Goose Creek Consolidated Independent School District

FACTS

LOCATION
Baytown, Texas

PROJECT DATES
03/2012 – Ongoing

PROJECT SIZE
Buildings: 27
Square Feet: 3,615,313

CONTRACT
Amount: $4,866,124
LoanSTAR funding: $5,000,000
Utility rebate: Estimated over $40,000
Type: GMAX / Lump Sum / Performance Contracting

TEAM

ACCOUNT EXECUTIVE
Quinn Tolbert

PROJECT DIRECTOR
Roger Larson

PROGRAM MANAGER
Erik Gonzalez

ENGINEER(S)

Ryan Brandush, Adam Raftery

CONSTRUCTION MANAGER
George Melancon

CONTACTS

OWNER
Tracy Moser
Energy Manager
3401 N. Main
Baytown, TX 77521
(281) 425-3217
tlmoser@gccisd.net

MINORITY & WOMEN-OWNED PARTNERSHIPS UTILIZED

Industrial Commercial Mechanical (ICM) (Projected to account for at least 25% of our work.)

PROJECT BACKGROUND

McKinstry first worked with Goose Creek CISD performing retro-commissioning (RCx) through the Centerpoint/Nexant RCx rebate program. During implementation, McKinstry found additional opportunities with good returns on investment that warranted the District looking into a performance contract. McKinstry worked with the District to apply for the State Energy Conservation Office (SECO) LoanSTAR program and helped them receive $5 million dollars in LoanSTAR funding.

Goose Creek CISD pursued energy efficiency opportunities in order to help improve occupant comfort in their buildings while allowing them to take advantage of energy savings to pay for capital improvement projects. The District communicated to McKinstry the desire to remove a few ice storage systems that were on the brink of failure, and a high level of interest in reducing operations costs through improved energy efficiency.

SERVICES PROVIDED

McKinstry created and provided a Utility Assessment Report (UAR), completed the District's LoanSTAR application, pursued the required third-party approval for the project, applied for a SECO Cool Schools grant, and pursued all utility rebates on behalf of the client. McKinstry is providing design, construction, and system verification as well as initial commissioning services with documentation to prove the ability to realize the necessary savings.

Goose Creek CISD

LIGHTING EFFICIENCY IMPROVEMENTS

COST
$1,254,419

SAVINGS
2,415,652 kWh/year
1,844.7 kW/year

PAYBACK
6.4 years

WATER EFFICIENCY IMPROVEMENTS

COST
$476,389

SAVINGS
8,022 Therms/year
7,989 kGal/Year

PAYBACK
5.9 years

COMPUTER POWER MANAGEMENT

COST
$46,241

SAVINGS
592,000 kWh/year

PAYBACK
2.3 years

HVAC SYSTEMS EFFICIENCY IMPROVEMENTS

COST
$2,482,655

SAVINGS
2,946,731 kWh/year
7,026.3 kW/year
25,241 Therms/year

PAYBACK
8.9 years

OUTCOME SNAPSHOT

5,954,383 kWh

33.26 Therms

$607,799

9,095,715 lbs CO_2/year

LIGHTING EFFICIENCY IMPROVEMENTS

This measure includes retrofitting existing light fixtures from high bay metal halide to high bay T5 fluorescent, installing occupancy sensors in applicable areas, retrofitting existing T12 fluorescent fixtures with magnetic ballasts to T8 fluorescent fixtures with electronic ballasts, and/or retrofitting various hallway and exterior HID lighting with more efficient hallway and exterior lighting.

WATER EFFICIENCY IMPROVEMENTS

This measure includes retrofitting flushometers or flappers, and re-commissioning existing plumbing systems to the manufacturer's rated flow and vandal-resistant flow restrictors on various faucets that have not been brought up to current recommended flow standards.

COMPUTER POWER MANAGEMENT

This measure includes installing power management software on computers throughout the District that is accessible through the District's network. This measure will impact all non-laptop computers at all District-owned buildings.

HVAC SYSTEMS EFFICIENCY IMPROVEMENTS

This measure includes full central plant redesign on two central plants, going from an ice storage tank system to a chilled water primary and secondary loop.

CONTROLS REDESIGN

This measure will reduce equipment run times for remote buildings on campus. Internet-managed thermostats (Proliphix) will be added to remote buildings that are served by dedicated DX unitary equipment which is not currently scheduled.

This measure is a combination of two interactive strategies: control hardware installation and subsequent programming changes and retro-commissioning.

Controls modifications will consist of the addition of CO2 sensors and modulating OA (outside air) damper actuators at the air handling units for purposes of implementing a SA (supply air) CO2 control strategy.

Retro-commissioning will include validating existing points on all HVAC equipment in the building, writing energy efficient sequences of operation to support the SA CO2 control strategy and implementing low cost commissioning findings, optimizing

equipment scheduling, and functionally testing for all new sequences implemented.