



Energy Savings and Thriving Service Thanks to Performance Contracting by Brady

Challenge

Live, grow, thrive! That is the motto the Durham County, North Carolina government keeps in mind as it strives to provide the county's 300,000 residents with an outstanding place to live, work, and play.

Durham County is ideally situated halfway between the Great Smoky Mountains and the beaches of the Atlantic, and is the heart of the thriving Durham-Chapel Hill Metropolitan Area. The County government is committed to doing all it can to capitalize on these advantages on behalf of the people of Durham County. It is not surprising, then, that one of the key goals described in the County's 2018 Strategic Plan is to be an accountable, efficient, and visionary government that invests in the people and communities of Durham County.

The County is responsible for a wide range of services—public safety, emergency medical services, public health, veterans services, libraries, social services, and many others. The County directors

*Total
Projected
Savings:
Over
\$6.6 million*



are ever diligent to ensure they stay on top of the health of their programs and buildings. As part of their efforts, the County administration prepared a list of facilities that were limping along with outdated and inefficient mechanical systems, equipment that required frequent repair, and control systems that were failing. The antiquated and failing systems were wasting substantial amounts of energy, driving up operational costs, and failing to provide the indoor environments needed for county services to succeed.

The administration identified seven priority facilities that needed urgent attention:

- Durham Center Access
- Fire Marshall's Office
- General Services Complex
- Homeless Shelter
- Operation Breakthrough Building
- Stanford L. Warren Library
- Durham County Detention Center

These seven facilities provide a wide variety of services for the people of Durham County, and the administration knew that a precision solution would be needed for each facility.

Solution

The County solicited proposals from pre-qualified companies and awarded the project to Brady. Brady used their proven expertise in performance-based contracting to design a guaranteed energy savings project that would cost \$4,549,000 to install and would then save the County

\$6,028,273 over the 16-year performance period.

Brady worked with the County's Sustainability Manager, engineers, and building managers to custom-design the best systems and select the best components for each building. They also designed an overall implementation plan that would allow County services to continue uninterrupted during system installation. The installation plan for the Detention Center required special security and safety measures. Brady worked closely with the Detention Center director and staff to ensure each member of the Brady team was properly trained and understood the procedures for working at the facility.

System installation was completed in 2013–2014 and included the following upgrades and energy-saving improvements:

- Installation of energy-efficient lighting systems in six buildings
- Replacement of building control systems in all buildings, including state-of-the-art BuildingLogiX™ automated control systems
- Upgrading of meter monitors
- Installation of water-saving systems in three buildings
- Installation of high-efficiency air handler fan arrays at the Detention Center
- Installation of a new domestic hot water heater and condensing boiler in the Detention Center's reheat system
- Replacement of burners and combustion controls in boiler systems



- Replacement of rooftop HVAC units at the Operation Breakthrough facility
- Installation of a new Trane® EarthWise™ chiller plant including Trane® CenTraVac™ chillers, a variable primary pumping system, and Trane® Chiller Plant Manager controls

Results

Beginning in March 2014, the project upgrades have been providing energy-efficient, reliable service to 368,426 square feet of County facilities and the citizens and employees that rely on them.

The guaranteed energy savings for Years 1–3 was \$1,024,401. By the end of Year 3, the actual energy savings was verified to be \$1,301,391—27% more than anticipated.

The upgrades also reduced O&M costs by \$17,752 during Years 1–3. Based on these savings, the projected total savings for the 16-year contract period is more than \$6.6 million. This will easily cover the project installation cost \$4,549,000 and help the County cover the project financing costs.

The verified savings of specific resources for the first three years of operation include:

- Electrical energy: >12 million kWh
- Natural gas: 402,704 therms
- Water: >22.8 million gallons

Brady—helping the people of Durham County live, grow, and thrive!

