

Subject:

Central Plant Optimization Response to Judge Self

Question 1: Sequence and detail of changes:

- Start date: 30 days after award on June 11, 2012
- **Phase I, Mechanical changes @Central Plant, 60 days.** Start mid July. This plan allows for the plant to be optimized by modifying piping and control devices to allow the existing heat exchanger to be used for “free” cooling in winter months, adding a control valve to optimize the return water temperature for optimum chiller operation, and utilize the thermal storage tanks to assist in decoupling the piping system between the Central Plant and the satellite buildings.
- **Phase II, Sequencing and Programming @Central Plant, 60 days.** Start mid July. This phase is predominantly implementing control programming and updating controllers to communicate with the Central Plant. This phase would take the control devices installed in Phase I and provide the programming and integration to allow for the Central Plant equipment to be controlled efficiently and effectively. This scope would address the thermal storage water temperatures, control return water temperature allowing the chiller(s) to operate in their most efficient manner, and recommission existing and outdated controls in the Central Plant.
- **Phase III, Mechanical Changes @Satellite Buildings, Bloomdale Courthouse, Administration Building, Adult Jail, JJAEP and Juvenile Detention.** Start October 1. This phase will provide for mechanical modifications in the pump rooms of the satellite buildings, **Bloomdale Courthouse, Administration Building, Adult Jail, JJAEP and Juvenile Detention**, to allow for improved control of the chilled water being delivered to the buildings. This work would require bypass at most buildings to allow the Central Plant to provide only the amount of cooling required for each building, preventing over cooling and excessive running of the chillers or depletion of the thermal storage tank. Pumps would be added at the Sheriff’s Office to allow for tighter control in the Central Plant of pressure and flow.
- **Phase IV, Programming @ Satellite Buildings, Bloomdale Courthouse, Administration Building, Adult Jail, JJAEP and Juvenile Detention.** Start October 1. This phase will incorporate the control programming and strategies to implement the mechanical improvements from Phase 3 which will control the secondary loop chilled water decouple components for the various campus buildings. This will allow the buildings to operate at with exact chilled water load requiring less work and energy consumption by the Central Plant.
- **Completion Date:** November 1, 2012

Question 2: ROI, years to recoup.

- **ROI, 13 months after completion and in full operation.**

- Based on estimated reduction of 12% electrical use or 2,065,291 kwh. Savings of \$167,288 at our current contract pricing.
- Based on estimated reduction of .015 per kwh from current contract to MCPE due to making chill water off peak. Savings of \$227,286 at our current contract pricing.
- Total projected estimated savings of \$394,574 per year after completion at full operation on existing square footage.