set intervals. By tracking the number of bills generated and the number and type of exceptions impacting each bill, the City will better understand the AMI and billing system's effectiveness, as well as areas of process inefficiency. |
| Average time to complete work order by type and by person | The City should track staff labor hours devoted to completing work orders. By monitoring the average amount of labor hours required, the City will be able to identify trends regarding how efficiently staff can accomplish activities. |
| Average wait time and abandoned call ratio* | The amount of time customers spend on hold before receiving service directly impacts customer service perceptions and can contribute to a prevalence of abandoned calls. High wait times and call abandonment rates can be caused by several factors, including but not limited to a lack of available customer service resources. Tracking this information is vital to ensure that service is provided within acceptable timeframes. |
| Average minutes per customer service call* | Tracking the average duration of customer calls will help the City ensure that customers receive timely and prompt service that addresses their needs as swiftly as possible. Note that this number may go up as first call resolution increases. |
| Cost of customer service per account* | The total cost of customer service operations for meter-to-cash functions should be divided among all accounts to develop an average cost per account. This indicator provides an important baseline for measuring cost increases and identifying key cost drivers as the number of accounts changes. |
| Number of CSR FTEs per customer account* | An efficient organization can handle more calls per customer service representative than an inefficient organization. This metric helps measure the level of efficiency in that area. |
| Outcome | |
| Ratio of complaints per 1,000 accounts and per 1,000 population served* | Understanding the prevalence of complaints is critical to ensure that services provided meet customer expectations. By measuring the ratio of complaints by account (and type, if recorded) and population served and comparing trends over time, the City will be able to validate perceptions of service effectiveness and identify opportunities for additional improvement. |
| First call resolution rate* | Resolving customer concerns on the first call is an important threshold for evaluating service delivery. Repeat calls and follow-up calls extend the resolution process for customers and can contribute to negative perceptions of the City and the meter-to-cash process. Tracking first call resolution rates will provide the City with important insights into the kinds of calls that require follow-up and the effectiveness of service delivery. |
| Delinquency Rate* | Regularly monitoring delinquency rates can provide the City with invaluable insights regarding how broader economic activity impacts customers and projected utility billing revenues. Normal economic fluctuations, coupled with interruptions imposed by the ongoing COVID-19 pandemic, can create uncertainty and unexpected budgetary impacts for utilities across the country. |
| * Indicates a measure tracked by AWWA's Utility Benchmarking Performance Management for Water and Wastewater report | |

Other useful indicators can be found in the AWWA Utility Benchmarking Performance Management for Water and Wastewater report.³ However, tracking more measures is not usually better. It is best to concentrate on a few of the most relevant measures and center activities around meeting them. Additional measures can always be tracked later if needed.

To effectively track these KPIs, the City and staff involved in the meter-to-cash process must focus on two critical tasks. First, staff should ensure that the data needed to inform each KPI is tracked by the City's software systems. Creating workflow processes that are automated, consistent, and avoid duplicative data entry tasks will be a critical component of the AMI implementation, as discussed in Recommendation 15.

Once the data has been gathered, the City internally and externally publishes KPI data to better inform staff and customers. Utilities across the country utilize several methods to communicate information, including bill inserts, website dashboards and data trackers, and statistics published in annual budget documents. Figure 6 shows excerpts from the City of Pearland's new web-based utility performance dashboard. The dashboard of KPIs and internal data is a way of advancing communication and transparency. It went live on the City's website on November 25, 2020. This is a commendable effort that should be enhanced going forward with new measures that are reflective of things that customers care about, such as service activities and billing statistics. The data should be updated regularly to ensure that it stays relevant and accurate.

Demonstrating effective and consistent performance is key to implementing process improvements, rebuilding trust with the community, and capitalizing on AMI implementation. As the City continues to improve service delivery and modernize processes, continuing to enhance tracking, and publishing KPI data will serve as a useful communications tool, help hold staff accountable, and keep service level expectations in check.

Recommendation 3: Review and update written standard operating procedures (SOPs) regularly.

Developing a culture of continuous improvement requires management staff to set clear and consistent expectations regarding meter-to-cash processes and procedures. Utility billing and meter services staff currently rely on 32 written SOPs covering five major topic areas, as illustrated in Table 7: Current SOPs by Topic Area.

³ "Utility Benchmarking Performance Management for Water and Wastewater." American Water Works Association (AWWA). 2019.

Figure 6: Pearland Utility Billing Performance Dashboard (excerpts)

Departments » Water Billing »

UTILITY BILLING KEY METRICS DASHBOARD

Font Size: Share & Bookmark Feedback Print

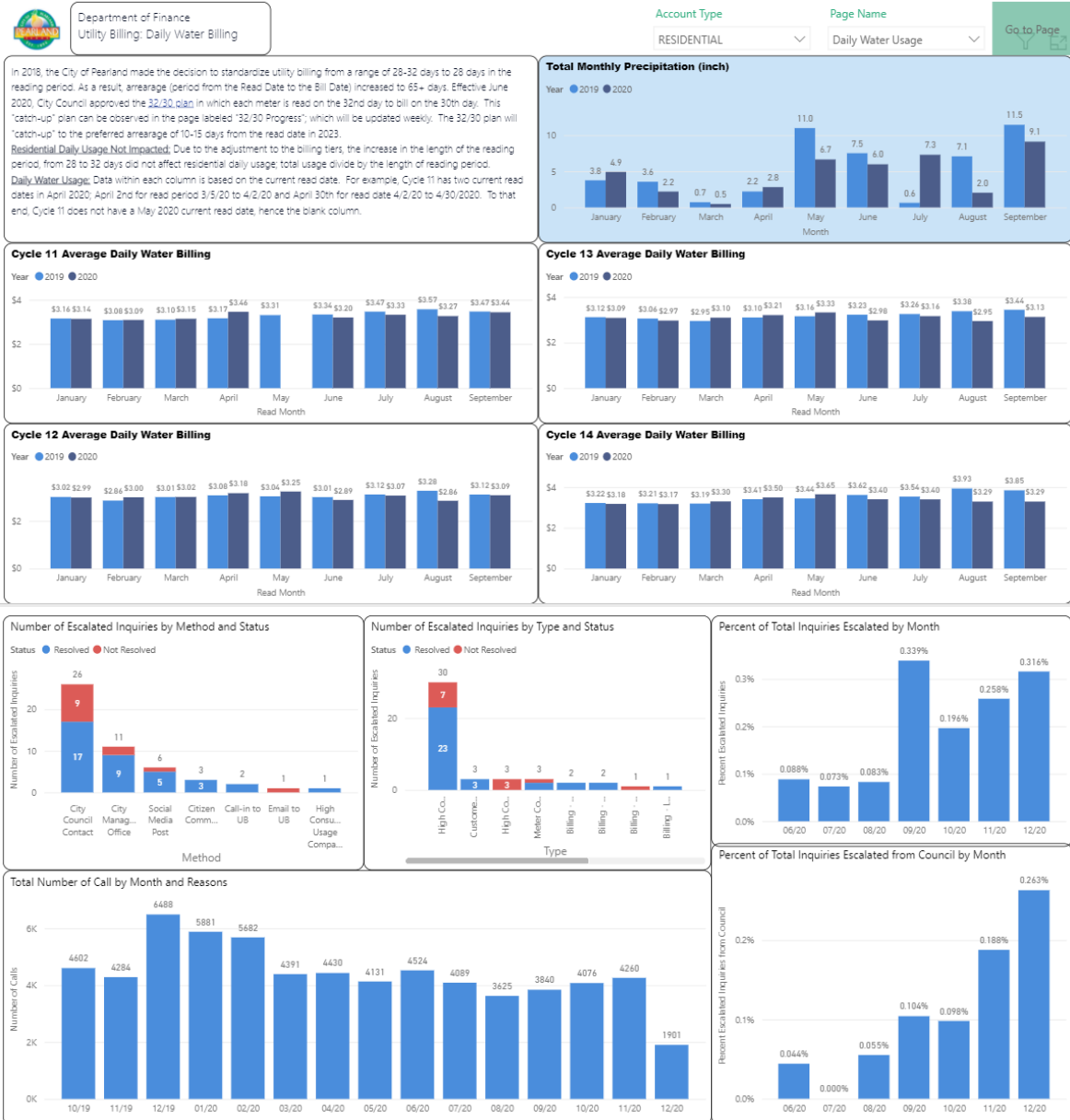


Table 7: Current SOPs by Topic Area

| Topic Area | SOP Title | Quantity |
|-------------------------------|---|-----------|
| Billing | Billing Checklist | 1 |
| | Billing Process 32/30 Plan | 1 |
| | Cycle Bill Export: Printing Bills (Export File): Record Count – 0 | 1 |
| | Daily Work Orders Process | 1 |
| | DATAPROSE Exception Bills | 1 |
| | Delinquency Process Reports | 1 |
| | Delinquency: Customer Reminders, Payment Arrangements, and Shut-Off Process | 1 |
| | Delinquent Processing Late Fee Event | 1 |
| | Delinquent Processing Phone Calls & Shutoff Calls | 1 |
| | Exception Billing Process (Move Out Bills) | 1 |
| | Exception Bills: Correction Process | 1 |
| | Leak Adjustment Form | 1 |
| | Manual Calculation for a Set Reading Date | 1 |
| | Out of Cycle Billing Process | 1 |
| | Billing Total | 14 |
| Customer Service | Customer Service: Customers First | 1 |
| | High Consumption Outbound Calling | 1 |
| | Hotel Tax Payment Procedure | 1 |
| | Leak Adjustment | 1 |
| | New Service Application Process (commercial and residential) | 1 |
| | Online New Service Application Process | 1 |
| | Payment Arrangements: Tiers in Assisting Our Customers | 1 |
| | Payment Arrangements: Tiers in Assisting Our Customers (CSR II Guidance) | 1 |
| | Payment Streams | 1 |
| | Process for Call Wrap-Up Codes | 1 |
| | Returned Mail Procedure | 1 |
| | Tap Requests from Residential Builders | 1 |
| | Verification of New Service & Termination | 1 |
| Customer Service Total | 13 | |
| Finance | Cash Handling Procedures | 1 |
| | End of Day Process | 1 |
| | Finance Total | 2 |
| Meter Installation | Construction Application Process | 1 |
| | Meter Installation Total | 1 |
| Solid Waste | Garbage/Recycling Issues | 1 |
| | Waste Management Codes: Garbage Issues Reference Guide | 1 |
| | Solid Waste Total | 2 |
| Grand Total | | 32 |

Most of the billing-related SOPs describe specific, software-based processes, such as importing/exporting data, running reports, and validating bills. Customer service SOPs include guidance on handling common requests, setting up payment plans for delinquent accounts, escalating challenging calls to supervisors, and establishing new service accounts. Finance-related SOPs include cash handling procedures and end-of-day closeout processes, while the meter installation SOP discusses verifying tap fees, scheduling installation, and verifying installations in the City's New World financial system. Finally, two of the SOPs currently utilized by staff describe how to notify the City's solid waste provider, Waste Management, of account changes and service requests.

The SOPs described in Table 7 above are available to utility billing staff and CSRs in a printed binder for reference. While the City's current approach to SOPs acknowledges the importance of these materials and seeks to proactively provide them to staff, several aspects of SOP implementation require additional development and modification.

SOP documentation used by meter-to-cash staff does not follow a standardized format, and many SOPs lack basic information, such as the author, date drafted, date adopted, and a purpose statement. Although staff report SOPs were most recently updated two years ago, the latest revision date is not incorporated in each SOP. As a best practice, SOPs should adhere to a uniform format, layout, and structure to improve readability and consistency. There are numerous methods for developing SOPs; however, they typically share the following common elements:

- A clear title describing the topic
- An introduction/objectives statement describing the purpose of the SOP
- A detailed description of the work to be performed, including step-by-step instructions
- A process map, if applicable, that captures key decisions, sub-processes, responsibilities, etc.
- Discussion of additional considerations that should accompany the work
- Additional documentation and/or references to other SOPs that may apply to the work

Much of the existing SOP documentation specifically discusses software-related processes. While this information is essential to ensure staff record and process data accurately, additional SOP development regarding other operations would be beneficial. For example, the City currently utilizes the same consumption ratio year-round to determine whether meter readings are likely over- or under-reporting compared to historical patterns. This means that in summer months, when consumption is higher due to irrigation and other water demand, more meters are likely to be incorrectly flagged as "high consumption" compared to winter months when water usage drops off. Developing an SOP that provides specific thresholds for high consumption will help reduce the likelihood that meters will be incorrectly singled out for further analysis.

Unique circumstances involving customer accounts warrant specific SOPs. For example, during interviews, staff reported uncertainties about how to handle accounts for customers who had died and whose estates were seeking to wrap up their affairs. Describing requirements and appropriate procedures for these and other less-common requests provides important guidance for staff who may be asked unfamiliar questions and reduces the likelihood that staff will offer conflicting solutions. A common method for addressing these circumstances is to adopt scripts that contain pre-written, standardized responses that CSRs can use to respond to unusual requests. By supplying CSRs with the specific words and key phrases to say in response to inquiries, the City can minimize the likelihood that CSRs will supply incorrect or contradictory information to customers.

Another important component of most SOPs is the use of process maps and/or flow charts to highlight key decision points, subprocesses, and responsibilities. Representing SOPs visually often makes them easier to understand and more useful. High-performing utilities often rely on collections of single-page process reference diagrams to remind staff about how to perform a process.

Other SOPs often referenced by the AWWA and present at high-performing utilities include the following:

- The complete delinquent account process, including shut off and restoration subprocesses
- Meter change out process (office and field sub-processes)
- Investigating and resolving suspected customer leaks
- Customer billing error resolution
- Estimating meter readings (broken or malfunctioning meter)

Note that many of these processes need to be coordinated with ordinances or other City policies for consistency.

SOPs have an important role to play in empowering staff to exercise appropriate judgment and discretion. While many of the processes governed by SOPs are relatively straightforward, other aspects of the meter-to-cash process offer staff significant latitude. Customer service functions, in particular, are seldom “routine” and often require staff to adapt to novel circumstances and unusual requests, as described above. While several of the SOPs and training elements currently utilized by the City describe how CSRs should handle requests, providing additional context and guidance to all staff about the proper exercise of judgment across all meter-to-cash functions is essential. Ongoing training, including role-playing activities in this area, is often helpful as it can often demonstrate different scenarios and their appropriate resolution.

Existing meter-to-cash SOPs largely define the City’s historical practices for collecting meter data, calculating bills, processing payments, and dealing with customer complaints. While a few of these practices will remain consistent, the upcoming implementation of AMI will dramatically impact existing procedures. The AMI system will reduce drive-by meter readings, empower utility billing and customer service staff to identify exceptions and meter errors with greater accuracy, simplify the process of conducting meter profiles, and increase the volume of information available to staff and customers alike. Bringing existing SOPs in line with AMI will be an essential component of training existing staff and onboarding new staff in the future, as discussed in the following recommendation. It will be a significant task.

To address the format and content challenges described above and position the City to implement AMI as effectively as possible, the Water Billing and Collections Manager should conduct a comprehensive review of meter-to-cash SOPs, update each SOP using a standard format, and ensure the content of each SOP appropriately matches the City’s current and future practices, as described above. Once completed, the revised SOPs should be included in a hardcopy manual similar to the City’s current practice. SOPs should also be readily available in electronic format, such as an intranet site or shared network drive, so that staff can access these materials from remote locations. The revised SOPs should be regularly reviewed and updated as necessary to ensure they accurately reflect contemporary operations and expectations. According to staff, this review is already underway and has been delegated to the Assistant Water Billing and Collections Manager. The revised SOPs will be made accessible to staff on the City’s digital SharePoint® Knowledge Center.

Formalizing and updating SOPs will help the City cultivate an environment of continuous improvement by ensuring all staff share the same awareness and understanding of critical processes. It also serves as a useful management tool for holding staff accountable, providing guidance about when staff should apply discretion, and empowering staff to proactively address work tasks and customer needs.

Recommendation 4: Develop an enhanced training program.

Staff involved in the meter-to-cash process have limited access to training and professional development opportunities in their subject matter areas. Onboarding training is provided when new employees join the City, but the organization generally relies on institutional knowledge to accomplish daily tasks, aside from processes specifically documented in SOPs, as described in Recommendation 3. During interviews, staff indicated they had little cross-training or exposure to work performed by other meter-to-cash personnel.

Furthermore, except for a few staff who worked at other utilities or in similar customer service organizations, there is little exposure to industry or peer best practices.

This approach contributes to two important challenges associated with meter-to-cash operations. First, the lack of ongoing training and professional development opportunities exacerbates existing silos and prevents staff from collaborating effectively. While meter readers, CSRs, and billing staff all possess a general awareness of responsibilities assigned to their colleagues, unfamiliarity with how those responsibilities are specifically carried out creates a disconnect between expectations and the practical reality of fulfilling requests. For example, CSRs do not intimately understand the often laborious work of locating, evaluating, and reading meters in the field, while meter readers have little context regarding how the information they provide is used to create and verify bills. This can create misaligned expectations for CSRs and meter services staff, resulting in work environments that obstruct rather than facilitate cooperation.

Second, a lack of ongoing training opportunities prevents the City from adapting to changes in the meter-to-cash process, recognizing and addressing process inefficiencies, and developing internal skills to manage the process effectively. Meter-to-cash functions, like many other local government and utility functions, are continually impacted by advances in technology and shifting customer preferences. However, the City's training process equips staff with only the minimum skillsets required to provide service. Cultivating a more robust culture of continuous improvement requires ongoing, sustained training efforts to ensure new and tenured employees alike are adequately supported as processes and preferences change. It also requires exposing staff to new practices and approaches.

Reducing siloed practices and creating a cultural climate that can more easily accommodate change will require the City to develop a comprehensive training program for all meter-to-cash staff. At a minimum, this program should consist of several key elements:

- **Regular cross-training.** Staff should accompany each other on assignments throughout the day to understand how their activities impact others involved in the meter-to-cash process. CSRs and billing staff should shadow each other, as well as accompany meter services staff as they are assigned and complete work orders. Similarly, meter services staff should observe and listen in on daily customer service and billing operations. Providing staff with regular opportunities to see and experience how their counterparts work increases internal awareness and encourages staff to identify further opportunities for process improvement. As this assessment was being finalized, City staff reported that they have initiated monthly cross-training activities between CSR and billing staff; however, these efforts should expand to include meter services activities as well.
- **Process improvement training.** As the City implements AMI, it should expect and encourage staff to provide feedback and insights regarding operational effectiveness. The best way to accomplish this involves providing meter-to-cash staff with foundational training regarding process improvement. At a minimum, staff should be able to map out the fundamental steps associated with their work, understand how those steps intersect with other staff and customers, and identify areas of redundancy or inefficiency in their daily tasks. Cultivating these skills among staff will help the City ensure that the meter-to-cash process is as effective as possible even as future adaptations occur.
- **Software/technology training.** Much of the work performed by meter-to-cash staff involves highly complex technology systems and databases. To minimize the likelihood of human error and maximize staff effectiveness, the City should ensure all meter-to-cash personnel have regular access to foundational technology training. Areas of critical need include Microsoft® Excel, database and SQL management, and proprietary software system training related to Badger, New World, and AMI. In addition, staff should participate in user group meetings for Badger, New World, and AMI software to develop a group of peers to consult about processes, work arounds, product opportunities and limitations, and to build general knowledge on the platforms. While management staff in utility billing currently have access to a bank of training hours for New World, training should be expanded to all staff across functions described above.

- **Role-playing/scenario training.** Several of the processes and situations encountered by meter-to-cash staff involve fluid interactions, particularly regarding customers. While developing SOPs to address requests as described in Recommendation 3 will provide staff with a valuable training resource, it is important to ensure staff develop appropriate skills to think quickly and critically while supporting customers. To accomplish this, the City should develop role-playing or scenario-based situations that place staff in challenging circumstances in a controlled way. Example scenarios could include belligerent customers, uncommon customer requests, and uncooperative responses from peers or management staff. By simulating these events and observing how staff respond to challenging circumstances, the City can help foster interpersonal skills and encourage staff to respond consistently.

Establishing a training program as designed above will require significant management support and the active participation of key stakeholders, including but not limited to the Water Billing and Collections Manager, the Meter Services Supervisor, and human resources personnel. These staff should collaborate to develop suitable training options and create a schedule consisting of mandatory and optional training opportunities. Ensuring staff utilize training and enhance skillsets will help the City improve operations in the near- and long-term by creating a workforce that can better adapt to changing circumstances and communicate more effectively.

Recommendation 5: Improve external communications plans for meter-to-cash activities.

City staff utilize a variety of communications mechanisms regarding meter-to-cash activities. Since the first quarter of 2020, utility billing staff have provided a biweekly memorandum to senior City staff and elected officials regarding meter reads, billing activities, customer contacts, the 32/30 Plan, and AMI implementation. The purpose of this memorandum is to provide regular progress updates regarding recovering unbilled funds and core meter-to-cash activities. In addition to this memo, utility billing staff also present a quarterly update at City Council meetings covering similar information in a public setting. Staff have relied mainly on updates to the City's website and billing inserts to communicate with the public about meter-to-cash activities.

While these efforts are commendable, existing communications practices have not cultivated a shared understanding of meter-to-cash processes and priorities to date. Principally, staff and stakeholders experience communications challenges regarding three significant areas:

- **Meter-to-cash cycle complexity.** Neither customers nor many of the stakeholders involved with meter-to-cash fully understand the complexity of meter reading and utility billing activities. Generally speaking, meter-to-cash processes involve collecting meter readings, having a computer perform some calculations, and generating bills, but this is a gross simplification. Dozens of overlapping processes must act in concert to create a smooth and accurate meter-to-cash cycle. Communications must be adequate for stakeholders to understand the essential elements of the cycle, appreciate the complexity of the overall process, and feel confident that staff are doing what is needed to send out accurate bills.

While the City has worked to provide detailed information to increase transparency, more information is not necessarily better. An unintentional impact of flooding stakeholders with information is increasing confusion and mistrust rather than enhancing understanding. It is essential for staff to provide transparent, accurate information at a level that is accessible and easily digestible by stakeholders and customers unfamiliar with the meter-to-cash process.

- **32/30 Plan.** While the 32/30 Plan has been adopted by the City Council and is being implemented, the impacts of executing the Plan are not well understood by stakeholders. Carrying out the Plan requires numerous time-intensive and complex processes, manual adjustments, and temporary alteration to processes like final billing (when customers leave the area). While evaluating alternatives to the 32/30 Plan and enhancing operations as discussed in Recommendations 6 - 8

will help, the complexity of the Plan is still difficult to communicate. As policies and potential changes to the existing Plan are discussed, the City must continue to provide essential elements without overwhelming stakeholders in detail.

- **AMI implementation.** AMI is a technology that, if implemented correctly, promises to save significant staff time while increasing automation and accuracy. However, successful AMI implementation is a complex undertaking that cannot occur on short notice. In addition to ongoing meter and endpoint upgrades, City staff must become familiar with entirely new methods for collecting and analyzing meter data, evaluating exceptions, and providing usage and service information to customers. Implementing AMI will necessarily require changes, adjustments, and adaptations in the future as the City continues to maximize the advantages of the new system. These must be communicated progressively and effectively to stakeholders.

Specifically, the City should enhance communications with stakeholders and customers by stressing the need for patience and constructive feedback as AMI implementation proceeds. Future communications should prepare customers for change and advise them about potential issues that may arise going forward, including but not limited to human errors, development delays with AMI software and hardware, and potential changes to familiar processes. Transparently articulating these challenges will help the City rebuild a foundation of trust with customers and provide stakeholders with useful context regarding meter-to-cash processes.

Going forward, the Water Billing and Collections Manager should work closely with the Interim Finance Director, Communications Director, and City Manager to develop a formal, comprehensive communications outreach plan that addresses the challenges described above. Specifically, this plan should describe how existing communications tools leveraged by the City will be used to create clear, concise, and consistent messages about meter-to-cash functions. The plan should identify key messages and takeaways for customers and stakeholders and describe how those messages will be conveyed to target audiences. Note that utilities in the U.S. choose a variety of communication methods. Some communicate frequently with stakeholders, while others prefer infrequent communications. Examples of utilities with well-developed communications programs include Denver Water, Louisville Water Company, East Bay MUD, and Madison Water Utility.

In addition to delivering messages to stakeholders, the City should develop a robust direct engagement program that seeks feedback from residents and customers. One method of receiving this feedback is through citizen surveys. The City already participates in the National Citizen Survey™, which seeks to capture residents' opinions about the community. According to the most recent survey results, positive ratings of utility billing and meter reading functions increased from 69% in 2015 to 77% in 2019.⁴ Note that this survey data was collected before the City revealed the growing gap between meter reading and billing intervals in early 2020 and before the introduction of the 32/30 Plan. The NCS instrument provides a high-level overview of all City services, so the City may benefit from a more specific customer satisfaction survey that specifically pertains to utility billing. This could consist of a large-scale effort to conduct a community-wide survey, online feedback forms, and/or immediate feedback tools, such as phone surveys customers can complete after placing a service call.

Another common engagement approach relies on gathering input directly from groups of customers. This could consist of small focus groups conducted as part of a larger survey effort or more regular task force meetings designed to provide insight and feedback regarding utility billing. For example, the City of Corpus Christi, Texas, utilizes a Water Advisory Committee to advise elected officials and the City Manager regarding water management, usage, and distribution. Similarly, the City of Bainbridge Island, Washington, created a Utility Advisory Committee to offer supplemental advice and feedback regarding

⁴ City of Pearland. "Community Survey Results." Retrieved December 2020.
<https://www.pearlandtx.gov/government/administration/citizen-survey-results>

utility operations for water, sanitary sewer, stormwater, and other utilities. The Utility Advisory Committee is responsible for the following:⁵

- Reviewing utility-related policies prior to city council consideration
- Consulting with the city manager to develop an annual work plan for approval by the city council;
- Consulting with and making recommendations to the city council regarding such utility-related policy matters, utility rates, and rate structures and other charges made to water, sanitary sewer, and stormwater utility customers
- Consulting with and making recommendations to the city council relative to the planning for and financing of water, sanitary sewer, and stormwater utility capital facilities
- Keeping the city council regularly informed of activities of the committee in a timely manner
- Reporting annually to the city council before the start of the budget process.

Raftelis assisted the San Antonio Water System (SAWS) with establishing a Rates Advisory Committee connected to utility rate adjustments updates and supported the Pittsburgh Water and Sewer Authority (PWSA) with establishing a stormwater data advisory committee. Similar advisory committees are used by communities across Texas and the nation to provide additional ongoing support to elected officials and staff regarding important community issues that extend beyond utilities.

Before establishing a customer committee, the City should develop a charter and carefully consider the committee's role, responsibilities, membership, and expectations. For example, if the purpose of the committee is to support the transition to AMI, then the committee should disband after the transition is complete. If the City prefers a longer-term approach, where the committee provides ongoing advice regarding water and sewer rates/fees, meter-to-cash processes, technical utility-related matters, or regional water-related issues, then the committee charter should align with those goals. There are typically myriad issues for a customer committee to consider. They provide a great way to get consumers involved, provide a sounding board, and are an excellent means to gather feedback.

Members of the committee should be volunteers and may be recruited based on technical knowledge, customer type (commercial, multi-family residential, etc.) or interest. It is appropriate for the committee to include an elected official as a regular participant, such as the Mayor or a Councilmember, to provide guidance and serve as a liaison to the City's governing body. However, it is important to emphasize that these committees are most effective when they are organized as partners rather than adversaries, and the committee should not be perceived as having a governance function. Establishing a citizen advisory committee primarily to perform oversight or audit-related functions is inadvisable because it creates multiple lines of accountability for staff and potentially impedes the City Council's proper role as a governing body.

Creating and implementing a formal external communications plan and seeking additional feedback from customers will enable the City to deliver a consistent message to customers across a broad media landscape. In turn, this will enable staff to help set and temper public expectations, manage process and implementation delays, and rebuild trust with the public.

Process Improvements

Recommendation 6: Consider alternative options to the 32/30 Plan.

Since the City discovered the lag between meter reading periods and utility bills in 2019, elected officials and staff have engaged in a lengthy public process to identify an appropriate remedy. Developing a solution

⁵ City of Bainbridge, Washington. "Utility Advisory Committee." Retrieved December 2020. <https://www.bainbridgewa.gov/242/Utility-Advisory-Committee>

to the billing challenge is difficult because the City must quickly balance resolving the billing gap with the impacts on customers, perceptions of fairness, and preserving the public trust.

In April 2020, the City adopted the 32/30 Plan designed to cover unbilled consumption charges by increasing meter reading intervals to 32 days while continuing to bill customers every month. In effect, this represents the opposite approach to the practice that created the billing problem in the first place: whereas a 28-day meter reading cycle increased the number of days between reads and billed amounts each month, the 32-day meter reading cycle decreases the gap. The 32/30 Plan represents a good-faith effort to align the reading and billing cycles. However, there are several key challenges associated with the Plan that merit further consideration and adjustment:

1. **The Plan is temporary.** The City will not be able to utilize the Plan in perpetuity without creating another billing gap. In 2023, the 32/30 Plan will “catch up” to the billing gap created by the previous billing plan. To avoid overbilling customers going forward, the City will be required to change billing practices again to maintain alignment between meter reads and billing periods. Changes to certain practices, such as how final bills are calculated, will also be required.
2. **13 billings in some years.** Although the 32/30 Plan was intended to result in one bill per month and 12 bills per year, customers in billing cycles 14 and 11 will receive two bills in the months of October 2021 and August 2022, respectively, resulting in a total of 13 bills in those years. Producing 13 bills will likely create extreme confusion among customers and increase public perceptions of inconsistency and incompetence.
3. **Rate impacts.** Rate-related decisions have been and will continue to be impacted by the 32/30 Plan. Following the adoption of the 32/30 Plan, in May 2020 the City modified the water and sewer rate structures and financial planning model used to estimate rates in future years. Note that future year rates can only be modeled and not accurately set because the annual budgeting process ultimately determines the revenues, or rates, needed to fund utility operations. Raftelis worked with staff and billing data to determine revenue projections based upon a full year of consumption under the 32/30 Plan’s revised rate structure. This work provided the City with an updated model illustrating projected revenues, assuming the City’s meter reading and billing cycles are synchronized. However, because the 32/30 Plan requires several years to fully synchronize reading and billing cycles, any future changes to rate amounts or the rate structure could create inequities for City customers. For example, if the City raised water rates in 2022, customers who close their accounts in that year would pay higher rates for unbilled consumption than customers who close their accounts in 2021. Modifying consumption tiers while the 32/30 Plan is still in place will create similar inequities.
4. **AMI complications.** The 32/30 Plan will complicate the adoption of AMI. Because the Plan creates a disconnect between current consumption and billed consumption for any given period, customers may be confused by apparent discrepancies between meter reading periods, the consumption shown on their meter, and their billed amounts. However, it is inadvisable to delay AMI implementation given the significant customer service and process improvement advantages that the City currently lacks.
5. **Process inconsistencies.** The Plan perpetuates inconsistencies in the billing process. For example, utility bills are currently due 23 to 29 days after issuance, depending on when they are created and the timing of the 32/30 Plan. This means that customers cannot easily rely on a set date each billing period to know when their bill will be due, which may unnecessarily create confusion regarding utility bills and disrupt automatic payments.

City staff proposed several revisions to the 32/30 Plan at the November 23, 2020, City Council Meeting. These proposed revisions included establishing a consistent methodology for calculating final bills, extending the final bill methodology to “True-Up Plan” calculations, adjusting bills for customers affected by 13 billings, and adopting ordinance updates designed to bring Section 30 of the City Code into greater alignment with meter-to-cash best practices. Raftelis reviewed and considered these proposed revisions in the context of this assessment. While the proposed changes may be effective in addressing some of the 32/30 Plan’s current limitations, the City must first address a broader, more fundamental policy question about how to handle unbilled consumption and close the current billing gap in a way that is responsive and understandable to customers.

To better understand the financial implications of the 32/30 Plan, Raftelis first sought to calculate the total value of unbilled consumption. While this task appears straightforward, in practice, it is highly complex and nuanced. The most accurate method of calculating unbilled consumption requires daily read information from the date the 28-day read cycle was implemented going forward. However, meters are read monthly, and local storage on each meter retains only the previous 40 days of reads. Because billing currently lags reads by about 60 days, it is impossible to reconstruct daily consumption with accuracy. Additionally, because the 32/30 Plan continues to close the billing gap on a rolling basis, the total amount of outstanding consumption changes each billing period.

Given these constraints, Raftelis developed a methodology designed to estimate the value of unbilled consumption as of January 1, 2021. It is important to emphasize that this methodology does not include the base rates paid by customers because customers have consistently been billed for base charges since the billing gap was discovered and will continue to pay monthly base charges in the future. Additionally, because water and sewer rates were developed assuming 12 base charges per year, collecting more than 12 base charges would increase revenue collections beyond the amount needed to support anticipated revenue requirements.

Using billing data provided by the City from October 4, 2019 through November 9, 2020, Raftelis calculated the average monthly billing amount for each account based on service line size. Raftelis then subtracted monthly base charges from this amount, which results in the average monthly amount each account pays for consumption alone. The amount was divided by 30 days to generate an estimated daily consumption charge, as illustrated in the table below.

Table 8: Estimated Average Daily Consumption Charges by Meter Size

| Meter Size (Inches) | Est. Average Water and Sewer Charges per Month | Monthly Base Charge Amounts | Est. Average Consumption Charges per Month | Est. Average Daily Consumption Charges |
|---------------------|--|-----------------------------|--|--|
| 5/8 ⁶ | \$74.79 | \$38.52 | \$36.27 | \$1.21 |
| 1 | \$192.54 | \$96.31 | \$96.23 | \$3.21 |
| 1.5 | \$406.53 | \$192.62 | \$213.91 | \$7.13 |
| 2 | \$924.97 | \$308.19 | \$616.78 | \$20.56 |
| 3 | \$2,097.82 | \$577.85 | \$1,519.97 | \$50.67 |
| 4 | \$2,433.21 | \$963.09 | \$1,470.12 | \$49.00 |
| 6 | \$7,105.17 | \$1,926.17 | \$5,179.00 | \$172.63 |
| 8 | \$9,093.54 | \$3,081.88 | \$6,011.66 | \$200.39 |
| 10 | \$14,978.65 | \$4,430.20 | \$10,548.45 | \$351.62 |

⁶ In Tables 8 and 9, the 5/8-inch meters include three customer accounts with 3/4-inch meters, which are currently billed at the 5/8-inch rates.

On January 1, 2021, the average lag between meter reads and bills will be approximately 58.25 days across all billing cycles. The estimated average daily consumption charge was multiplied by 58.25 days to estimate the total value of unbilled consumption for individual accounts based on service line size. Next, the per-account average was multiplied by the number of active accounts to estimate the total value of unbilled consumption, as illustrated below.

Table 9: Estimated Value of Unbilled Consumption by Meter Size

| Meter Size (Inches) | Est. Average Daily Consumption Charges | Est. Total Unbilled Consumption per Account | Number of Accounts | Est. Total Value of Unbilled Consumption |
|---------------------|--|---|--------------------|--|
| 5/8 | \$1.21 | \$70.43 | 36,256 | \$2,553,449.41 |
| 1 | \$3.21 | \$186.85 | 1,333 | \$249,075.99 |
| 1.5 | \$7.13 | \$415.34 | 93 | \$38,626.60 |
| 2 | \$20.56 | \$1,197.58 | 1,264 | \$1,513,741.63 |
| 3 | \$50.67 | \$2,951.27 | 67 | \$197,735.09 |
| 4 | \$49.00 | \$2,854.48 | 42 | \$119,888.02 |
| 6 | \$172.63 | \$10,055.89 | 18 | \$181,005.98 |
| 8 | \$200.39 | \$11,672.63 | 8 | \$93,381.04 |
| 10 | \$351.62 | \$20,481.58 | 2 | \$40,963.16 |
| Total | | | | \$4,987,841.61 |

According to this analysis, the estimated value of outstanding unbilled consumption as of January 1, 2021, is approximately \$5.0 million. This reflects an average of \$70.43 for most residential accounts, which utilize 5/8-inch water lines. Most commercial accounts use 1-inch lines or larger and have an outstanding consumption value between \$186.85 and \$1,197.58.

Determining whether and how to recover unbilled consumption, considering the challenges associated with the 32/30 Plan, is a policy consideration. There is no definitive “fix” and no solution that will provide a quick, easy, and perfectly equitable resolution to all City customers. Raftelis offers a couple of alternate approaches to solve some of the challenges of the 32/30 Plan but acknowledges they have other drawbacks.

Option 1: Disregard unbilled consumption.

This option allows the City to acknowledge and move past the previous billing issue and focus on fostering a culture of continuous improvement, future process improvements, and AMI implementation, as discussed in this report. By abandoning efforts to collect unbilled consumption, the City can implement a “clean slate” and focus on fostering trust with customers using a consistent billing methodology. It also provides the most expedient solution, carries almost no administrative burden to implement, and positions the City for future success. It simplifies communications with customers by eliminating the confusion associated with the current 32/30 Plan.

An argument can be made that this approach is universally fair because the same period of unbilled consumption will be disregarded for all customers. It may also be widely accepted since customers will pay less than what they were projected to pay under the 32/30 Plan.

While this approach presents the simplest and most straightforward way to resolve unbilled consumption and close the current billing gap, it does come with tradeoffs. For all its advantages, this option will cause the City to forgo the collection of approximately \$5 million in potential unbilled revenue. Because customers have been paying their normal fixed base charges with each monthly billing, the amount that needs to be disregarded is only the volumetric portion of consumption that has yet to be billed.

It is important to emphasize that this revenue loss does not reflect a loss of funds already collected by the City, nor is it a reduction in amounts owed, i.e. “billed but not collected.” It also does not reflect a reduction or interruption of cash flows from month-to-month. In other words, the City’s rate structure will continue to appropriately cover operational expenses going forward. Rather, the loss is actuarial in the sense that the City will have to “write-off” the incremental cost of water provided to customers that has remained unbilled and will show a one-time lower “actual” revenue (compared to budget), which may result in a net deficit in the annual audit for that one year. There is no single correct approach to accounting for this write-off, and the City can leverage a variety of strategies to minimize the accounting impacts associated with recognizing this loss. Viable options include but are not limited to the use of reserves, budget transfers, and cost savings from operational and process improvements. However, adjusting the City’s rate structure is not recommended because this will create additional confusion for customers and result in rates that exceed the cost of service after the actuarial loss has been resolved.

In short, while writing off unbilled consumption creates a specific accounting challenge for the City, it presents the quickest and easiest method of resolving the billing gap in a way that is easily understood by customers. It is fair and equitable to write off this consumption because the same period is effectively being written off for each customer; however, some customers may claim other customers are getting more of a benefit due to differences in usage among customers during billing periods.

Option 2: Calculate the value of unbilled consumption and charge a prorated amount over time.

As an alternative to Option 1, the City could estimate the total value of unbilled consumption for each account and assess a separate “recovery fee” to charge for this usage. The total cost of the recovery fee should be prorated over a 12- or 24-month period until the outstanding consumption has been fully paid, and the prorated amounts should be added to each month’s bill as a surcharge. For example, if the City wished to recover unbilled consumption amounts over a 24-month period, the monthly recovery fees listed in the table below could be assessed for each account based on service size.

Table 10: Estimated Recovery Fee Allocation per Account

| Meter Size (Inches) | Recovery Fee (24 monthly payments) |
|---------------------|------------------------------------|
| 5/8 ⁷ | \$2.93 |
| 1 | \$7.79 |
| 1.5 | \$17.31 |
| 2 | \$49.90 |
| 3 | \$122.97 |
| 4 | \$118.94 |
| 6 | \$419.00 |
| 8 | \$486.36 |
| 10 | \$853.40 |

This option provides increased transparency regarding how the City will calculate and recover unbilled consumption. It also removes the confusion associated with future rate increases and allows customers to pay unbilled charges at the lowest applicable tier rate. Once the value of unbilled consumption has been recovered, the City can drop the recovery fee from utility bills without also having to adjust meter reading or billing schedules. Additionally, this approach enables the City to better support customers who wish to pay off their recovery fee in full by simply setting the recovery fee amount to \$0 after payment is received.

⁷ In Table 10, the 5/8-inch meters include three customer accounts with 3/4-inch meters, which are currently billed at the 5/8-inch rates.

To implement the recovery fee, City staff will be required to assess and track unbilled consumption on each customer account, ensure that individualized charges are tracked accurately during the recovery period, and redesign bills to include a specialized line item for the recovery fee. These tasks are likely to generate ongoing work for staff, which may distract from process improvements and AMI implementation. They may also require significant manual tracking and bill calculations and/or adjustments to the billing system.

Option 3: Bill full catch-up amounts.

The City has already contemplated the possibility of enabling residents to simply pay the full outstanding unbilled consumption associated with their account. This option, known as the “True-Up Plan,” could generate additional revenue in a short time if many customers pay off unbilled consumption. It also avoids additional complications created by changes to rate fees or rate structures in the future, which could impact how unbilled consumption is collected.

Offering this option as an alternative to some customers while permitting others to participate in the current 32/30 Plan or a prorated plan, as described above, could result in several challenges. If utility rates or rate structures are changed at any point while another repayment plan is in place, then some customers will have paid different amounts to resolve the same issue. This can increase perceptions that the City is unfairly or inconsistently recovering unbilled costs, potentially exacerbating existing tensions and negative feedback.

Additionally, the City will be required to monitor customer accounts individually to ensure that customers who have paid in full are not also continually billed for unbilled consumption. If a prorated payment plan is implemented for all customers, as described above, the City can adjust recovery fees for customers who pay in full to \$0. However, if the 32/30 Plan is retained without modification, the City will effectively have to maintain two billing systems to enable customers to pay unbilled consumption: one for customers who have paid in full and one for customers who are still accountable for unbilled consumption. Unfortunately, the City’s current billing software appears to only supports calculations for a single rate structure as currently configured, meaning staff would be required to manually track and verify True-Up payments, accounts, and billings. Creating a parallel system to track multiple rates would be administratively burdensome, introduce significant opportunities for error, and exponentially increase the complexity of the current meter-to-cash process.

The City could choose to require all customers to pay outstanding unbilled consumption in full; however, this is not recommended because it would result in potentially high bills for some customers and would likely generate many delinquencies. Low-income customers would be particularly impacted, and the City would likely experience a significant increase in requests to establish payment plans, which would be administratively burdensome and another potential opportunity for error. It will also be difficult to communicate to customers why this approach was selected.

The options discussed above represent a significant policy departure from the City’s goals under the 32/30 Plan. However, a change in policy is justified to help streamline AMI implementation, facilitate improved communications with customers, establish additional transparency regarding customer charges, and avoid the need to adjust billing practices in the future. Ultimately, there is no right or wrong answer, and the decision about how to recover unbilled consumption is a policy matter for the City to determine.

Recommendation 7: Synchronize meter reading and billing cycles.

In addition to making a policy determination regarding unbilled consumption, the City should seek to re-synchronize meter reading and billing cycles to avoid customer confusion. Moving away from the 32/30 Plan, as described above, creates an opportunity for the City to establish a billing cycle schedule that will not need to be adjusted in future years. This opportunity is particularly ripe for implementation as the City’s AMI system comes online.

Once AMI is implemented and fully functional, the time needed to gather initial read information will decrease, and meter-to-cash staff will be able to focus more readily on bill analysis and verification. Because customers have historically been billed once each month for utilities, the City should establish a set of dates each month for meter reading, bill issuance, and payment. The following table illustrates an example timetable for meter-to-cash practices throughout a calendar year for a given billing cycle.

Table 11: Example Meter Reading and Billing Timetable

| Consumption Period | Meters Read (AMI) | Bills Validated and Sent | Payment Due |
|--------------------|-------------------|--------------------------|-------------|
| January 1-31 | February 3 | February 10 | March 1 |
| February 1-28/29 | March 3 | March 10 | April 1 |
| March 1-31 | April 3 | April 10 | May 1 |
| April 1-30 | May 3 | May 10 | June 1 |
| May 1-31 | June 3 | June 10 | July 1 |
| June 1-30 | July 3 | July 10 | August 1 |
| July 1-31 | August 3 | August 10 | September 1 |
| August 1-31 | September 3 | September 10 | October 1 |
| September 1-30 | October 3 | October 10 | November 1 |
| October 1-31 | November 3 | November 10 | December 1 |
| November 1-30 | December 3 | December 10 | January 1 |
| December 1-31 | January 3 | January 10 | February 1 |

In practice, the dates above will fluctuate somewhat due to weekdays and holidays, but by establishing firm dates for each step of the meter-to-cash cycle each month, the City can maximize consistency for customers. Additional billing cycles could use similar dates, such as the 4th, 11th, and 2nd of each month, respectively, to create the same consistency for all customers regardless of which billing cycle they are in.

Once a revised meter reading and billing cycle is identified, the City should enact the policy decision regarding unbilled consumption as described above and simultaneously realign billing to reflect the most recent consumption period. In effect, this will eliminate the 32/30 Plan's efforts to gradually recover unbilled consumption by adjusting meter reading and billing frequencies. By creating a consistent schedule that functions independently of the billing error, customer confusion will be reduced, and the meter reading and billing process will not require further adjustment in the future.

Recommendation 8: Implement a streamlined meter-to-cash process.

The meter-to-cash process involves a significant amount of manual and redundant activities. For example, Utility Customer Services generates work orders for Meter Services using the City's New World system. However, Meter Services does not have direct access to these work orders and relies on Utility Customer Services to electronically transmit copies of work order documents and summary sheets. Meter Services then prints each work order and assigns it to staff. Completed work orders are manually marked and scanned back to Utility Customer Services, who must then update the work order entry in New World. Other work order requests, such as rechecks, rereads, and same-day service requests, are sent via a parallel process involving Microsoft Excel spreadsheets. While Meter Services can see pending work order requests in New World, staff cannot readily access and update this information, and there is no universally accessible work order process in place to allow staff to avoid manual entry.

Utility Customer Services currently lacks direct access to meter reading data and relies on Meter Services to conduct drive-by reads and error checks. Meter Services aggregates read information and electronically distributes it to Utility Customer Services via email for manual entry into New World. If a customer requests a meter profile to check consumption history, CSRs must file a work order request with Meter Services to physically visit the meter, download requested data, and upload the data to a shared network drive for analysis. This practice introduces a lag of at least one or two business days for most error and follow-up meter read requests.

Billing activities also currently involve a high degree of redundancy and verification. After entering meter reads via a file into New World, billing staff must audit the data to check for over/under-consumption, zero consumption, reverse flow, and other billing exceptions. When exceptions occur, new work orders must be generated and sent to Meter Services to conduct rechecks and validate initial reads. Once billing data has been verified and entered into New World, Billing Specialists conduct an extensive validation exercise to ensure bill amounts are calculated correctly. After all billing data has been validated, the City works with a third-party distributor to print and mail bills.

The following figure illustrates high-level steps in the current meter-to-cash process. A more detailed map of the current process is attached in Appendix A of this report.

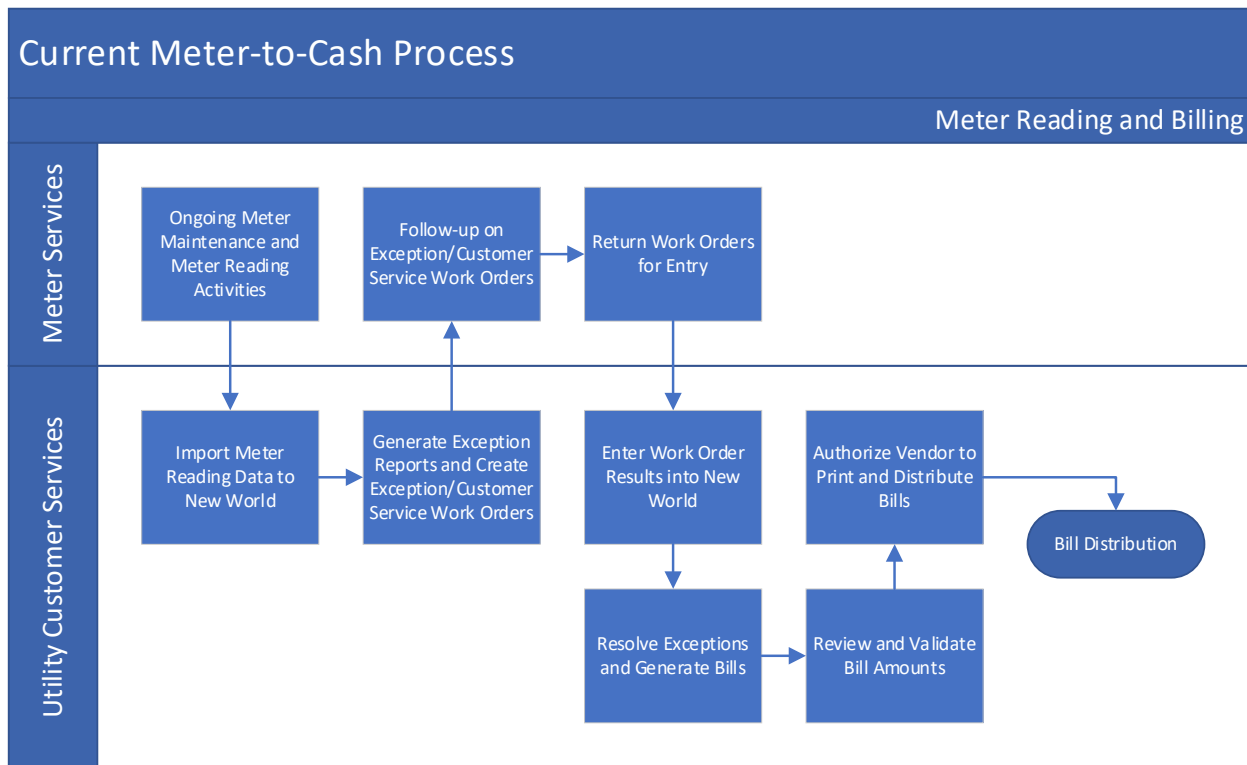


Figure 7: Current Meter-to-Cash Process, 2020

The City asked Raftelis to independently verify whether the current process illustrated above results in accurate billing calculations for a random sample of customers. Using comprehensive billing data provided by the City, Raftelis applied the latest water and sewer rates to consumption for all accounts (instead of a sample) and compared this calculation to each customer’s actual billed amount. This comparison was conducted for all reads and bills from August 11, 2020 (the date the latest rates were first applied to customer accounts) through November 9, 2020 (the latest date for which data was received), equivalent to approximately three months of consumption per account.

This analysis revealed highly consistent calculations performed by City staff. Raftelis readily confirmed accurate billing amounts for 98.6% of customer accounts over the three-month period analyzed. Out of 38,398 unique customer accounts, 551 showed relatively minor differences compared with those calculated by Raftelis. City staff investigated these accounts and determined that the blanket calculation used by Raftelis did not accurately capture specialized calculations needed for meters outside the City’s usual jurisdiction or compound/multi-unit meters. The City confirmed that the calculations for these accounts

was correct. In summary, the billing verification analysis performed by Raftelis and verified by staff indicates that although the City's billing calculation processes are highly manual, there do not appear to be systemic billing errors.

AWWA maintains metrics on industry billing accuracy. An error rate of 1.8 to 22.2 errors per 10,000 bills represents the normal range. Based on the sample provided by the City of Pearland, billing accuracy was 100% with the consumption values provided. This analysis did not evaluate the accuracy of meter readings or the reading collection process.

Many of the challenges associated with the City's meter-to-cash process are rooted in the need to manually obtain and verify meter information. To address these challenges, increase efficiency, and improve transparency, the City is in the process of implementing AMI. One of the core features of AMI systems involves the ability to remotely read meters throughout the City, which will remove the need to conduct drive-by meter reads. Because AMI meters are constantly connected to the City's network, City staff and customers will be able to quickly access and view information regarding consumption, meter errors, and historical usage patterns. An entirely new process will be needed to maximize these new tools.

To fully capitalize on AMI implementation, the City should adjust the meter-to-cash process to take full advantage of remote data tracking capabilities. This should be accomplished by focusing Utility Customer Services on continuous data monitoring and exception resolution to identify and resolve meter errors before they are imported into the billing system. When meter reads are due, Utility Customer Services should import read data via AMI and compile a list of work orders related to misreads and exceptions that cannot be remotely resolved. These work orders should pass to Meter Services staff for follow-up and verification.

In addition to AMI implementation, the City should investigate options for digitizing and streamlining work orders between Utility Customer Services and Meter Services. Potential options include but are not limited to providing Meter Services staff with direct access to New World work orders or adjusting the work order request process to leverage CityWorks™, which is currently being implemented by the Public Works Department. Regardless of the selected solution, it will be important for Meter Services staff to digitally access, update, and resolve work orders in the field to maximize staff capacity and reduce manual data entry.

The following figure illustrates a proposed meter-to-cash process that fully leverages AMI and an electronic work order system. New and significantly adjusted process components are highlighted in green.

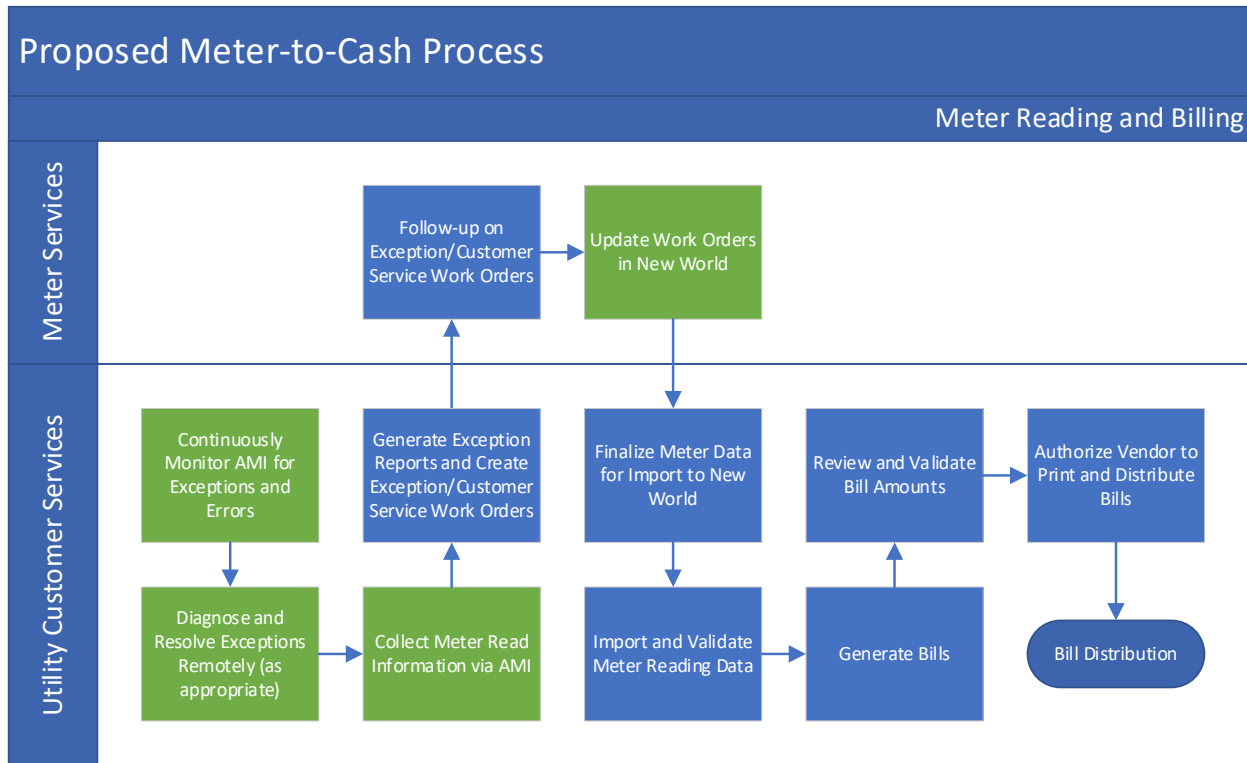


Figure 8: Proposed Meter-to-Cash Process, 2021

Compared to the existing process, the proposed process front-loads responsibility for tracking exceptions and gathering initial meter reads to Utility Customer Services. Accomplishing these activities earlier in the cycle and resolving errors before billing will greatly reduce the need for follow-up readings. It also reduces the need to validate data gathered from meters before entering consumption values into the billing system and provides staff with more capacity to ensure New World is correctly calculating utility bills.

Implementing a streamlined meter-to-cash process will require diligent oversight and participation among a variety of staff, including but not limited to the Water Billing and Collections Manager, Billing Supervisor, Customer Service Supervisor, Meter Services Supervisor, and Information Technology staff. The Water Billing and Collections Manager has already begun the process of identifying specific changes that should occur after AMI implementation is complete. It is entirely appropriate to utilize a dedicated group of key staff, such as the AMI Implementation Team discussed in Recommendation 15, to manage and oversee process and workflow enhancements related to AMI.

Recommendation 9: Reorder billing cycles.

The City utilizes four billing cycles totaling approximately 38,000 accounts. The size of each cycle varies widely, from approximately 7,800 meters to more than 13,000 meters per cycle. Each cycle loosely corresponds to a different geographic area of the City to better align with meter reading routes. However, once AMI is fully operational, the need to physically visit meters to gather information will be dramatically reduced. This will provide an opportunity to reorder the meter cycles. Note that changing the billing cycles does not necessarily mean changing billing dates.

Utilities commonly employ two approaches with respect to organizing billing cycles. The first involves establishing cycles based on a specific geography, as currently practiced by the City. This approach is used when organizations perform manual or AMR type metering to minimize the time and distance between meter readings. The second approach organizes cycles based on other criteria, such as the type of customer

or the size of meter. For example, Billing Cycle A could include all commercial customers or meters over one inch, while Billing Cycle B could include all single-family residences or all 5/8-inch meters, and so on. Both methods of organizing billing cycles are valid. Communities employ the method that reflects historical practices and technology limitations.

Once AMI is fully implemented, the City should consider rebalancing billing cycles to create a more evenly distributed workload for meter-to-cash staff and align cycles by meter size, customer type, etc. Because meter cycles and billing dates have some flexibility, there is opportunity to bill the rearranged cycles in a different order to balance workloads and meet customer needs.

Additionally, the City could evaluate the feasibility of consolidating billing cycles and processing a greater number of accounts each cycle by leveraging AMI. However, reducing the current number of cycles will be limited by staff's ability to process and validate meter reads in a timely manner. While implementing AMI and the recommendations in this report will likely provide staff with some additional capacity, it is inappropriate to consolidate cycles in the near term. Rather, the City should track the labor hours associated with meter-to-cash processes and determine the number of personnel required to collect, validate, and bill according to the current cycle arrangement before seeking to consolidate cycles.

Recommendation 10: Enhance delinquent account communications.

The City considers a customer account delinquent if the customer fails to make payment by the due date indicated on each bill. If a customer misses a payment, a Billing Specialist prepares and mails a delinquency notice the following business day, and the customer receives an automated call indicating payment is late. The notice requires customers to pay the delinquent amount 21 days from the date the notice was mailed. If payment is still not received within seven days of the delinquency due date, a second automated call is generated to notify the customer.

While the actual number of delinquencies was not readily available, staff estimate approximately 200 delinquency notices and calls are generated each week. Approximately half of these delinquencies are remedied before the due date. If the customer does not remedy the delinquency, the City will cut off service until the account and associated fees have been paid. Utility billing staff generally prioritize delinquent account shutoffs based on the outstanding amount owed and the size of the meter and issue work orders to shut off the top 50-100 accounts that meet these criteria. Meter Services then performs shutoffs on Tuesdays, Wednesdays, and Thursdays each week. Customers who make payments can request that the City restore water service. Water turn-ons performed after regular business hours are assessed an additional fee.

The City's notification process for delinquent accounts relies on three touchpoints with customers: a letter sent at the beginning of the process and two automated phone calls. While this outreach is reportedly effective, these methods may not reach or draw significant attention from all customers. In particular, the prevalence of junk mail and spam phone calls increases the likelihood that the City's outreach to customers will be lost or avoided. There is also the possibility that the contacts will not reach the appropriate party for a variety of reasons, including old phone numbers, minors answering the phone, etc.

To ensure customers are appropriately notified that their accounts are delinquent and to offer a higher level of customer service, it is important to enhance communications practices regarding late payments. While automated calls represent a time savings for staff, they are easily ignored or screened by customers. To the greatest extent possible, the City should enlist CSRs to make personal phone calls notifying customers that their accounts are past due. If customers do not answer the phone, the CSRs should leave messages and contact information. It is difficult to evaluate if existing staffing levels are sufficient to provide this extra level of service in the absence of some of the recommended KPI information and prior to AMI implementation. Raftelis suggests collecting the KPI information and anticipating workload changes to gauge staffing impacts.

Personal calls and voicemail messages may be perceived as less suspicious and provide customers with a known contact they can connect with to discuss payment issues. Utilities across the country commonly employ personal phone calls and direct notifications, such as door hangers, to make personal contact with account owners. Personal phone calls create the opportunity to update information on the customer account, ask questions about service and communications, and review reasons why the customer may have difficulty paying their bill. In circumstances where customers require assistance, such as in the wake of job loss, a call from a CSR can quickly connect the customer with helpful resources, avoiding disconnections and fostering a better relationship. Anecdotal reports from other utilities also describe reductions in shutoffs after implementing a personal call program.

The City is in the process of developing door hanger notices that can be delivered directly to customers before cutting off service. This practice should continue, and the City should adopt a policy of notifying customers with a door hanger a week after the initial delinquency, if it wants to increase customer service levels. Many regulated utilities hand deliver notices, including several of the largest utilities; although, the practice is less common in Texas. In designing the notices, the City should strike a balance between high visibility and telegraphing to the community that the customer is in danger of a shut-off, which could cause embarrassment for some customers. It is appropriate to design a visible door hanger that can be utilized for a variety of purposes and not simply for non-payment shutoffs.

City staff have also discussed creating an after-hours turn-on program for customers who can pay to restore service in the evenings or over weekends. This is an appropriate practice that will prevent customers from going without essential services like water if they have the means to restore their accounts to good standing. The City must ensure that this practice does not get abused by charging a premium for after-hours turn-ons that recover the cost of labor and equipment.

Implementing robust communications practices for delinquent accounts is critical as the City resumes enforcing bill payment expectations amid the COVID-19 pandemic. Additionally, AMI implementation and potential changes to the meter read and billing cycles discussed throughout this report may further impact billing periods and due dates in future months and years. In turn, this will increase the likelihood that some customers will inadvertently become delinquent as processes change. By seeking to connect with customers in a variety of ways, the City can continue to build good relationships with the community and reduce the need to deal with delinquencies.

Recommendation 11: Create designated morning and afternoon call-takers to streamline CSR workload.

Utility billing customer service requests, including phone calls, are handled by 10.5 CSR positions that are available from 8:00 AM to 5:00 PM Monday through Friday. These staff answer calls using the City's Cisco Finesse™ system, a specialized software platform designed to route customer service calls to available agents.

The City provided detailed utility billing customer service call information for 53,396 calls received in the 2019 calendar year. Most calls (87%) concerned general water service inquiries. Approximately 8% concerned delinquent accounts, while 5% related to construction and meter service inquiries. Overall call volume tends to be highest in the morning, especially on Mondays. By noon, call volume levels out through the end of the workday, as illustrated in the figure below.

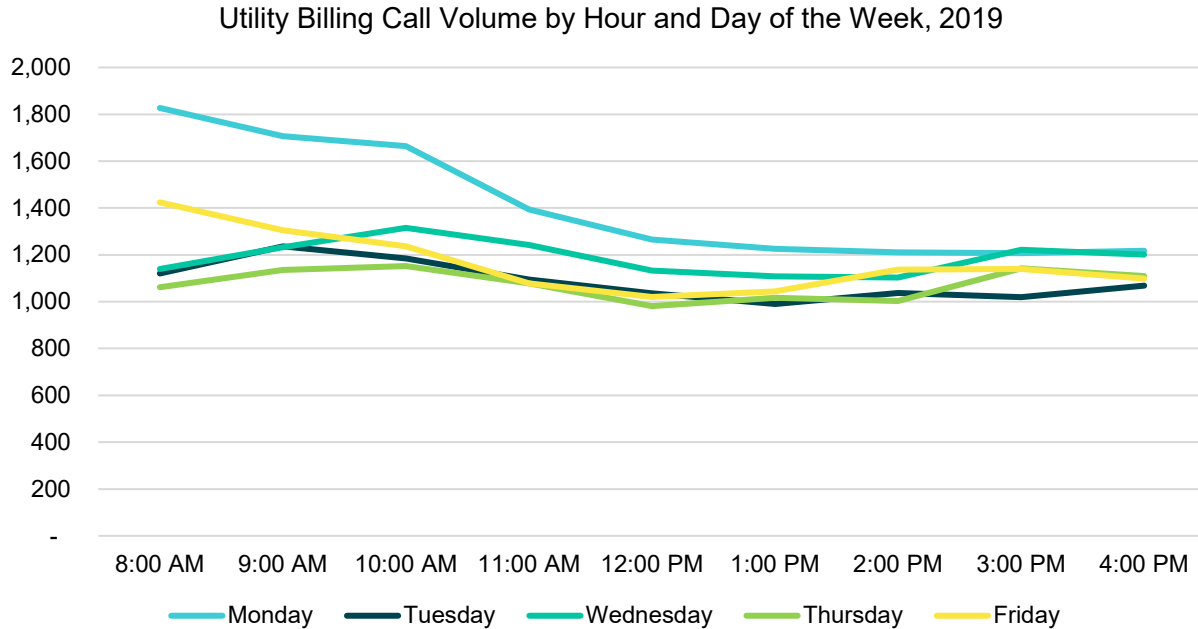


Figure 9: Call Volume by Hour and Day of the Week, 2019

Calls received in 2019 averaged 3 minutes and 49 seconds in length. About 54% of calls were concluded in three minutes or less, and 75% were concluded in five minutes or less. Approximately 20% of all calls lasted longer than five minutes. The following figure shows the number of calls received in 2019 by the length of call.

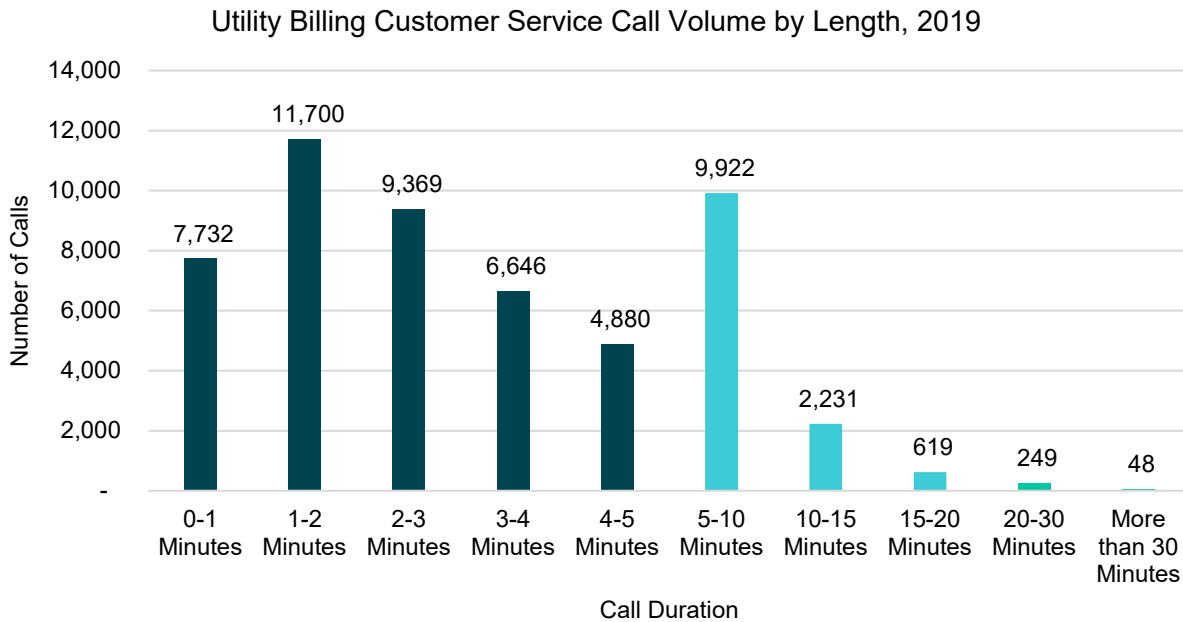


Figure 10: Count of Customer Service Calls by Length, 2019

There was some variation in length by type of call, with calls about delinquent accounts taking the longest at an average of 4 minutes and 28 seconds.

Call center staffing for functions like police dispatch and customer service is commonly assessed using the “Erlang-C Model,” a queuing theory staffing model that estimates the required staff to meet a desired service level based on workload. Erlang-C relies on both the volume of calls and the average call duration to determine how much staff coverage is required at various times of the day. Raftelis applied the City’s customer service call data to the Erlang-C model to estimate the minimum call takers needed based on an average call length of 3:49 minutes.

Table 12: Average Calls Per Hour and Call Takers Needed by Hour of the Day

| Hour | 2019 Calls | Average Calls per Hour | Minimum Call Takers Needed ⁸ |
|--------------------|---------------|------------------------|---|
| 8:00 AM | 6,572 | 26.3 | 4 |
| 9:00 AM | 6,615 | 26.5 | 4 |
| 10:00 AM | 6,552 | 26.2 | 4 |
| 11:00 AM | 5,886 | 23.5 | 4 |
| 12:00 PM | 5,434 | 21.7 | 3 |
| 1:00 PM | 5,383 | 21.5 | 3 |
| 2:00 PM | 5,491 | 22.0 | 3 |
| 3:00 PM | 5,728 | 22.9 | 3 |
| 4:00 PM | 5,694 | 22.8 | 3 |
| 5:00 PM | 41 | 0.2 | N/A |
| Total Calls | 53,396 | | |

Based on historical call patterns, four call takers are needed on average during morning hours (8:00 AM to 11:00 AM), while three call takers are needed during the remainder of the day to answer incoming customer service calls. However, this analysis assumes that staff are entirely dedicated to call-taking and have no ancillary responsibilities, and it does not account for leave usage (vacation, sick, etc.) or staff turnover.

While customer service functions for the meter-to-cash process appear adequately staffed based on the analysis above, CSRs perform other critical duties aside from responding to calls. Other time-intensive tasks currently performed by CSRs include assisting customers in person at the City Hall Annex and Public Safety Building; processing payments; setting up new accounts; closing accounts; opening work orders, which require Meter Services follow-up; and conducting meter profile analysis. Additionally, AMI implementation will enable CSRs to play a more active role in routine meter monitoring, diagnosing and troubleshooting errors and exceptions, and assisting customers with accessing online information regarding their water meter. Given these responsibilities, it is inappropriate to reduce or adjust CSR staffing until the full impact of AMI on staffing needs can be measured and demonstrated. Additionally, given the growth experienced by the community, the volume of work is expected to increase consistently.

Rather than adjusting staffing, it is appropriate to re-evaluate how the City allocates highly responsive workload among CSRs. During interviews for this assessment, CSRs indicated that they often cannot concentrate on time-intensive tasks, such as meter profiles, due to the constant influx of new calls and service requests. The analysis above supports staff perceptions that call volume is relatively constant throughout the day and presents significant interruptions to other assigned tasks. Frequent interruptions make activities less productive and increase the likelihood of human error, which in turn creates service delays and potentially contributes to a lack of public trust.

⁸ Erlang Model Assumptions: 80% of calls answered in 20 seconds or less; call duration 3:49 minutes.

To address this challenge, the City should implement dedicated morning and afternoon call-taker roles among CSRs. While performing as a dedicated call-taker, CSRs should focus solely on customer service calls and should not engage in other time-intensive work. CSRs not serving as a dedicated call-taker should use their time to accomplish intensive tasks that require significant concentration with limited interruptions. The dedicated call-taker role should rotate to provide all CSRs with dedicated focus time while ensuring that routine call volumes can be adequately met.

Structure and Staffing

Recommendation 12: Transition to a centralized staffing structure over time.

There is no single best practice for structuring meter-to-cash functions. Some organizations, such as Pearland, adopt decentralized staffing models where key tasks are distributed among multiple departments and divisions. The primary advantage of this approach is that meter-to-cash personnel can be more readily available to perform outside tasks, such as broader water distribution repairs. Indeed, Meter Services staff in Pearland assist other Public Works staff with water line repairs and related tasks as time and resource demands allow.

Decentralization increases the risk that staff will be pulled into other tasks. For example, the Water Billing and Collections Manager’s May 2020 memorandum appropriately identifies daily cash reconciliations as an activity that should transition away from Utility Customer Service and to a more general City accounting function. Similarly, meter technicians should not be addressing a backlog of water line work or other public works activities while building a backlog of meter work orders.

Decentralized staffing models also require more consistent and often more formal communication among workgroups to ensure tasks are completed in a timely and efficient manner. At present, there are no formal service level agreements (SLAs) or related service expectations that govern how Utility Customer Services and Meter Services work together. Communication between CSRs and meter technicians is infrequent and unstructured. While the managers and supervisors of both groups meet regularly to discuss ongoing workloads and challenges, communication among line staff is limited. The following figure illustrates the division of high-level functional responsibilities among the City’s meter-to-cash divisions.

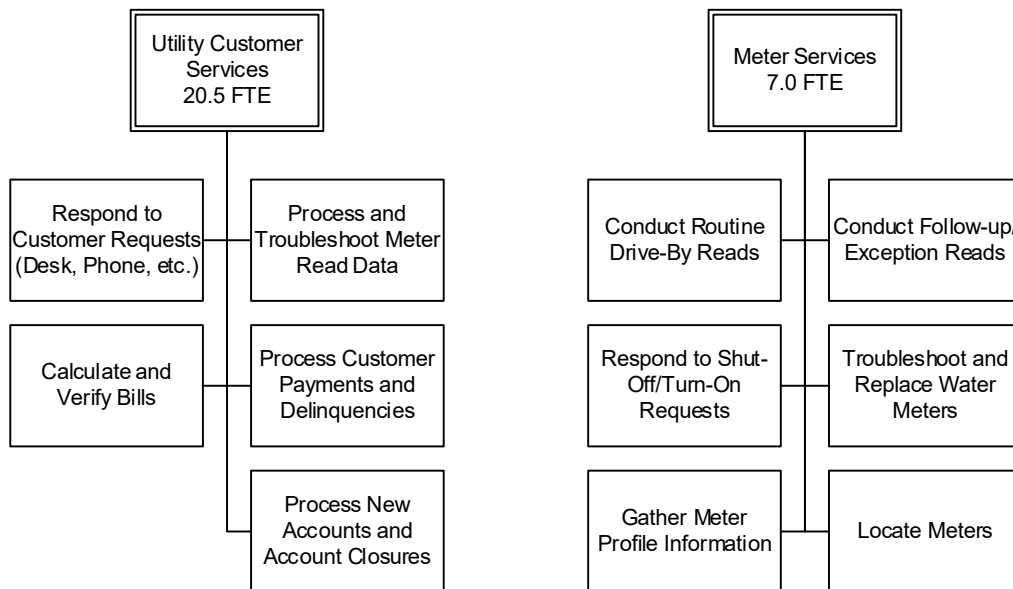


Figure 11: Current Allocation of Functional Responsibilities, 2020

An alternative approach involves centralizing meter-to-cash staff in a single department, such as Finance, Public Works, or an independent utility department. Centralization can streamline the reporting structure for staff, reduce managerial overhead, and simplify the communications process among staff. A centralized operation also reduces the likelihood that meter-to-cash personnel will feel pressured to address outside responsibilities and tasks at the expense of customer service, billing, and meter reading. However, centralized structures reduce the availability for meter-to-cash staff to assist other departments, and merely centralizing staff into one organizational unit will not necessarily result in performance or efficiency increases.

Benchmark organizations utilize both structural approaches. Of the nine organizations for which structural information was readily available, half separate meter reading and utility billing staff into distinct organizational units. Five of the benchmark organizations currently use AMI meter infrastructure; of these, four utilize separate functions while two have combined meter reading and utility billing.

Table 13: Structural Arrangements for Meter-to-Cash Personnel

| Benchmark Organization | AMI Meters | Separate Utility Billing and Meter Staff |
|-------------------------|--------------------------|--|
| City of Olathe, KS | No | No |
| Central Arkansas Water | No | No |
| City of League City, TX | Yes | No |
| City of McKinney, TX | Yes | No |
| City of Franklin, TN | Yes | Yes |
| City of Frisco, TX | Yes | Yes |
| Town of Cary, NC | Yes | Yes |
| City of Sugar Land, TX | In Progress ⁹ | Yes |
| City of Cedar Park, TX | Yes | Yes |
| City of Pearland, TX | In Progress | Yes |

In benchmark organizations where meter reading and utility staff are combined in a single organizational structure, meter-related functions are sometimes limited to reading and minor troubleshooting, while installation and repairs are performed by another organizational unit. This is often for legacy reasons or because of job classifications or union restrictions. The industry preference is to have all the meter-to-cash cycle staff in one group. The proposed division of functional responsibilities is illustrated below; functions that should transfer to Utility Customer Services are highlighted in blue.

⁹ City of Sugar Land has a planned CIP investment in AMI meters in FY2021.

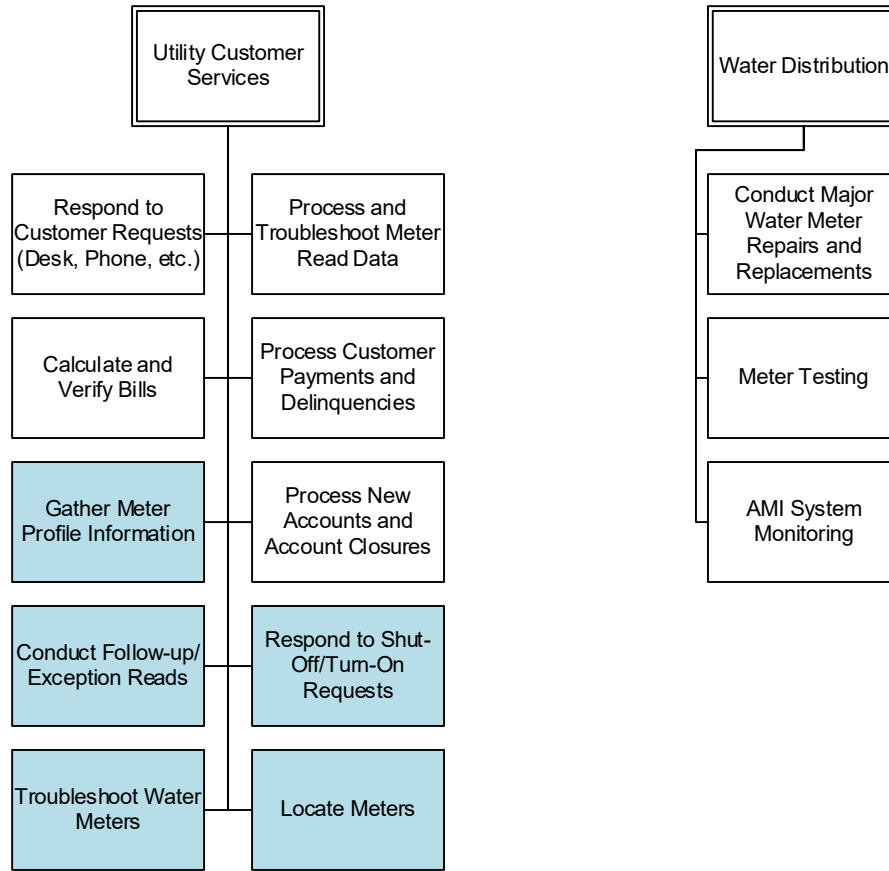


Figure 12: Proposed Allocation of Functional Responsibilities

Reallocating functions in this manner will effectively consolidate Meter Services and Utility Customer Services into a single organizational unit, while some high-maintenance meter tasks will continue to be performed by Water Distribution staff in Public Works. This structure will convey several important benefits. First, it centralizes control over meter-to-cash functions and personnel. This is critically important as the City continues the process of implementing AMI and streamlining service delivery. Because AMI will eliminate regular drive-by meter readings, staff will have more capacity to attend to customer service requests, shut-offs/turn-ons, and meter maintenance and troubleshooting.

Fostering a culture of continuous improvement will require close management oversight of all staff involved in the meter-to-cash function. Centralizing staff into a single reporting structure empowers the Water Billing and Collections Manager with greater authority to exercise leadership, develop practices and cross-training opportunities, and organize staff in a way that best supports ongoing communications and improves service delivery. Because line staff will no longer be separated into multiple departments, perceived barriers to communication will be reduced, and the ability to build lasting relationships among line staff will be improved.

The City is nearing completion of upgrading meters to AMI, and future replacements in the near term (10-15 years) will likely be confined to meters that have failed. Because the bulk of meter upgrades have been implemented, meter failures and replacements are likely to represent a smaller overall proportion of meter installation activities in the near-to-medium term. Of course, a major meter replacement will be needed in the future, and the City should maintain a regular testing program for large meters as outlined by AWWA.

Because the impact of AMI on overall workloads and labor hour requirements is not yet clear, simply reassigning staff in the short term is inadvisable. Rather, the City should implement this proposed restructuring after the AMI project is completed to ensure that task assignments properly reflect available staffing. By closely tracking the volume and labor hours of core functions, such as follow-up and exception reads and shut-off/turn-on requests, the City will be able to precisely determine how many staff are required to perform functions and can reassign those staff in the future.

Recommendation 13: Adjust staffing to reflect short-term needs and prepare for AMI implementation.

Meter-to-cash functions are performed by approximately 27 staff divided among two divisions: Utility Billing in the Finance Department and Meter Services in the Public Works Department. In recent years, staffing levels in Utility Customer Services have increased to absorb growth in customer accounts, service requests, and bill processing requirements. In May 2020, the Water Billing and Collections Manager drafted an internal memorandum describing future staffing needs:

- Adding two Cashier positions to process daily water bill payments and process voicemails for CSRs
- Reclassifying a CSR as a Delinquency Specialist
- Creating and filling a second Delinquency Specialist position
- Filling the vacant Senior Office Assistant position
- Creating two additional Billing Specialist positions
- Promoting the Lead Billing Specialist to Billing Supervisor

Several of the above personnel enhancements were enacted for the FY2021 budget, including the creation of an additional CSR and two Billing Specialists, as well as promoting the Lead Billing Specialist to Billing Supervisor. This increase in staff capacity will position Utility Customer Services to exercise greater oversight of utility billing functions and maintain high service levels as AMI implementation unfolds.

Staffing needs in any organization are primarily driven by service level expectations, workload patterns, and business processes. However, it is often helpful to review overall staffing levels among benchmark organizations for comparative purposes. Raftelis examined meter-to-cash staffing levels in each benchmark organization using publicly available information, such as budget documents. For the purposes of this analysis, Raftelis compared overall utility-related staffing in customer service and meter service functions, as well as management and business support staffing levels. Staffing levels were normalized by the number of customer accounts at the utility.

Customer service positions include a variety Customer Service Representatives positions (or positions with similar titles), which primarily work in call centers or serve customers in person. Business support and billing positions include administrative assistants, analysts, cashiers, and various meter-to-cash function specialists. Meter maintenance and field staff include any dedicated meter service, reading, or testing people designated in the organization's budget. Finally, positions with "manager" or "supervisor" in the title were evaluated separately from the other categories above. The following table provides a breakdown of meter-to-cash positions by function in each of the benchmark communities.

Table 14: Benchmark Organization Utility Billing and Meter Staffing

| Organization | Customer Accounts | Customer Service (FTEs) | Business Support (FTEs) | Meter Service (FTEs) | Managers and Supervisors (FTEs) | Total Staff (FTEs) | Customer Accounts per FTE |
|----------------------|-------------------|-------------------------|-------------------------|----------------------|---------------------------------|--------------------|---------------------------|
| City of Franklin, TN | 16,918 | 7.00 | 4.00 | 2.00 | 2.00 | 15.00 | 1,128 |
| City of Pearland, TX | 37,900 | 10.50 | 5.00 | 7.00 | 4.00 | 26.50 | 1,430 |
| City of Cedar Park | 23,181 | 4.00 | 3.00 | 4.00 | 3.00 | 14.00 | 1,656 |
| City of Frisco, TX | 57,661 | 8.00 | 1.00 | 21.00 | 4.00 | 34.00 | 1,696 |

| Organization | Customer Accounts | Customer Service (FTEs) | Business Support (FTEs) | Meter Service (FTEs) | Managers and Supervisors (FTEs) | Total Staff (FTEs) | Customer Accounts per FTE |
|-------------------------|-------------------|-------------------------|-------------------------|----------------------|---------------------------------|--------------------|---------------------------|
| City of Olathe, KS | 35,000 | 11.00 | 2.00 | 2.00 | 3.00 | 18.00 | 1,944 |
| City of McKinney, TX | 60,730 | 9.00 | 2.00 | 15.00 | 5.00 | 31.00 | 1,959 |
| City of League City, TX | 34,308 | 6.00 | 0.00 | 5.00 | 2.50 | 13.50 | 2,541 |
| City of Sugar Land, TX | 62,149 | 8.00 | 1.00 | 12.00 | 3.00 | 24.00 | 2,590 |
| Town of Cary, NC | 63,887 | 9.03 | 2.00 | N/A | 4.00 | 15.03 | 4,252 |
| Central Arkansas Water | 205,000 | 23.00 | 5.00 | 12.00 | 3.00 | 43.00 | 4,767 |

Notably, the only organization that did not have a dedicated meter team was the Town of Cary, whose public works operations staff install and repair meters in addition to other duties.

The City of Pearland uses comparatively more staff than several other organizations analyzed for this report, particularly regarding frontline customer service personnel. However, comparisons of raw staffing numbers are misleading because the size of each community and the scope of services delivered can significantly impact the number of personnel needed to provide service. Technology plays a big role as well; systems that employ AMI technologies have fewer meter readers than those with manual or AMR technologies. In addition, some utilities, like Pearland, bill for other services such as wastewater, stormwater, solid waste, and electric services. To help account for these differences, Raftelis calculated the ratio of customer accounts per FTE in each benchmark organization, as illustrated below.

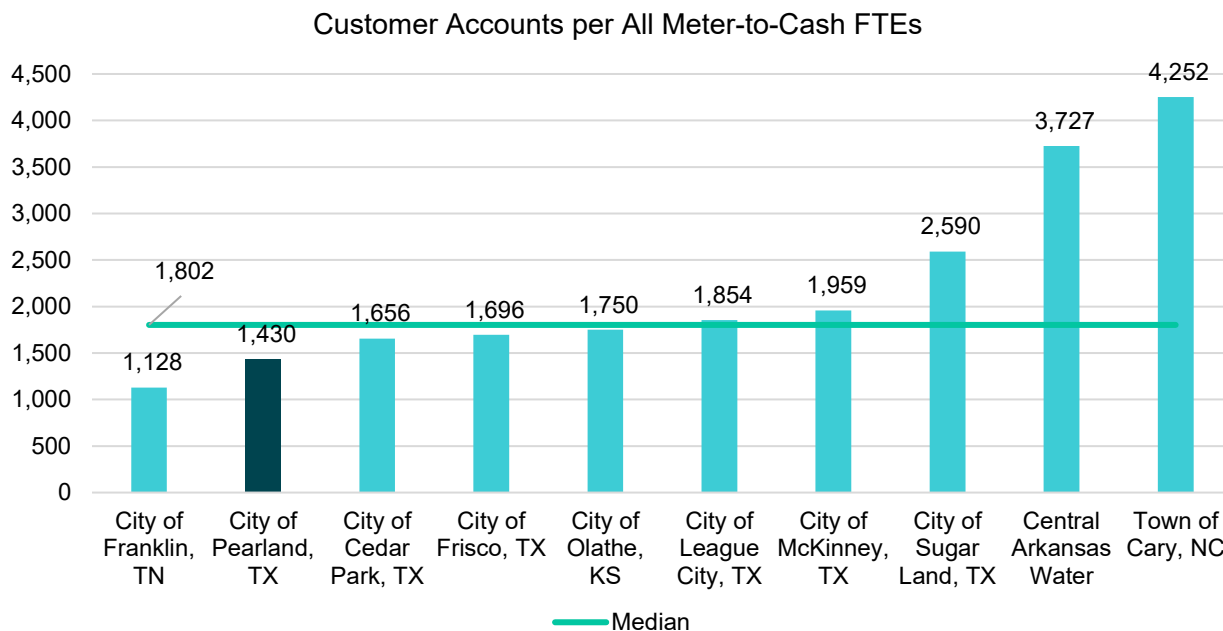


Figure 13: Benchmark Organization Customer Accounts per Meter-to-Cash FTE

The median number of accounts per meter-to-cash FTE is 1,802 among benchmark organizations. The ratio of customer accounts to meter-to-cash FTEs in Pearland is 1,430. This means that, on average, the City of Pearland’s meter-to-cash staff serve fewer accounts than staff in comparable agencies.

To provide a thorough picture of staffing by function, Raftelis also compared the ratio of accounts per FTE across each of the functional areas discussed above. As shown in the figure below, the number of accounts per customer service FTE is lower in Pearland than in most other organizations. Because customer service staff in Pearland are responsible for fewer accounts on average, they theoretically have a higher capacity to provide service compared to other benchmark agencies, such as wastewater and solid waste billing.

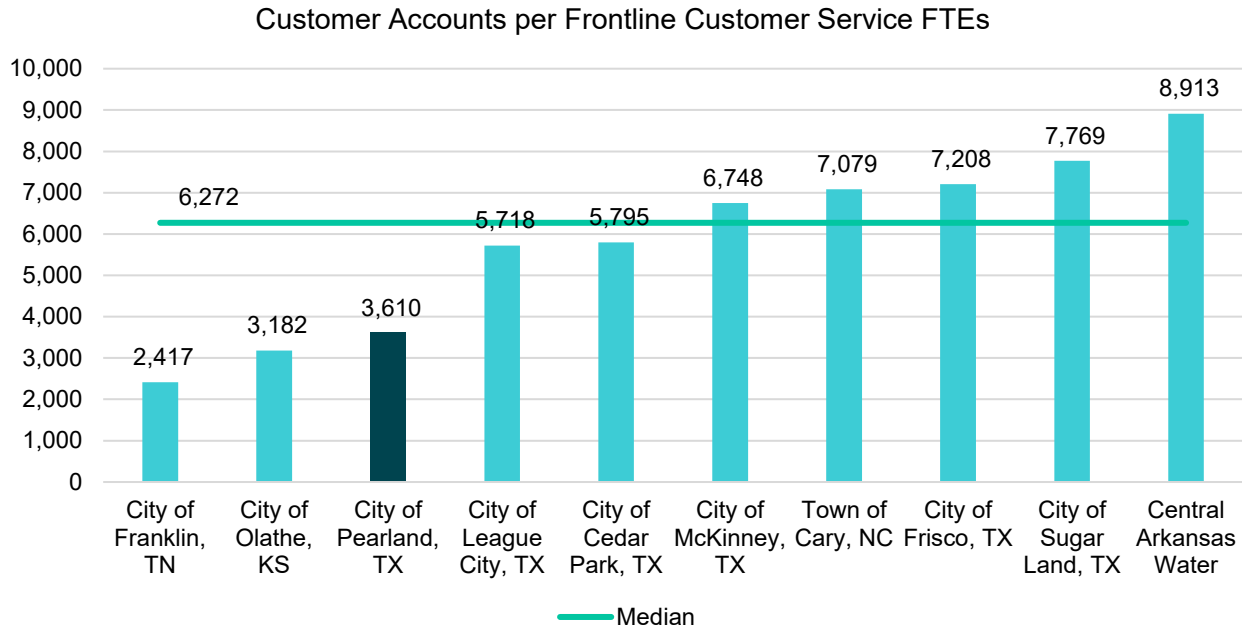


Figure 14: Customer Accounts per Frontline Customer Service FTEs

Meter staffing varies considerably among benchmark organizations. Some meter functions are spread out across different groups, while others (including Pearland) utilize dedicated meter teams that install and repair meters as well as collect readings. There are also significant differences in the services performed by meter staff in each organization. Some have technicians that perform meter testing and other services, such as cross-connection control, while some have older meters that require more services. Outsourcing preferences vary, with some contracting with outside firms to perform some services, like collections, meter reading, and meter testing, while others provide those services in-house.

All the benchmark organizations with meter staff in the utility billing group (Central Arkansas Water; City of League City, Texas; City of McKinney, Texas; City of Olathe, Kansas) assign meter installation and repair to another division or department in the organization. The Town of Cary does not have a dedicated meter team; rather, meter installation and repair is done by public works operations staff in addition to other duties.

The number of accounts per meter staff in each benchmark organization is illustrated below.

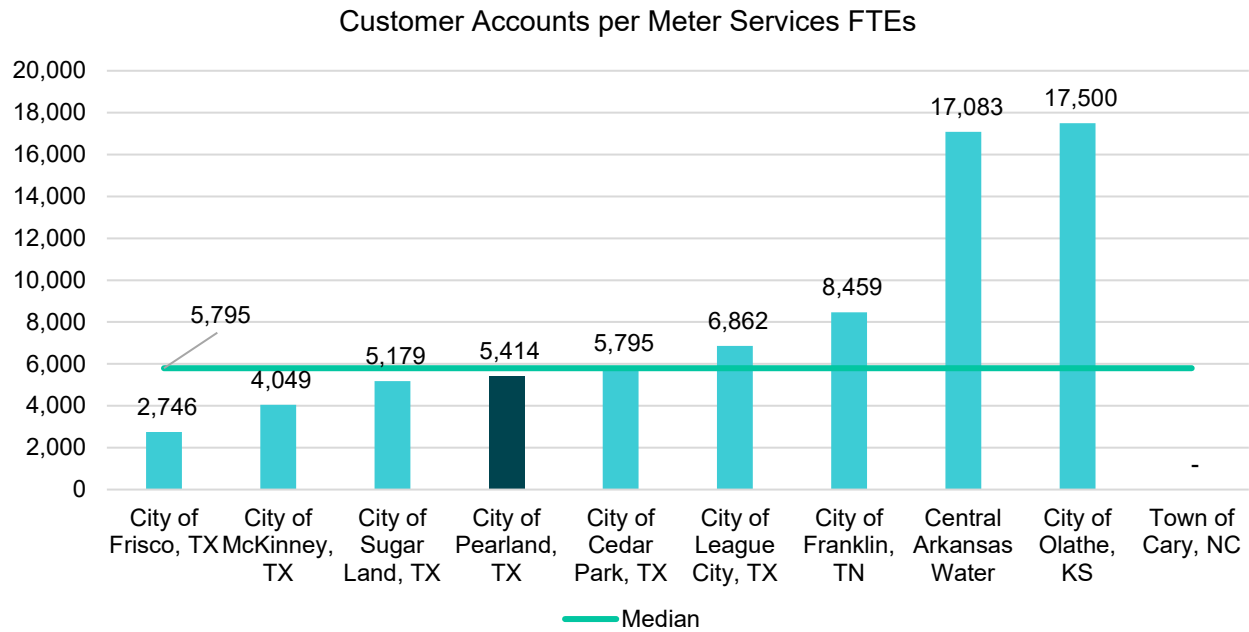


Figure 15: Customer Accounts per Meter Services FTEs

The City of Pearland averages 5,414 meters per meter services FTE, which is near the benchmark median and commensurate with other Texas cities. However, it is important to emphasize that differences in workload assignments among the benchmark communities make direct staffing comparisons challenging, particularly for meter functions.

With respect to management and support staff, overall levels again varied widely among benchmark agencies. Some organizations did not have any support staff, while others allocate only one or two FTEs to management and support functions. As with other meter-to-cash functions, the City of Pearland averages 4,211 customer accounts per management and support FTE, well below the median of 9,662.

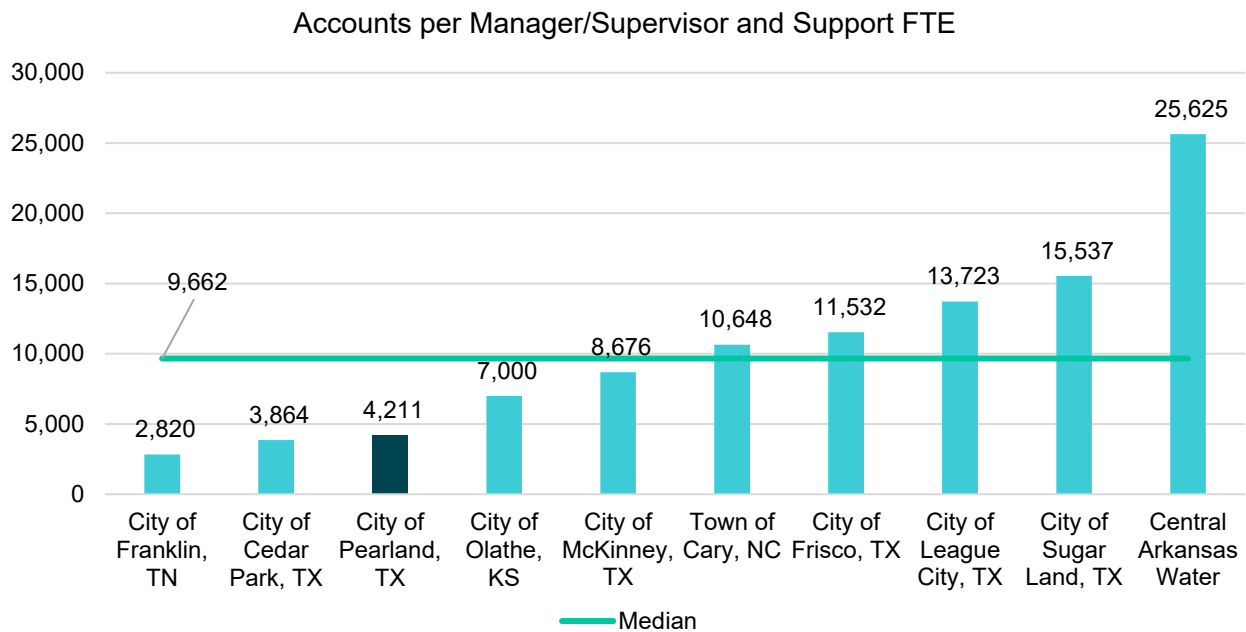


Figure 16: Customer Accounts per Manager/Supervisor and Support FTE

These comparisons are helpful to understand relative effort compared to other organizations and can be indicative of staffing resources, but it may not reflect all workload expectations. While overall staffing levels in Pearland are somewhat higher than several benchmark communities, this is not necessarily an indication that meter-to-cash functions are overstaffed. The highly manual and process-intensive operations assigned to Pearland CSRs currently require dedicated staff capacity in a way that may not reflect the benchmark organizations. For example, if one organization expects frontline customer service staff to assist with creating or processing bills as part of their regular duties, while another organization has frontline staff only responding to customer calls, more customer service staff would be needed in the first organization. In general, the FTE counts and staffing ratios above can provide interesting staffing insights but do not sufficiently capture the nuance and variation among different communities and service level standards.

In the near-to-medium term, the largest factor impacting the City’s meter-to-cash staffing needs is AMI. AMI represents a fundamental shift in service delivery, which will result in two major staffing impacts. First, regular meter reads will be accomplished remotely using network infrastructure, and the City will no longer rely on meter readers to gather regular meter reads using a drive-by process. While the actual labor hours associated with regular meter reading are not currently tracked, staff estimate that drive-by meter reads require approximately 24 labor hours per billing cycle, or roughly the equivalent of three (3 FTEs) meter readers performing drive-by readings one day each week. Under the AMI system, this staff time can be reallocated to other important tasks, such as evaluating errors, troubleshooting meters, and responding to customer service requests.

AMI will also increase the availability and transparency of meter-related data. Several meter-to-cash functions are currently reliant on the processing and exchange of information among Utility Billing and Meter Services staff. For example, to perform a meter profile, CSRs must enter a work order for Meter Services to pull meter read data from a specific meter. Meter Services then visits the meter to obtain historical data and downloads the information to a shared network drive. CSRs must then locate the data and analyze it to evaluate usage patterns. In contrast, under the AMI system, meter profile information will be immediately available to CSRs through a network portal interface, which will reduce or eliminate the need for Meter Services staff to prepare data for analysis.

Because AMI will substantively impact the day-to-day work of staff in Utility Billing and Meter Services, it is inappropriate to make significant staffing adjustments based on historical and current workloads. Instead, the City should hold staffing levels constant while continuing to track relevant performance indicators, implement process and service delivery enhancements, and develop a culture of continuous improvement in the organization. These efforts will maximize the capacity of existing staff to perform assigned tasks. It’s likely that the combination of increased population growth and natural attrition will lead to staff right-sizing opportunities.

After AMI is fully implemented and baseline performance and workload related to AMI processes are available, the City should conduct an analysis to ensure meter-to-cash functions are appropriately staffed. This analysis should also consider how to best balance staff among meter reading, customer service, and bill processing functions given the changes in workflow AMI will create.

Recommendation 14: Pilot a 4-10 schedule for meter-to-cash staff.

The schedules used by staff involved in the meter-to-cash process vary slightly. Utility Customer Service staff (CSRs and Billing Specialists) work from 8:00 AM to 5:00 PM, Monday through Friday. In contrast, most Meter Services personnel work a 9/80 schedule from 6:30 AM to 4:30 PM, with one rotating position reporting for duty from 7:30 AM to 5:30 PM to better align with customer service requests. Due to the 9/80 schedule, Meter Services staff receive every other Friday off, and the schedule is arranged so that half of the division’s staff report for duty each Friday. The schedule enables Meter Services to be more available to other Public Works staff who might require assistance in the early mornings, such as water distribution and collections personnel.

The overall schedule for customer service functions in Pearland is highly similar to schedules used by other benchmark organizations, as illustrated in the following table.

Table 15: Customer Service Operating Hours Among Benchmark Organizations

| Benchmark Organization | Operating Hours |
|-------------------------|---|
| Central Arkansas Water | 7:30 AM to 5:00 PM, Monday-Thursday; 7:30 AM to 4:30 PM, Friday |
| City of League City, TX | 7:30 AM to 5:30 PM, Monday-Thursday; 7:30 AM to 12:00 PM, Friday |
| City of Cedar Park, TX | 8:00 AM to 5:00 PM, Monday-Friday |
| City of Franklin, TN | 8:00 AM to 5:00 PM, Monday-Friday |
| City of Frisco, TX | 8:00 AM to 5:00 PM, Monday-Friday |
| City of Olathe, KS | 8:00 AM to 5:00 PM, Monday-Friday |
| City of Pearland, TX | 8:00 AM to 5:00 PM, Monday-Friday |
| City of Sugar Land, TX | 8:00 AM to 5:00 PM, Monday-Friday |
| Town of Cary, NC | 8:00 AM to 5:00 PM, Monday-Friday |
| City of McKinney, TX | 8:30 AM to 4:45 PM, Monday-Friday |

The upcoming AMI implementation will require significant customer outreach and engagement, and it is likely that customers will generate additional inquiries and requests during and after implementation. Considering the City’s ongoing efforts to rebuild trust and enhance communications with customers and residents, it is appropriate to consider extending regular customer service hours. To accomplish this, the City should pilot a 4-10 schedule for meter-to-cash staff.

A 4-10 schedule involves assigning staff a 10-hour workday over a four-day workweek, while staggering staff coverage throughout the week to provide consistency. The following table outlines an example 4-10 work schedule for meter-to-cash line staff.

Table 16: Example 4-10 Schedule

| Line Staff | Monday | Tuesday | Wednesday | Thursday | Friday |
|-----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| CSR Team A (5 FTE) | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | Off |
| CSR Team B (5 FTE) | Off | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM |
| Billing Team A (2 FTE) | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | Off |
| Billing Team B (2 FTE) | Off | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM |
| Meters Team A (2 FTE) | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | Off |
| Meters Team B (2 FTE) | Off | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM | 8:00 AM to 6:00 PM |

In the table above, line staff are grouped into two teams. Team A reports for work Monday through Thursday, while Team B reports Tuesday through Friday. This schedule provides full staff coverage Tuesday through Thursday for 10 hours each day, while half of line staff would be available over a 10-hour period each Monday and Friday. Staffing in this manner enables the City to provide meter-to-cash services beyond normal business hours each day of the work week. It also creates a uniform schedule among all meter-to-cash staff and avoids the need to create separate shifts during each workday.

Disadvantages created by a 4-10 schedule include lighter staffing on Mondays and Fridays, which could impact staff's ability to respond to customer service requests if demand on those days is high. Additionally, the example schedule above assumes supervisors and management staff will continue to work a traditional 8:00 AM to 5:00 PM schedule Monday through Friday. This results in an hour at the end of each workday where line staff will function without a supervisor present, which could be problematic if customer requests need to be escalated. This schedule change would also represent a cultural shift for the organization and may be difficult to adapt and successfully implement in light of other significant cultural and process changes recommended in this report.

If the City elects to proceed with a 4-10 schedule to provide enhanced customer service, it should begin by piloting the schedule among a limited subset of trustworthy staff. The pilot group should be responsible for providing services, tracking overall service demands after 5:00 PM each day, and providing insights and feedback on the appropriateness of the schedule change. Additionally, customers who utilize meter-to-cash services during the pilot program hours should be asked to submit perceptions and feedback regarding service delivery. If customer demand after 5:00 PM is significant, the City should seriously consider expanding the pilot program to all meter-to-cash line staff. However, if customers refrain from utilizing services after traditional business hours, the pilot program should be eliminated, and the current staffing schedule should be retained.

Technology

Recommendation 15: Create an inclusive AMI Implementation Team.

Implementing an AMI system is a complex, time-intensive process that requires staff coordination across multiple departments. Much of the implementation workload to-date has involved procuring and installing AMI-capable meters throughout the City, along with endpoints and network infrastructure that enables the meters to communicate. There has been limited involvement or communication about the work with the CSRs and other frontline staff.

The City has successfully replaced nearly all customer meters with AMI-capable units, and approximately 300 endpoints and 53 connected grid routers (CGRs) are awaiting installation. This work was primarily overseen by the City Engineer and Meter Services staff in the Public Works Department. The next phase of AMI implementation involves creating the network linkages, access portals, dashboards, and process improvements necessary to fully leverage the system. The City's Information Technology Department is aware of these requirements and has begun development and testing for network, data flow, and related issues. However, staff and customer requirements regarding data access and reporting capabilities are still undefined. Now is the time to involve those staff and to communicate about the project with customers.

Since replacement meter installations began in 2017, staff involved in the AMI process have attended weekly meetings with the City's meter provider to discuss installation progress and potential future needs. Attendees at this meeting have included the City Engineer, the Water Billing and Collections Manager and Assistant Manager, the Meter Services Supervisor, and the Utility Field Services Tech Lead. Once the capital components of AMI are in place and functional, it is unclear whether these meetings will continue and who will lead them. During interviews, staff expressed differing perceptions about who should lead the next phase of AMI implementation and coordinate rollout to customers.

Given the ongoing billing gap and the need to foster trust and assurance among the City's utility customers, it is critical that AMI implementation proceeds in a timely and effective manner. To support this implementation, the City should formally create an inclusive AMI Implementation Team and define clear roles for staff and stakeholders involved in the AMI process. The following table describes the minimum recommended membership of the team, along with proposed roles and responsibilities for each team member.

Table 17: Proposed AMI Implementation Team

| Position | Department | Role |
|--|----------------|---|
| Water Billing & Collections Manager | Finance | <ul style="list-style-type: none"> Lead and coordinate the Implementation Team Propose and develop process improvements designed to fully leverage AMI Understand and describe how process changes will impact utility billing and customer service operations and staffing requirements Identify specific data, workflow, dashboard, and operational needs Solicit input and provide direction to the Assistant Water Billing & Collections Manager and other meter-to-cash staff as appropriate to guide decision-making Coordinate with senior staff, including the Finance Director, other department directors, and City management staff as necessary |
| Meter Services Supervisor | Public Works | <ul style="list-style-type: none"> Assist the Implementation Team with developing proposed process improvements designed to fully leverage AMI Understand and describe how process changes will impact meter reading operations and staffing requirements Identify specific data, workflow, dashboard, and operational needs Solicit input and provide direction to the Utility Field Services Tech Lead and other meter-to-cash staff as appropriate to guide decision-making |
| Communications Director (or designee) | Communications | <ul style="list-style-type: none"> Provide guidance regarding how to message and promote the AMI system Develop communications tools to explain AMI rollout and any changes customers may experience Create a communications plan that leverages multiple resources and tools to educate the public about AMI Provide advice and guidance regarding how potential operational changes may impact customers and where changes may require additional communication |

| Position | Department | Role |
|--|------------------------|--|
| Engineering Director (or designee) | Engineering | <ul style="list-style-type: none"> • Provide status updates regarding AMI infrastructure and troubleshooting • Ensure proposed process improvements can be supported by existing infrastructure • Provide advice and input as needed regarding AMI capital needs and requirements in future years |
| Information Technology Director (or designee) | Information Technology | <ul style="list-style-type: none"> • Describe how back-end technology systems should interact to support current and future workflows • Listen to group feedback regarding requested elements and features for dashboards and communications tools • Develop prototype dashboards and tools to enable staff to leverage AMI • Support efforts to streamline workflows and processes using technology |
| Representatives from billing and customer service functions | Utility Billing | <ul style="list-style-type: none"> • Offer perspective on the practical implications of the technology • Create a broad sense of participation • Allow junior staff to offer input and make them feel part of the solution |
| City Manager (or designee) | City Manager's Office | <ul style="list-style-type: none"> • Listen to staff feedback • Ensure the impacts of process adjustments associated with AMI are understood by staff • Communicate regularly with the City Manager and City Council |
| Finance Director (or designee) | Finance | <ul style="list-style-type: none"> • Ensure AMI implementation proceeds on time and within budget • Understand how AMI will change meter-to-cash workflows and processes, particularly regarding impacts to New World and financial procedures • Identify high-level opportunities to continue process and workflow refinements using the new system • Identify communication and data requirements associated with AMI • Provide specific direction to the Water Billing & Collections Manager |
| Deputy Public Works Director (or designee) | Public Works | <ul style="list-style-type: none"> • Identify opportunities for Public Works to continue supporting AMI during and after the transition • Understand how AMI will change meter reading processes • Identify high-level opportunities to continue process and workflow refinements using the new system • Provide specific direction to Public Works staff involved in water distribution and meter reading, including the Meter Services Superintendent |

Broadly speaking, the AMI Implementation Team should be led by the Water Billing and Collections Manager, who will ultimately be in charge of the group using the tool. The Team should consist of staff most closely involved in managing AMI-related operations. The Team's primary goal is to ensure a smooth, consistent transition to AMI that contemplates the necessary workflow changes, process improvements, technology needs, training, customer communications, and service level standards to support effective deployment. One of the Team's first tasks should involve creating an implementation timeline identifying activities that are critical for AMI implementation and establishing timeframes to complete those activities. At a minimum, the Team should meet monthly or bimonthly to monitor progress on the AMI project, discuss and vet proposed process changes, resolve challenges, and ensure the rollout is proceeding smoothly.

The proposed AMI Implementation Team primarily consists of a mix of senior staff and managers and more junior staff who will have to use the technology every day. This creates an opportunity to apply the management and cultural practices recommended in this report at a high level and will help to avoid miscommunication between management levels. It is important for all members of the Team to share a sense of direction, understanding about proposed process changes, and commitment to raising issues and

challenges for group discussion. Openly and actively participating in the Team will increase knowledge and awareness among staff and help foster a cultural environment where communication is encouraged.

Another major duty of the AMI Implementation Team will be to increase communication with customers and stakeholders about AMI. While there has been some communication about the associated meter change-outs, there has been little talk about what AMI will bring to customers. The City needs to be preparing customers now for AMI-related changes to avoid taking customers by surprise and inadvertently deepening a sense of mistrust in the community. Bringing customers along during the implementation process and making them feel like they are part of the solution is essential.

Finally, the AMI Implementation Team should convey direction and lessons learned from the Team to others in their respective service areas. It will be critical to gather input, advice, and feedback to ensure process improvements and AMI-related needs are appropriately accounted for and incorporated into the new system. The Team should rely on this information to adjust the implementation approach.

Recommendation 16: Continue engaging Tyler Technologies to resolve inefficiencies and errors in New World.

During interviews, staff reported that software issues with the City's New World program are a driving factor behind the need to manually audit consumption and billing-related data. Once consumption information has been cleaned, Utility Customer Services loads this information into New World and calculates bill amounts. After New World has calculated each bill, staff validate a selection of bills from each customer type (e.g., residential, commercial, etc.) to ensure New World applied the correct rates and amounts to each bill, particularly in cases where consumption reports initially indicated an exception or error. This is a time-intensive process that can take several hours each billing period. This is just one of several workarounds needed to make New World operate properly.

The City has engaged Tyler Technologies to remedy situations where New World incorrectly utilizes consumption and exception data; however, according to staff, these challenges have not been resolved, and the need to continue manual billing audits remains.

Creating a manual verification process to deal with software limitations does not represent the highest and best use of available staff. The City should continue working with Tyler Technologies to ensure that New World effectively and accurately calculates utility bills, particularly as the AMI implementation process moves forward. While staff will likely be able to save time cleaning and verifying consumption data using AMI, the need to manually validate bill amounts will remain until errors in New World are resolved.

Conclusion

Although the City of Pearland has experienced challenges associated with utility billing and the meter-to-cash process in recent years, the City has laid an effective foundation for streamlining and enhancing service delivery. Continuing to focus on the culture, process, and related improvements described in this report will help the City fully leverage AMI and rebuild lasting, trustworthy relationships with customers.

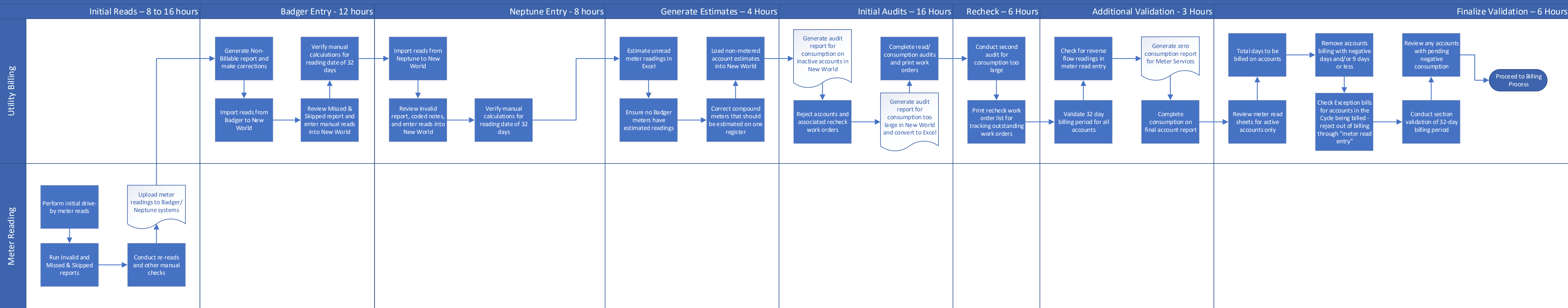
All change management and process improvement efforts require time, perseverance, and focused attention. This is particularly true in situations where a systemic problem, such as the unbilled consumption gap discussed throughout this report, impacts a wide array of customers and stakeholders. The policy and operational changes needed to address meter-to-cash challenges will carry significant impacts and require thoughtful consideration and careful implementation. There are no simple solutions or quick fixes that can yield lasting results for the City and its customers. As the process of resolving these challenges unfolds, it will be important for the City, its customers, and stakeholders in the meter-to-cash process to continue open, good faith communication while patiently assessing changes to ensure they improve service delivery.

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Appendix A: Current Process Maps

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Current Meter-to-Cash Process – Data Collection and Validation



Current Meter-to-Cash Process – Data Collection and Validation

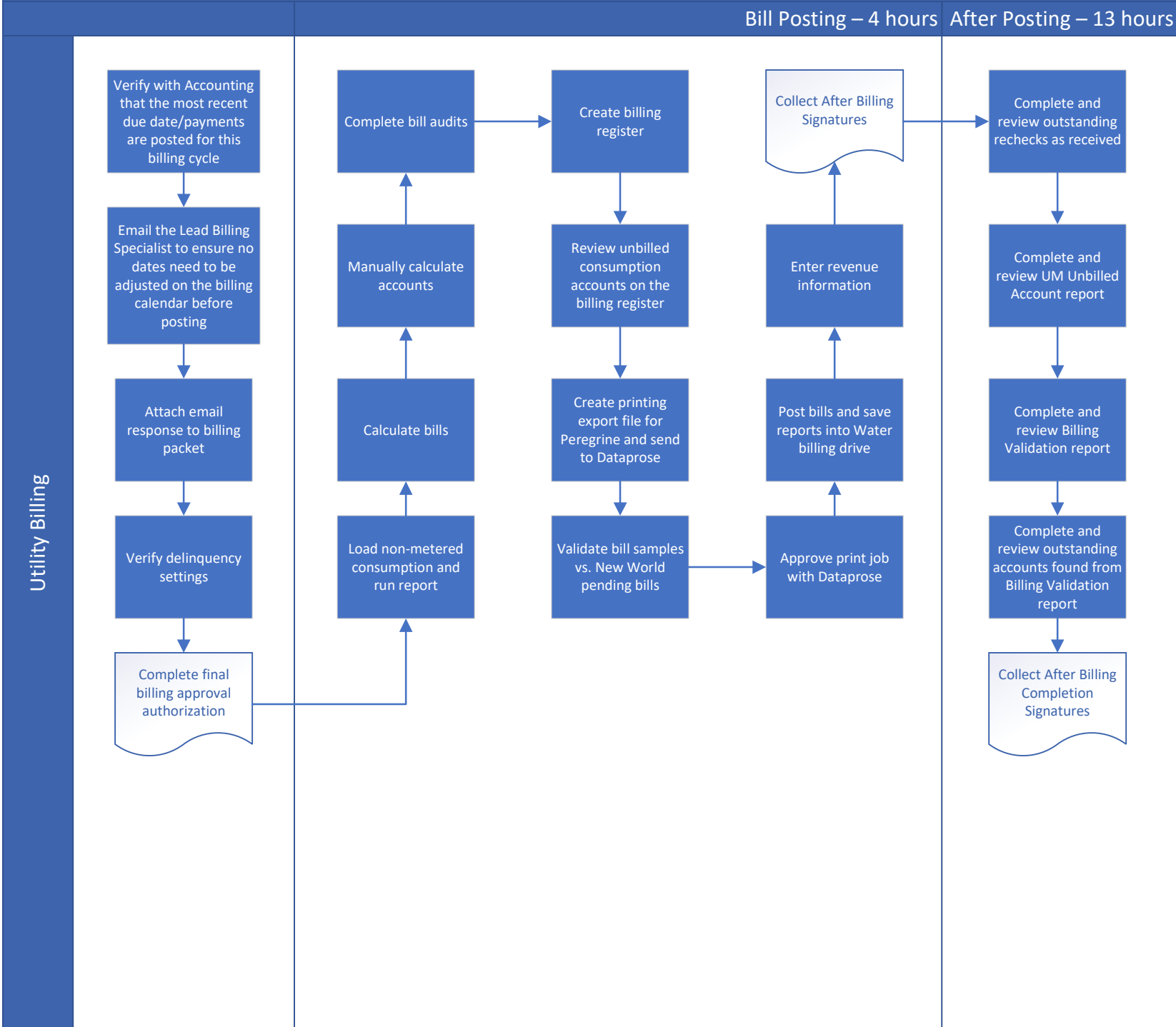
Utility Billing

Ongoing AMI
Dashboard Review

Meter Reading

Conduct re-reads
and other manual
checks

Current Meter-to-Cash Process – Utility Billing



Utility Billing