City of Bellaire

August 2, 2016 – 6:00 pm
City Council Workshop
Performance Contracting

TO: Honorable Mayor and Members of the City Council

FROM: Paul A. Hofmann, City Manager

DATE: July 25, 2016

SUBJECT: Performance Contracting August 2 Workshop

Thank you for setting aside time for this workshop. Many factors are coming together that inform how we choose and fund utility improvements over the next several years, and it is important that we ensure common understanding and receive solid direction. We won't ask you to make any decisions on August 2, but will shortly thereafter.

August 2 will largely consist of presenting information about needed water and wastewater improvements totaling approximately $12.8 million. These are in addition to the $11 million of water line replacements we have identified to be funded with new debt. The nature of the $12.8 million in improvements were described to Council on May 2, but no cost estimates were provided at that time. You will also receive information as to how these improvements could be financed.

You will have questions, and we will answer those questions. To get the process started, attached to this memo is a Project Goals and Overview document provided by Siemens, our contractor for this project.

What we Know

While respecting Council's need to absorb information, ask questions, and make decisions, I will suggest and attempt to summarize the major pieces of information we now have. These pieces of information are supported by analyses and reviews done by former and current consultants, the city engineer, financial advisor, and city staff.

- Significant wastewater plant rehabilitation needs exist, which lead to system inefficiencies and reliability problems (prior engineering studies and recent Siemens analysis)
- Declining balances in the enterprise fund, resulting in not achieving the 60 day reserve requirement without new revenues in FY 2017.
- Unpredictable utility revenue stream (indicated by each monthly financial report for the past several years)

- Old and unreliable water meter inventory (Siemens report).
- The extensiveness of water meter inaccuracy means our assumptions about water loss are very likely too low.
- The utility rate structure doesn't address fixed costs or adequately address capital needs (rate model analysis).
- State Law provides the opportunity to fund improvements with operational savings (Chapter 302 of Local Government Code).
- Water lines need to be replaced (reference report from City Engineer in March of 2015 and significant citizen input).

What Council will hear on August 2

A summary of the presentation points on August 2 is:

- An analysis/quantification of savings/new revenue potential that results from replacing current meters and making plant improvements that lower electricity costs.
- A description of the customer benefits of replacing water meters with new meter reading and reporting technology.
- A description of the beneficial and necessary improvements to the wastewater treatment plant
- A financing plan.
- An overview of how the financing plan relates to the fiscal forecast and the FY 2017 budget (short answer, there is no FY 2017 impact).
- A description of the performance contracting guarantees proposed by Siemens.

Impact on Water Bills

The Siemens analysis resulted in a finding of particular interest. A significant number of our current meters are inaccurate, especially at low flow volumes. Correcting this problem through meter replacements, assuming our current rates, generates an additional $0.5 million in annual revenues. According to the plan being presented to Council, these new revenues are dedicated to financing the $12.8 million improvement plan, of which $4.6 million is for the new meters.

New meters mean more accurate readings, resulting in higher bills, even before rates are increased. These higher bills would impact the very same low-volume customers City Council sought to protect during our July 11 Town Hall discussion on water rates. Also discussed on July 11 was the idea of phasing in the rate increase, also driven by a concern about impact on the lower volume customer.

Other Financial Considerations

We don't plan a great deal of August 2 discussion on the proposed rates, but do understand how these issues intersect.

Our conservative fiscal forecast assumptions, and recent ending balance trends, indicate we have a revenue problem in the enterprise fund. New revenues from new meters doesn't solve that problem,

but new meters do provide revenues for new improvements. New meters also reduce the amount of water loss, and improve the accuracy of our water rate model. There is good news in that we continue to obtain good information, and that information points to a reasonable financing plan.

In light of the new water loss information, and in keeping with Council feedback from July 11, we're continuing to work on the water rates. Of particular consideration is that bills would increase as a result of new meters, irrespective of what happens with rates.

The ideas expressed on July 11 included:

- Planning an FY 2017 ending balance of less than the 60 day reserve, then building back up in future years.
- Moving some cash capital expenses to debt (specifically wastewater line improvements).
- Reducing the amount of the base rate increase.
- More aggressively instituting tiered conservation rates.

Our current approach implements each of those ideas. We plan to devote budget workshop time to more discussion on the water/sewer rates, and will provide additional information in advance.

Council has had prior discussion regarding a November bond election, and will again on August 1 and August 15 of this year. The current plan is to include the $11 million in water line replacements on the ballot. Consideration needs to be given to how to package and present the entire measure of necessary utility improvements. Council will be provided financing options that will help with this decision making.

I'm looking forward to our August 2 discussion. Please let me know of any questions beforehand.

Project Goals and Overview

The City of Bellaire's staff was exploring ways to maximize current budget dollars for needed improvements and upgrades in various city facilities. Staff's key objectives were to:

- Address aging infrastructure needs
- Reduce operating & utility costs
- Ensure proper operation of the WWTP
- Reduce loss and unaccounted for water
- Provide greater accuracy on water bills
- Provide greater transparency to citizens
- Support a data driven asset management plan

Staff had identified several areas where capital intensive upgrades were needed:

- Wastewater Treatment Plant (WWTP)
- Water Meters
- Building lighting and HVAC
- Traffic signals
- Water distribution lines

The City selected Siemens to evaluate, design and develop solutions for the above mentioned areas. The process used is called Performance Contracting. It is enabled through Local Government Code 302 and allows cities to implement capital intensive improvements utilizing the energy, operational savings and revenue increases to offset the cost of the improvements---and its guaranteed. The process allows Bellaire to implement various projects under one umbrella, resulting in overall lower costs and minimal to no capital dollars needed to fund major improvements.

A detailed engineering audit of various City facilities was conducted by Siemens over a three month period. After careful evaluation of technology, cost, and overall solution designs by city staff and the city engineer, it was determined that Phase I of this Performance Contract with Siemens would focus on the needs at the Wastewater Treatment Plant (WWTP) and water meter infrastructure.

All aspects of the turn-key solution and implementation are covered; engineering design, selection and bidding of technologies and products, installation, software integration, data conversion and transfer, coordination with TCEQ, training, rebate applications and commissioning. This design-build approach ensures there will be no change orders unless the City alters the scope.

Project Scope

Water Meter Replacement and AMI (Automatic Metering Infrastructure)

The City of Bellaire currently has over 7,600 water meters within its utility. 67% of these meters are over 15 years old. As meter age, they lose accuracy. When they lose accuracy, the city is no longer receiving payment for water that is actually being pumped and used, but still has to pay for the water it pumps out to the users. This creates a deficit situation. As part of the detailed audit, Siemens pulled and had a 3rd party test a random sample of 70 meters throughout the City.

Resulting water meter accuracies are provided in the following table:

Meter Size	15% Low Flow (.25 gpm)	70% Med Flow (2 gpm)	15% High flow (15 gpm)	Overall Average
5/8 X ¾	11%	86%	95%	76%
¾ x ¾ (SHORT)	76%	97%	98%	94%
1”	79%	88%	93%	87%

Note: AWWA Guidelines state that 15% of water used is low flow, 70% is medium flow and 15% is high flow

This equates to over $500,000+ in non-billed water (lost water revenue) due to meter inaccuracies.

The solution would provide a full replacement of all current meters with new radio equipped Neptune meters in appropriate sizes and provide the infrastructure for an AMI system. The AMI system will automatically read the radio equipped meters through data collectors located on water towers. They provide the data to Utility Billing via a cloud based server. This will eliminate the need for a 3rd party water meter reading contract and save over $76,000 per year. It will also eliminate meter reading errors and the need for manual re-reads. The radios have a 20 year warranty (10 full, 10 prorated).

Neptune R900i – meter and radio

Data Collector

Meter box – cross section

Value of the Water Meter Solution for the City

- ✓ Accurate water meter reading and billing – citizens only pay for what they actually use
- ✓ Transparency – citizens have access to their own usage –hourly, daily or monthly
- ✓ Reduce operating costs associated with meter reading and re-reading
- ✓ Data driven asset management & water conservation

Wastewater Treatment Plant

Bellaire’s WWTP was built in the mid to late ‘70s, making the plant close to 40 years old. Many of the critical components are original equipment and past their useful life. Various systems within the plant do not function as designed due to aging and non-functioning components. This has resulted in higher operating and utility costs, increased risks associated with potential permit violations; and potential safety issues for the plant operators. Also, the WWTP is currently below the 100 year floodplain.

The following WWTP Facility Improvement Measures (FIMS) were identified to be included in Phase I.

Aeration System Improvements

The Aeration system is currently not functioning as designed. Old piping is leaking, air diffusers in the basins are clogged or broken, and the blowers that produce air are past their useful life.

The picture on the left shows an antiquated blower control panel that is not operating properly. The gauges are not functioning and show '0' on a few areas. The center picture shows a strip of dead grass due to hot air leaks from a pipe that runs under ground. The picture on the right shows uneven aeration indicated by the foam build up in some areas. This is an indication of clogged diffusers.

The upgrades and improvements would include:

- Replace two existing blowers
- Replace buried piping to Aeration Basin
- Renovation of air diffuser systems in basins
- Renovations and upgrades to electrical systems and controls

Digester Upgrades

The digester area of the WWTP has equipment that is past its useful life and in some cases even obsolete. One such piece of equipment is the MECC (motor electric control center) which provides power to the digester and its controls. If it goes down, the plant cannot process solids. There is also a safety concern for operators working on old corroded electrical equipment. This is a critical component of the plant and is 40 years old. The blowers are past useful life and are inefficient. The digester walls have started to corrode and in some areas, the smooth concrete is gone and rebar lines are starting to show as seen on the pictures below.

The upgrades and improvements would include:

- Installation of new motor electric control center 'MECC-4"
- Installation of a protective coating on the concrete walls
- Repairs and/or replacements of existing valves and controls
- Installation of new multi-stage centrifugal blowers

Main Lift Station Conversion / Rehab

The main lift station would be completely redesigned and converted to a 'wet well' versus the current 'dry well'. The current dry well, which is very narrow, confined space, is extremely difficult to maintain. The wet well configuration would remove current pumps, fill the area with liquid (allowing for additional capacity), and provide new submersible pumps which can be raised up for maintenance and lowered down for use. This design is what most new plants are implementing for safety and proper operation/maintenance. The current pumps are past useful life and a couple of motors are currently not functional. Similar to the MECC in the Digester, the MECC serving this area is also past its useful life and a safety concern or operators.

The upgrades and improvements would include:

- Replacement of existing vertical pumps with new submersible pumps and wiring/controls
- Repair and seal corroded concrete walls /slab for wet well redesign
- Replacement of MECC-2 and associated wiring and controls

Gaseous Disinfection System Conversion

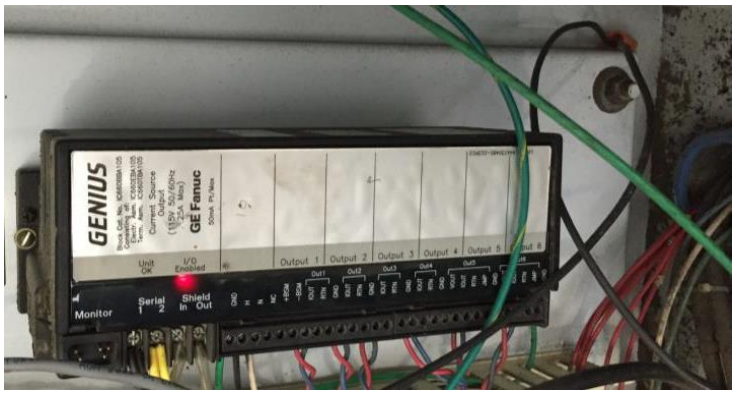
The City currently utilizes a Chlorine based disinfection system. Chlorine gas is a highly hazardous chemical and even a minor leak can potentially be dangerous. The plant had a small leak about 12 years ago resulting in an operator having to be transported to the hospital. Plants today are using sodium bisulfate and bleach as much safer alternative.

The upgrades and improvements would include:

- Demolish existing ton container storage facility for chlorine and sulfur dioxide
- Rework existing structure for housing new chemical storage tanks and provide new tanks
- Install new chemical feed system including all pumps, controls, associated piping, and wiring

RAS Pump Replacement, Flow Control valves & Meter Repair

The Return Activated Sludge (RAS) pumps are beyond useful life and one pump is out of service. When operating, these pumps are extremely loud causing a safety risk for operators. The aging flow control valves and flow meters are also contributing to the plant not operating as it was designed.



The upgrades and improvements would include:

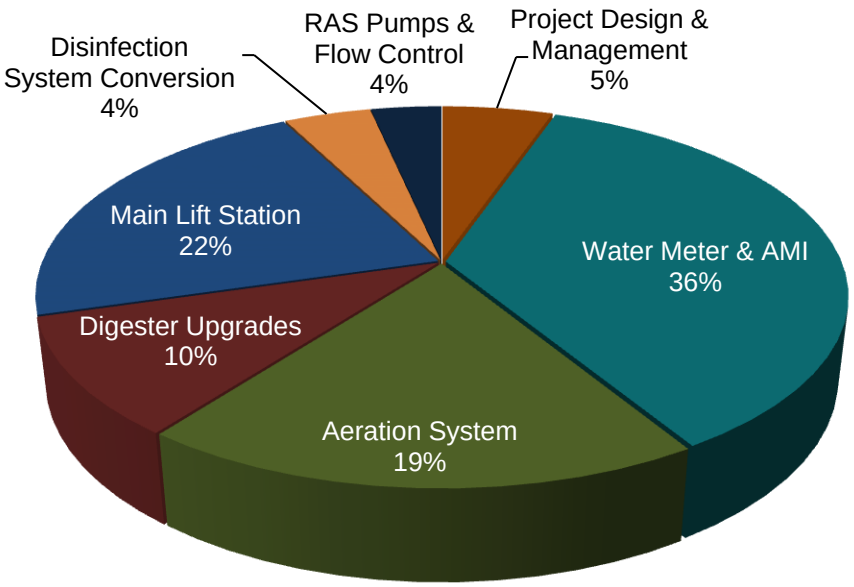
- Install 3 new RAS pumps to correct plant operations, including piping and wiring
- Upgrade associated electrical wiring and install new PLC controls for proper operations
- Install flow meter and two electric actuated valves

Value of the WWTP Solution for the City

- ✓ Replace aging and obsolete equipment
- ✓ Reduced maintenance & operational costs
- ✓ Increased worker safety and working environment
- ✓ Optimization of plant as designed
- ✓ Reduction of various risks related to safety and potential permit violations
- ✓ Reduced energy costs
- ✓ Extend WWTP life over 20 years
- ✓ Improved processes which reduce odor
- ✓ Supports asset management plan and best practices

Total turn-key solution and cost = $12,781,805

This project is expected to have a 15 month construction period.



Funding

Performance Contracting allows the city to leverage existing assets to help offset the cost of infrastructure improvements and this bundled project is a prime example of how that works. The new AMI system and water meter replacement program will allow the city to capture the lost revenue (thereby producing increased revenues of $500,000+) from the water meter utility system and reduce its costs associated with manually reading the meters. These two funding sources not only pay for the implementation of the AMI and water meters, but they help offset the cost of the WWTP's necessary infrastructure repairs. Additionally, the WWTP improvements will reduce the utility and operational costs associated with the older equipment currently in the plant. These utility savings and operational savings are approximately $160,000 in year 1.

Through the Performance Contracting process, Siemens guarantees the accuracy of the meters (which ensures capturing the loss revenue from meter inaccuracies) as well as the utility consumption reduction associated with the new equipment at the WWTP. If the guarantees are not met, Siemens will write a check for the shortfalls and replace meters.

Performance Contracting Project: Scope Review

CITY COUNCIL BRIEFING & OVERVIEW

AUGUST 2, 2016

Overview of Process

- On May 2nd Council was presented with an overview of the Performance Contracting Project
- Goal – To identify necessary infrastructure improvements where costs could be offset by operational savings & new revenue
- The proposed project includes items addressing the City's Utility Infrastructure in an attempt to:
  - Improve and leverage efficiencies of upgraded system components
  - Repair/Replace outdated, underperforming items
  - Improve safety

Overview of Process

- The project team identified and confirmed the project scope through a series of meetings and site visits
  - City Staff
  - Siemens Performance Contracting Team
  - City consultants (including ARKK)
    - ARKK is also serving as the project's 3rd Party Reviewer
- This project is anticipated to provide these benefits
  - Increase WWTP life 20-25 years for items addressed
  - Replace water meters and automate the meter reading process
  - Allows for proper asset management to prevent this in the future
  - Combines needs into one project that can be financed over the life of improvements
- Siemens will provide a detailed overview of the project scope
  - Formal consideration is currently anticipated to occur on August 15, 2016

City of Bellaire

Infrastructure Upgrade project
Siemens Guaranteed Performance Based Solution

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City Objectives

- Address Aging Infrastructure
- Reduce Operating Costs
- Ensure proper operation of WWTP
- Reduce loss & Unaccounted for Water
- Provide Greater Accuracy on Water Bills
- Provide Greater Transparency to Citizens
- Support Asset Management Plan

Guaranteed Performance Based Solution

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Process Used to Identify and Develop Solution

Siemens Guaranteed Performance Based Solution

- Provides turn-key implementation
- No- change orders
- Coordination with TCEQ
- Apply for Rebates
- Training

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Improvement Measures Evaluated Potential Phase II

As part of the Audit and Design phase, Siemens evaluated several improvement measures that were determined by Staff and City Engineer to be better suited for a Phase II project.

- Traffic signal upgrade
- Lighting upgrades at City facilities
- HVAC upgrades to City facilities
- Water line replacement
- WWTP – Additional improvements
  - Chlorine contact chamber
  - Gravity thickener mechanisms
  - Non-Potable water system

Chlorine Contact Chamber – broken baffles – infiltration issues – below 100yr floodplain

Current traffic signals

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Improvement Measures Selected
Phase I – Scope of Work

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Facility Improvement Measure (FIM)

FIM 1 - Water Meter Replacement and AMI

FIM 1A - Customer Portal for AMI

FIM 2 - Aeration System Upgrades

FIM 3 - Digester Upgrades

FIM 4 - Main Lift Station Rehab

FIM 5 - Gaseous Disinfection System Conversion

FIM 6 - RAS Pump Replacements & Controls Repairs

The above FIMS were determined to be a higher priority for Phase I implementation.

Why Needed

- Equipment beyond useful life
- Some equipment obsolete
- Address deferred maintenance
  - Leaking pipes
  - Deteriorating walls
  - Malfunctioning equipment
- Various systems not functioning as designed
- Address safety concerns
- Raise equipment over 100-year floodplain
- Data driven asset management decisions

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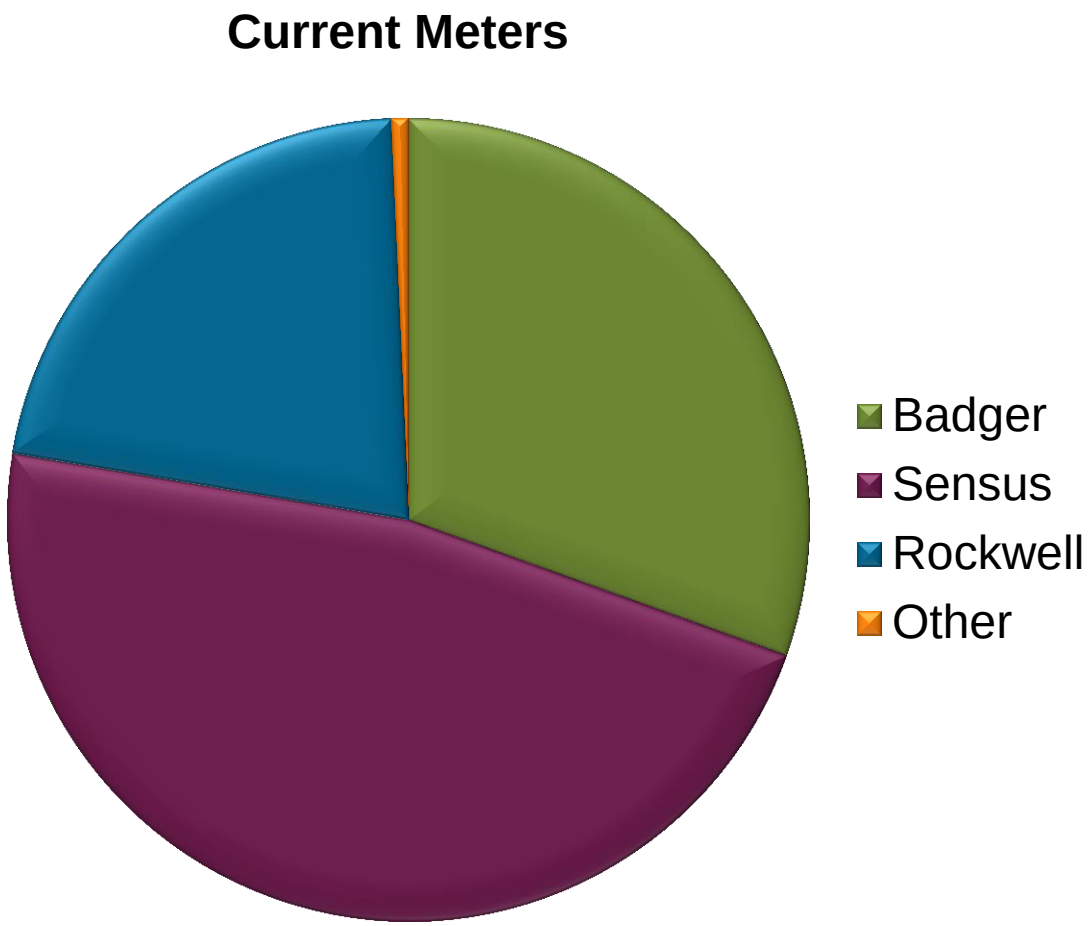
FIM 1 – Current Water Meters



Over 7,600 Water Meters in System

AGE of Meters

- 67% are over 15 years old

SIZE of Meters

- 70% are ¾” and smaller
- 27% are 1” meters

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FIM 1 – Meter Accuracy Test Results

SIEMENS

Randomly selected 70 meters to test

Meter Size	15% Low Flow (.25 gpm)	70% Med Flow (2 gpm)	15% High flow (15 gpm)	Overall Average
$^{5}/_{8}$ X ¾	11%	86%	95%	76%
¾ x ¾ (SHORT)	76%	97%	98%	94%
1”	79%	88%	93%	87%

Current City water and sewer revenues are projected to be $5.6M per City adopted budget for fiscal 2016

Note: AWWA Guidelines state that 15% of water used is low flow, 70% is medium flow and 15% is high flow

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FIM 1 - Water Meter Scope of Work – Turn-Key Project

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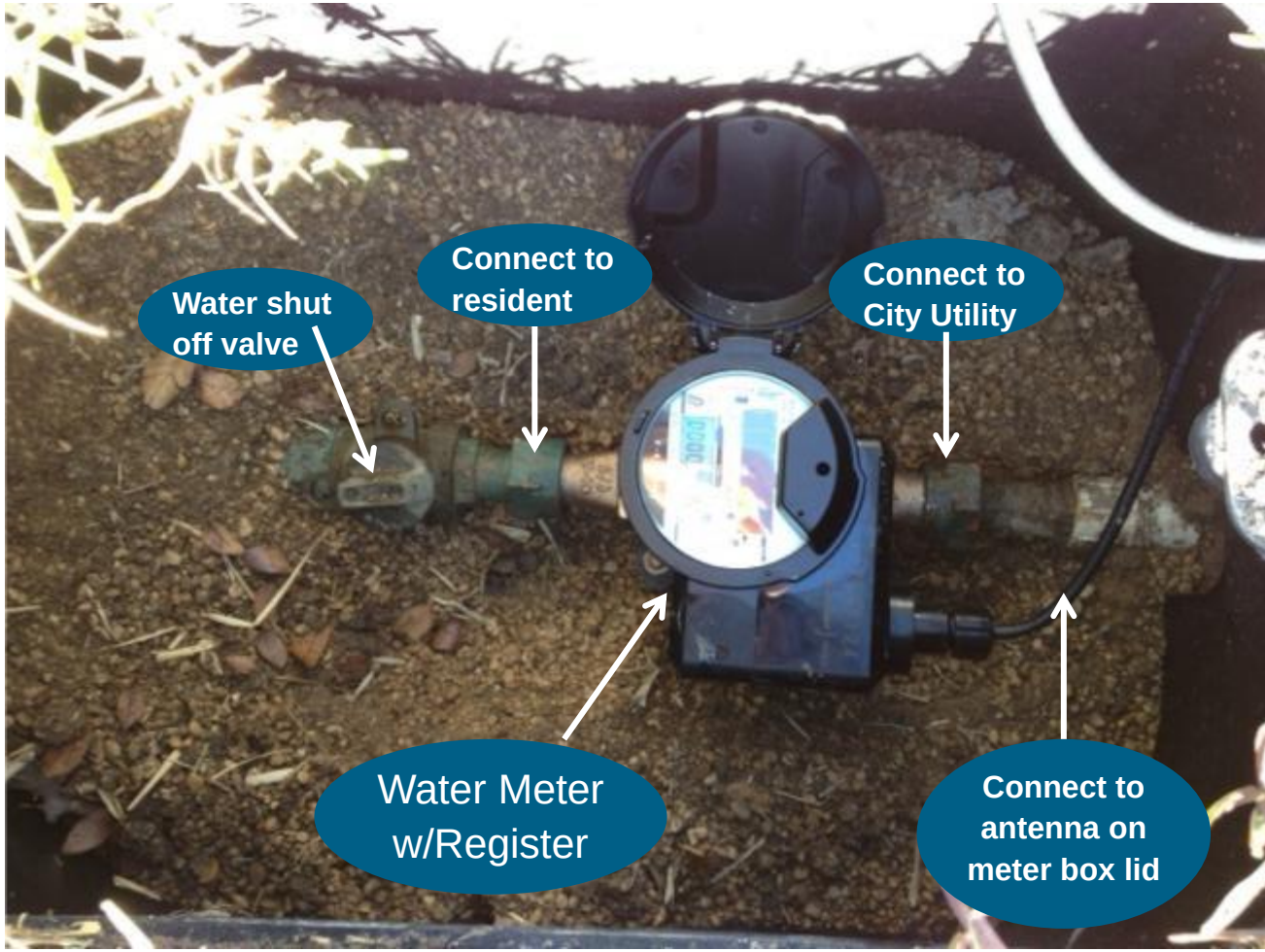
- **Implement Neptune R900i AMI Fixed Base**
- **Replace 7,684 water meters city-wide – includes meter, register and antenna**
  - (5,400) – ¾” Short PD Meter
  - (2,125) - 1” PD Meters
  - (45) - 1 ½” PD Meters
  - (78) - 2” PD Meters
  - (1) - 2” Turbine meter
  - (5) - 2” Compound meters
  - (6) - 3” Compound Meters
  - (1) - 3” Turbine Meters
  - (2) - 4” Turbine Meters
  - (17) - 4” Compound Meters
  - (4) - 6” Compound Meters

All 2,673 5/8” meters will be replaced with ¾” Meters



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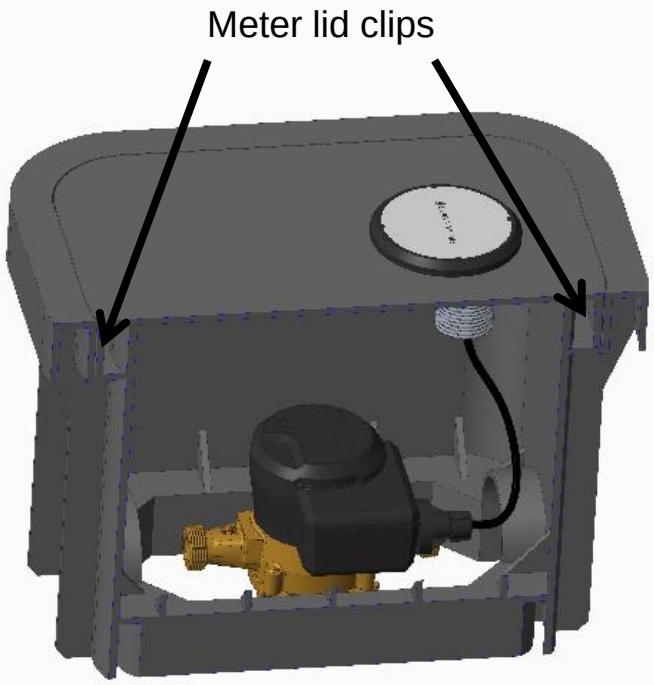
FIM 1 - Water Meter Scope of Work – Turn-Key Project

SIEMENS

- **AMI Infrastructure Includes:**
  - Provide interoperability to City's billing software
  - Data transfer and integration
  - Provide GPS for all meters for City's Asset Management and GIS
  - Three (3) Data Collectors
    - City elevated water storage tank
    - City elevated water storage tank
    - Monopole to be installed near WWTP
  - Necessary AMI Server and Software
  - Customer Service Portal (Optional)
  - Training
  - Ancillary Materials as Needed
    - Meter boxes, lids, curb stop, gaskets, flanges, strainers



Meter Box with antenna

Will be located on City's water towers

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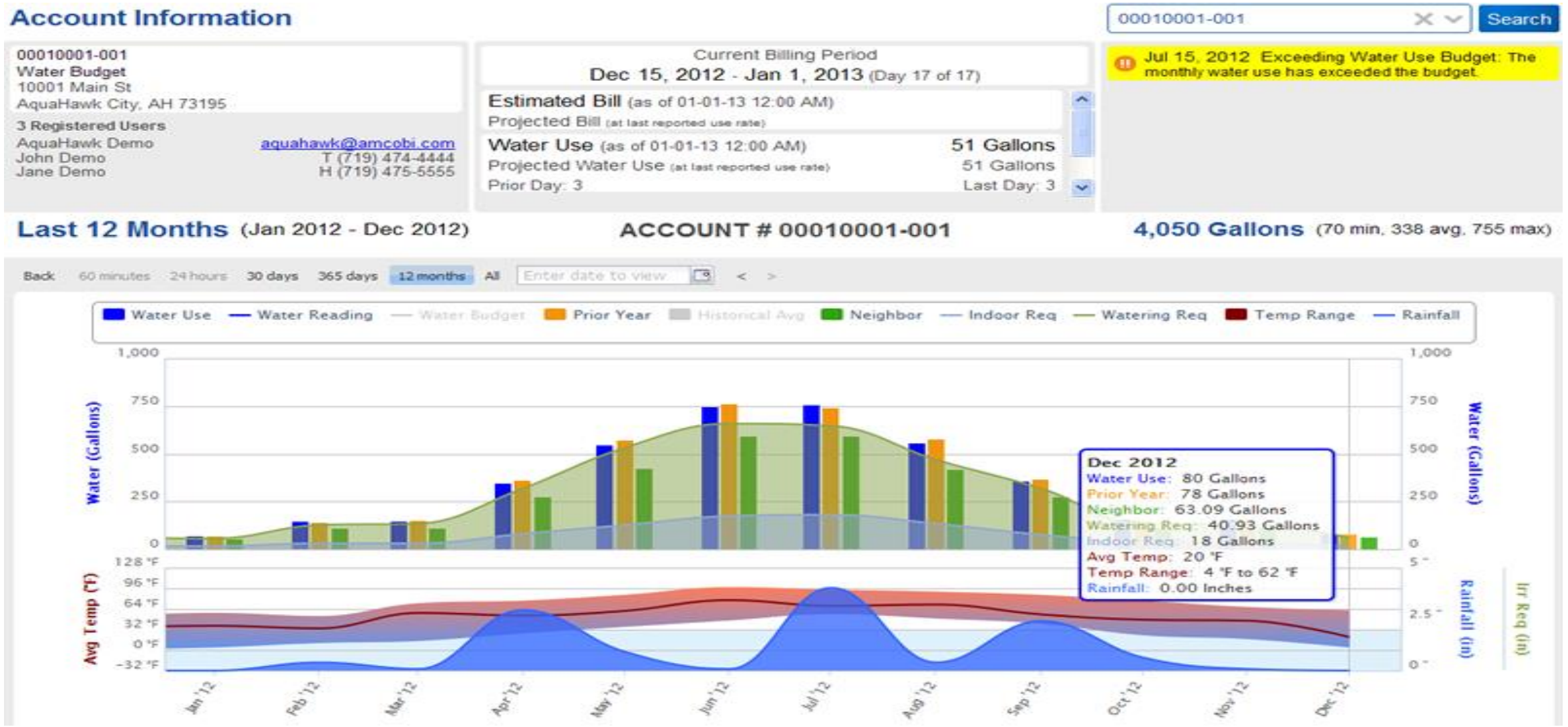
FIM 1A - Customer Portal - (Optional)



FIM 1 & 1A - Benefits

SIEMENS

Users/Citizens

- Accurate meter read – Citizens only pay for what they actually use
- Access to usage data – daily, weekly or monthly
- Clear picture of usage – promotes conservation
- City can set up warnings/alerts for unusually large usage or constant usage
- Transparency

Operational

- Transition from manual meter reading
- Reduce operational costs
- Update aging infrastructure
- Data driven water management decisions
- Drought management
- Data driven asset management
- Flexibility to grow without operational impact
- Regulatory compliance – TWDB targets for water loss reduction

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FIM 2 – WWTP Aeration System Improvements

- Replace two existing blowers
- Replace buried piping to Aeration Basin
- Renovation of air diffuser systems
- Renovation and upgrades to electrical systems and controls

Pre-aeration basin – coarse bubble diffuser

Why Needed

- Blowers are past useful life – avoid emergency situation
- Aeration System is not functioning properly (clogged diffusers, old piping)
- Leaks in aeration piping

Benefits

- Replace aging equipment
- Take care of deferred maintenance
- Reduce maintenance costs
- Reduce energy costs

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FIM 2 – WWTP Aeration System Improvements

Antiquated blower control panel – Gauges not functional

Grass not growing is area above piping–indicator of piping leaks

Foam indicates fine bubble diffusers may be clogged

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FIM 3 – WWTP Digester Upgrade

- Install new motor electric control center ‘MECC-4”
- Install protective coating on the concrete walls
- Repairs and/or replace of existing valves & controls
- Installation of new multi-stage centrifugal blowers

Why Needed

- Equipment is obsolete and well past useful life
- If it goes down, plant cannot process solids
- Safety for operators
- If allowed to corrode further, structural integrity can be compromised-wall will need to replaced

Benefits

- Replace aging equipment
- Reduce utility & maintenance costs
- Protect against permit violations

Rebar starting to show through deteriorating concrete

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FIM 4 – WWTP Main Lift Station Rehab

- Replace existing vertical pumps with new submersible pumps and wiring/controls
- Repair & seal concrete walls
- Replace MECC-2 and associated wiring/controls

Why Needed

- Pumps are past useful life
- If walls not repaired, they will deteriorate further and need replacing

Benefits

- Replace aging equipment
- Reduce maintenance costs
- Increase worker safety

Corrosion of concrete walls

Motor not functional

Pumps past useful life

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FIM 5 – WWTP Gaseous Disinfection System Conversion

- Demolish existing ton container storage facilities for chlorine and sulfur dioxide
- Rework structure for housing new chemical tanks
- Install new chemical feed system (Tanks, pumps, piping, wiring, controls, etc)

Why Needed

- Risk for the City if there is a leak
- Chlorine/Sulfur Dioxide are highly hazardous

Benefits

- Eliminate possibility of chlorine leak affecting the surrounding neighborhood
- Increase worker safety

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FIM 6 – WWTP RAS Pump Replacement - Flow Control Valves & Meter Repair

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- Install 3 new RAS pumps to correct plant operations
- Upgrade associated electrical wiring and install new PLC controls for proper operations
- Install flow meter and two electric actuated valves

Why Needed

- Pumps are beyond useful life
- Currently not operating as designed
- Operator safety issue (noise)
- Eliminate human error – accidental digester overflow

Benefits

- Replace missing and aging infrastructure
- Allow correct plant operation
- Safer for operators
- Lower maintenance costs

Missing RAS pump

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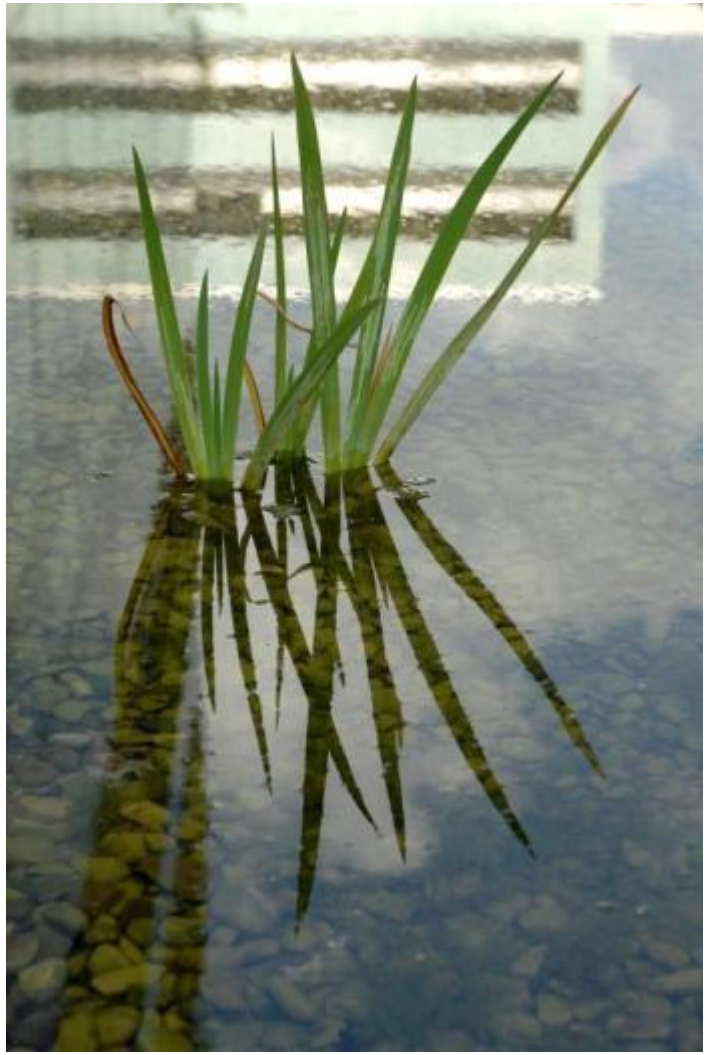
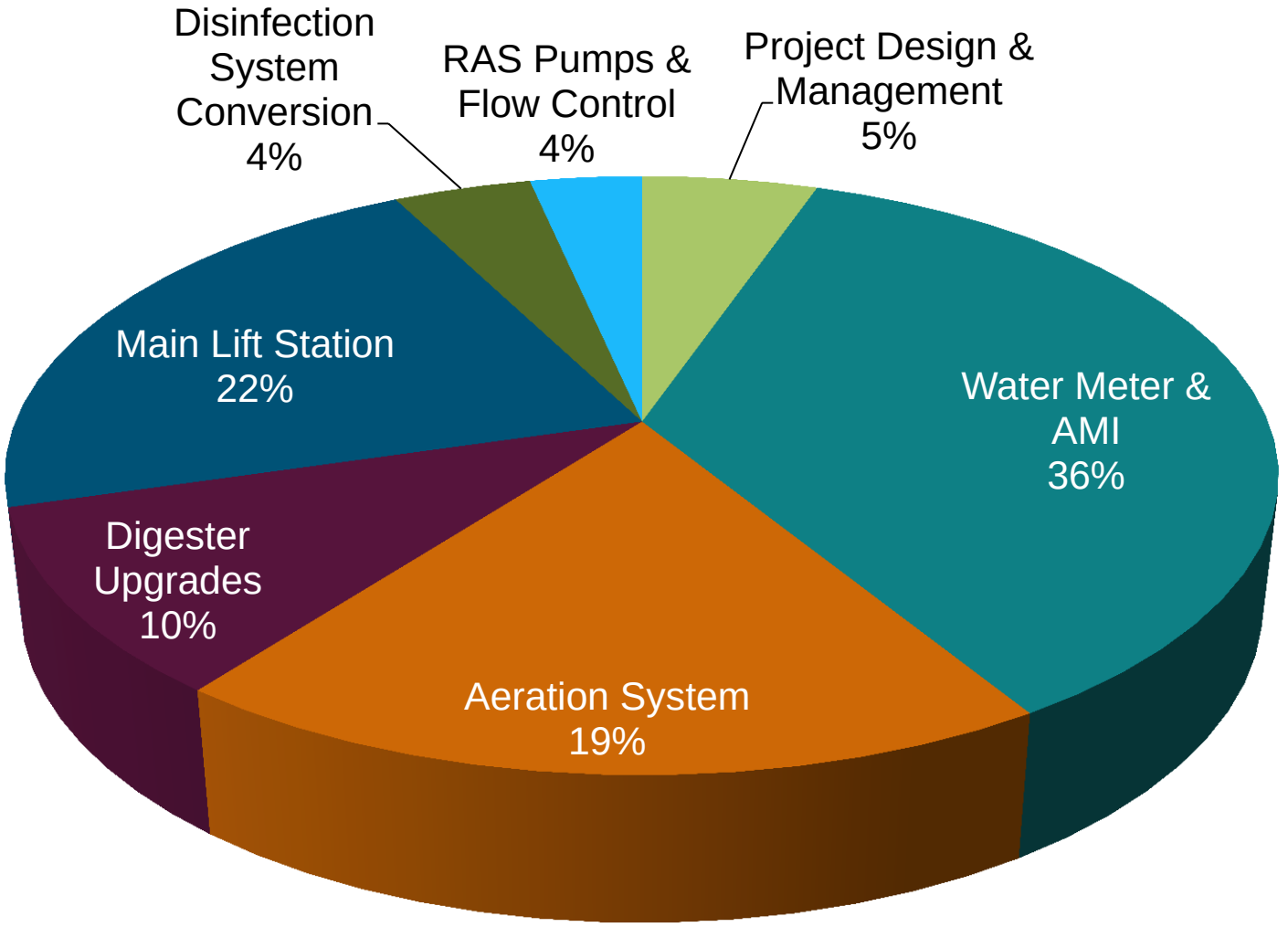
Turn-key Solution & Costs = $12,781,805 (15 Month Construction)





Project Financials

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Thank you!

Deval Allums & Chad Nobles & Joe Cheng

Siemens Industry, Inc.

8850 Fallbrook Road
Houston, Texas 77064

Phone: 832-603-7636 & 713-870-8330

E-mail:
deval.allums@siemens.com Chad.nobles@siemens.com

siemens.com

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Cost Assumptions

- Total Project Cost Estimate - $12,781,805
  - Current Breakout:
    - Project Design & Management - $678,280
    - 1 - Water Meter & AMI - $4,591,371
    - 2 - Aeration System - $2,448,527
    - 3 - Digester Upgrades - $1,289,479
    - 4 - Main Lift Station - $2,809,323
    - 5 - Disinfection System Conversion - $532,435
    - 6 - RAS Pumps & Flow Control - $432,390

Cost Assumptions

- FY 2018 Annual Costs - $934,191
  - New Operating Costs - $82,590
    - Project Asset Mgmt. & Perf. Assurance - $47,505
    - AMI Infrastructure Maint. - $2,886
    - Meter Software Hosting - $18,444
    - Customer Portal - $13,755
  - The model from Siemens assumes annual inflationary increases, per renewable contract agreements
  - New Annual Debt Payment - $851,601
    - Certificates of Obligation to be issued

Revenue Assumptions

- Total FY 2018 Amount Required - $934,191
  - New Water & Sewer Revenues – $500,000
  - Energy Savings – $40,000
  - Operational Savings – $50,000
  - Water Meter Reading Contract Savings - $76,800
  - Additional Budget Requirement – $267,391
    - This amount is consistent with prior Annual CIP Transfers
    - Based on the Siemens model assumptions, this amount decreases annually and becomes a “net-positive” starting in FY 2026

FY 2017 Enterprise Fund

	Total Proposed FY 2017	Total Revised FY 2017
Beg Balance	1.40	1.40
Recurring Revenues*	9.20	***8.20***
Total Resources	10.60	9.60
Recurring Expenses	6.90	6.90
Revenues Compared to Expenses	2.93	2.70
Transfer to Debt	0.95	0.95
Vehicle & Equipment Program	0.52	0.52
CIP Transfer	0.82	***0.67***
Total Expenses	**9.20**	***9.00***
Ending Fund Balance	1.41	***0.56***
60/***30*** Day Fund Balance	1.15	***0.56***

*** Anticipated revised water & sewer rates will reflect a 10.30% increase**

Next Steps

- August 15th Considerations
  - Provide any follow-up information requested
  - Performance Contract Project Agreement
  - Certificates of Obligation
    - $12.8m for Performance Contracting Project
    - $11m Water Line Replacement Program
    - $580k Wastewater Line Replacement Program
- August 16th Budget Workshop
  - Updated Proposed Water & Sewer Rates
  - Updated Fiscal Forecast

City of Bellaire, Texas
Siemens Energy Conservation Project

Cashflow Proforma
as Provided by Siemens

FYE 9/30	Gross Savings	Project Asset Management & Performance Assurance	AMI Infrastructure Maintenance	Meter Software Hosting	Customer Portal	Debt Service Payments	Cashflow Positive (Negative)
2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	-	-	-	-	-	-	-
2018	728,160	47,505	2,886	18,444	13,755	851,601	(206,031)
2019	766,527	48,930	2,886	18,444	13,755	860,200	(177,688)
2020	803,348	50,400	2,886	18,444	13,755	862,000	(144,137)
2021	842,760	51,910	2,973	18,997	14,168	858,100	(103,388)
2022	883,234	53,470	3,062	19,567	14,593	858,500	(65,958)
2023	889,450	59,000	3,154	20,154	15,030	858,100	(65,988)
2024	917,639	60,700	3,248	20,759	15,481	861,800	(44,349)
2025	946,581	62,515	3,346	21,382	15,946	859,600	(16,208)
2026	976,295	64,390	3,446	22,023	16,424	861,500	8,512
2027	1,006,799	72,950	3,549	22,684	16,917	857,500	33,199
2028	1,038,113	75,145	3,656	23,364	17,424	857,600	60,924
2029	1,070,258	77,400	3,766	24,065	17,947	861,600	85,480
2030	1,079,976	79,720	3,879	24,787	18,486	858,025	95,079
2031	1,112,613	82,110	3,995	25,531	19,040	857,175	124,762
2032	1,146,109	84,600	4,115	26,297	19,611	860,650	150,836
2033	1,180,483	93,060	4,238	27,086	20,200	858,450	177,449
2034	1,215,759	95,852	4,365	27,898	20,806	860,575	206,263
2035	1,251,958	100,644	4,496	28,735	21,430	861,950	234,703
2036	1,289,103	105,677	4,631	29,597	22,073	857,650	269,475
2037	1,327,217	116,244	4,770	30,485	22,735	857,675	295,308
Total	$ 20,472,382	$ 1,482,222	$ 73,347	$ 468,743	$ 349,576	$ 17,180,251	$ 918,243

Source: Siemens

FY 2016

Council Questions

Performance Contracting

Council Member David Montague

July 29, 2016

Question #1

I see we selected Siemens through Choice Partners Cooperative Purchasing Program so this means we did not 'bid' the water meter replacement and WWTP repairs projects. Should I be concerned that we didn't bid a $12.8MM program?

Answer:

The City contracted with Siemens for the Letter of Intent and related performance contracting feasibility study via the Choice Partners Cooperative Purchasing Program. Choice Partners completed an RFQ process for Performance Contracting services that included seven potential firms. Siemens was selected through that process. However, now that the results of the feasibility study have been received and a project is being proposed, City Council has the authority to award the contract for this project.

In addition to that Choice Partners contract, there is a familiarity with Siemens and their work in this area from a previous relationship with the City for lighting and HVAC control improvements. In addition, Siemens has worked with several cities in the area on similar projects with positive results.

Question #2

Should I be concerned that we didn't bid a $12.8MM program?

Answer:

The components of the project are designed to work together to leverage the efficiencies and cost savings realized so that the City can take advantage of this opportunity to address some long-standing capital needs. Regarding the pricing, Siemens serves as a general contractor on a design-build project and bid out various components of the project to both local and national suppliers and contractors. In addition, City staff and the City Engineer helped to develop the scope as well as to review the components of the project and their respective costs. In looking at similar projects for comparable work around the area, the pricing received is in line with the market.

Question #3

What is Siemen's business model for this project? How do they finance their project risk and make money?

Answer:

In the proposed project, Siemens serves as the general contractor. Siemens is paid for their project administration, engineering, and labor; therefore taking on all related construction and functionality risk associated with the project requirements. In addition, the guaranteed efficiencies are examined as a part of an on-going services contract that is separate from the initial project costs. That contract provides for continuous inspections and analysis relative to the project components installed. This serves as both a means to guarantee the efficiencies and performs inspections and audits consistent with proper asset management for those items. The City has the right to cancel that contract at any point in the future.

Question #4

How physically do water meters lose their accuracy? Why is loss only in under measuring water usage?

Answer:

Over time, the components within a water meter that spin in order to capture flow volume begin to lose their effectiveness and do not operate as efficiently as when they were first installed. Over time, the low flows do not register as accurately as they once did due to these components wearing down. In short, they are like any other mechanical device that has working parts which simply wear out over time and extended usage.

Question #5

How long will new meters last? What is the plan to replace them when they wear out next time?

Answer:

The standard 3/4" meter is assumed to have a life cycle of 1.5mg, excluding the radio (which is the most expensive part of the new metering system). Based on a standard 8,000 gallons per month, this would assume a useful life of approximately 15 years. After the 1.5mg expected life, the meter accuracy would be expected to be around 85-90%. The radios are covered under a 20-year warranty (10 year-full and 10-year prorated). The on-going services contract with Siemens would audit the efficiency of the meters on an annual basis and allow for replacement on an as needed basis over time within the operating budget if planned properly.

In an effort to better manage and protect these City assets, Siemens has assumed a rate of accuracy that slowly declines over time. Siemens guarantees that the meters will perform as designed for that period of time. If they do not, Siemens is responsible for replacing the meter or compensating the City for the efficiency loss beyond the normal life cycle.

Question #6

Will the new meters include an unmeasured flow reducer? I see where other cities have included these when they replaced their meters saying that the combination helps to more accurately record water usage and assists in identifying leaks (in the home) thus saving homeowners possible damage costs.

Answer:

The selected metering system has built-in leak detection parameters installed. The system would create an automatic alert notifying City staff of a potential leak. The City could then proactively contact the resident and arrange for notifications via the customer portal as well. No additional devices would be needed.

Question #7

I know we are in the midst of changing water rates but I'd be interested in seeing an estimate – using the old rates – of what effect the new meters will have on a typical water bill. For example, if one assumes 60% of the impact will be on low flow rate meters/users then their bill could increase over $20/month which will be significant.

Answer:

For a typical 8,000 gpm user, this can be estimated using the same assumptions utilized by Siemens. In a worse-case scenario where the low-flows are only being read at around 11% accuracy, it can be assumed that approximately 1,000 gallons per month are not being read. This would currently result in an additional $3.50 in water volume charges and an extra $2.40 in sewer volume charges; for a total of just under $6.00 per month.

Question #8

Should not we realize additional sewage treatment income too (because it is a multiplier to water usage)?

Answer:

The revenue estimates from Siemens assume our complete current rate structure. This included both water and sewer rate components.

Question #9

You say 'these two funding sources…help offset cost of WWTP repairs'. How is remaining cost paid for?

Answer:

The cost of the project will be paid for on an annual basis with respect to the debt payments and the operational charges incurred. The operating budget, which will assume the efficiency and energy savings, will have to be adjusted to meet the ongoing costs and the debt service payment will have to be assumed in the fiscal forecast going forward. (Specifically, the chart in the presentation breaks out all of the individual costs and shows the relationship between the debt and operating costs.)