



Project Goals and Overview

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

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

In April 2017, SECO (State Energy Conservation Office) conducted a preliminary energy audit of various facilities and infrastructure in Weslaco and identified several areas where savings could be achieved. Staff reviewed these capital intensive upgrades that covered the following areas:

- Water Meters
- Building lighting and HVAC
- Traffic signals
- Building Envelope
- Wastewater Treatment Plant

Through a Request for Qualification process, 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 Weslaco to implement various projects under one contract, resulting in overall lower costs and minimal to no capital dollars needed to fund major capital intensive 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 design, it was determined that Phase 1 of this Performance Contract with Siemens would focus on all the needs identified except those at the Wastewater Treatment Plant (WWTP), which would become part of a potential Phase 2.

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, permits, training, rebate applications and commissioning. This design-build approach ensures there will be no change orders unless the City alters the scope.



By far, the largest scope item of this project consists of a full city-wide water meter replacement program and installation of Automatic Metering Infrastructure. As meter age, they lose accuracy. When they lose accuracy, the city is no longer receiving payment for water (and sewer) 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 lab test a random sample of 70 meters throughout the City according to AWWA standards. The weighted average of the 5/8 x 3/4 meters was 82% (this group of meters consist of more than 83% of the City's entire meter population). With water and sewer revenues in 2016 being close to \$10 million, the city is losing a significant amount of revenue through these inaccurate meters. By implementing this solution, the City will capture that additional revenue and those funds will be utilized to pay for this project, without having to raise water rates or fees.

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 approximately \$900,000+) from the water meter utility system and reduce its costs associated with manually reading the meters. This funding source, coupled with the additional reduction in utility costs (gas & electric), along with additional operational savings in the City's buildings and parks, will pay for all costs associated with the current proposed project. The additional utility savings and operational savings are approximately \$170,000 in year 1; thereby making the total savings of this project over \$1 million in the first year.

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 various facilities throughout the city. If the guarantees are not met, Siemens will write a check for the shortfalls.

On the following pages is the proposed Project Scope of Work for your consideration and the value it brings to the City of Weslaco.

**FIM 1 – Lighting Retrofits to Upgrade Efficiency (25 Buildings and Parks)**

This FIM will:

1. Reduce energy and operational costs associated with lighting.
2. Provide clearer, more consistent lighting throughout City facilities and parks.
 - o Retrofit lighting in city facilities and parks with modern technology LED lamps;
 - o Replace incandescent and/or fluorescent lamps with new LED fixtures where feasible;
 - o Retrofit incandescent and/or fluorescent lamps with LEDs;
 - o Replace incandescent and/or fluorescent exit signs with LEDs;
 - o Install occupancy sensors in Public Works warehouse;
 - o Room by room scope of work will be included as part of the deliverable to the City.

FIM 2 – Replace HVAC Equipment with High Efficiency Units (9 Buildings)

This FIM will:

1. Improve operating efficiency and reduce energy consumption.
2. Replace existing aged, inefficient direct expansion HVAC rooftop units and split systems.
3. Reduce operating costs and maintenance costs.
4. Install programmable thermostats on all new units to reduce energy during unoccupied hours.
5. Conduct Point to Point Checkout and Start up of each new HVAC system installed.
 - o Public Works - Replace one 1.5-ton split system.
 - o Fire Station #3 - Replace one 4-ton split system.
 - o City Hall - Replace one 3-ton split system on the roof.
 - o Parks Office - Replace one 3.5-ton split system.
 - o Weslaco Service Center - Replace one 7.5-ton split system.
 - o Tower Theater - Replace one 4-ton split system.
 - o Office Building at Tower Theater - Replace one 3.5-ton split system.
 - o Fire Administration Office - Replace one Rooftop Air Conditioning unit.
 - o Fire Marshal Office - Replace three split systems on the roof.

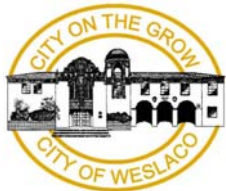
FIM 3 – Install HVAC Armor & Re-commissioning of HVAC DX Units (15 Buildings)

This FIM will:

1. Extend the useful life of existing HVAC units
2. Improve Efficiency by cleaning condenser coils, straightening fins, and reducing corrosion
3. Apply a protective coating to coils

For 45 A/C units at 15 buildings:

- o Install HVAC Armor on existing A/C units.
- o Units are cleaned and then treated with an aluminum compound in an industrial grade polyurethane
- o Damaged coil fins are straightened to improve airflow and heat transfer

**FIM 4 – Building Envelope - Weatherization to Reduce Air Leakage (22 Buildings)**

This FIM will:

1. Reduce energy loss through cracks in building envelope by sealing gaps, cracks, and holes
2. Improve occupant comfort
3. Improve air quality in facilities

- Fire Retardant, Polyurethane Foam, caulks, and appropriate weather stripping materials will be installed at various locations to create “air tight” buildings and reduce loss of conditioned air.

FIM 5 – Building Envelope - Window Film (6 Buildings)

This FIM will:

1. Reduce energy required to air condition buildings by reducing solar heat gain through windows
2. Improve occupant comfort

- Window film will be installed on windows at various buildings to reduce solar heat gain and UV light levels. This reduces the energy required to cool buildings with conditioned air.

FIM 6 – Building Envelope - Cool Roofs (10 Buildings)

This FIM will:

1. Reduce energy required to air condition buildings by reducing solar heat gain through roofs
2. Extend life of existing roof structure
3. Improve occupant comfort

- Existing roofs at various buildings will be cleaned and prepped for ceramic cool roof coating which reduces heat absorption and increases solar reflection to lower air conditioning energy costs and extend life of roofs.

FIM 7 – Lighting Traffic Signal LED Retrofit (13 Intersections)

This FIM will:

- Reduce energy and operational costs associated with traffic lighting.
 - Provide a longer lamp life for signals.
 - Improve aesthetics and safety
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- Replace city-owned traffic signal lights with modern technology LED lamps;
 - Upgrade pedestrian indicators to LED with countdown;



- o School zone flasher upgrades to include
 - o 20 locations upgraded with single section LED module;
 - o 7 locations upgraded with flasher cabinet, 14' pole, single section LED, and solar panel with 2 batteries.

FIM 8 – Water Meter AMI

This FIM will:

1. Provide operational savings by eliminating the need to manually read the water meters.
2. Provide greater accuracy – Citizens will pay for what they actually use; no more-no less.
3. Provide a 20 year warranty on water meters
4. Provide enhanced transparency for citizens and staff into water usage
5. Reduce loss and unaccounted for revenue from inaccurate meters

- o Provide and Install a Fixed Base Advanced Metering Infrastructure (AMI) system
 - o Data collectors mounted on 4 city owned elevated storage tanks
 - o New monopoles and data collectors will be constructed at 5 locations
 - o Meter management, analysis, and reporting software (Hosted license)
 - o AMI Field Service Tool
- o Provide interface to city's billing software (INCODE) & include all data transfers
- o Provide software setup and training to city staff.
- o Replace 10,503 existing water meters as identified in city provided database with new meters and AMI transmitters. Strainers will be installed where required on larger meters.
- o All ancillary materials as required (curb stops, boxes, lids, gaskets, flanges, etc)

Qty	Size	Type
8,748	5/8" X 3/4"	Meter & Transmitter
466	1"	Meter & Transmitter
101	1.5"	Meter & Transmitter
1,133	2"	Meter & Transmitter
15	3"	Turbine Meter & Transmitter
17	4"	Turbine Meter & Transmitter
3	6"	Turbine Meter & Transmitter
4	3"	Compound Meter & Transmitter
12	4"	Compound Meter & Transmitter
2	6"	Compound Meter & Transmitter
1	6"	Fire Service meter
1	8"	Fire Service meter
10,503	Total	

**FIM 9 – Water Meter AMI Analytics and Customer Service Portal**

This FIM will:

1. Implement new software that will provide transparency and quicker response to Citizen's information requests.
2. Give Citizens greater access to information about their water utilization.
3. Provide analytics tools to help City staff visualize and make fact based decisions about the operation of its water utility and resources.
4. Provide leak detection, excessive usage, and various other notifications
 - o Install Customer service portal software to interact with billing and AMI software
 - o Provide training and assistance on usage of software.