How Progressive Design-Build Saves the City of Warner Robins Millions

Site Background
Located in the Ocmulgee River Basin in Georgia, the Sandy Run Creek Pollution Control Plant serves a large portion of the citizens in the City of Warner Robins. Originally constructed in the 1970’s and 1980’s, the maximum monthly water plant control plant (WPCP) capacity was 9 million gallons per day (MGD) with an effluent discharge to Sandy Run Creek.

The site had not been upgraded or renovated significantly since its last major expansion in 1986. Along with little additional capacity available for future flows, a permit modification would drive the City of Warner Robins to make a change.

In order to define what improvements the City needed to make, they hired an engineering company to perform a Design Development Report (DDR). To develop the DDR, the engineering company performed the following evaluations:

- Wastewater characterization and data analysis
- Capacity assessment and alternatives
- Process modeling and analysis
- Preliminary sizing and engineering

Upon completion of the DDR, the engineering company determined that existing processes did not have the capability to meet the new limits and suggested they upgrade and expand the plant. The engineer presented costs for capacities of 9 and 12 MGD. The total conceptual engineering and construction cost estimates were:

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<th>Capacity</th>
<th>Conceptual Estimate</th>
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<tr>
<td>9 MGD</td>
<td>$42,241,000</td>
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<tr>
<td>12 MGD</td>
<td>$50,348,000</td>
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City Budget Calls For a Change in Direction
The City of Warner Robins was not expecting costs to be $40 and $50 million and decided they needed to reevaluate. In order to stay within their $30 million budget, they proposed to reduce project costs, apply more conventional treatment processes and utilize innovation in delivery methods, while providing expanded capacity and ability to meet regulatory limits.

Addressing Innovative Delivery Methods
The City of Warner Robins committed themselves to the utilization of innovation in delivery methods. After reviewing proposals and conducting interviews, the City selected Haskell to deliver facility solutions that comply with the new permit modifications using the progressive design-build delivery method.

NPDES Permit Forces Plant Renovation
In May of 2008, the Georgia Environmental Protection Division issued modifications to the NPDES Permit. Though most of the modifications were fairly minor, they were just enough to require the City of Warner Robins to renovate their facility to avoid violations.
The collaboration within the integrated team allowed focus on making early decisions, facilitating open communication, promoting the highest levels of owner input and encouraging local participation. The team devised a plan to expand the plant by a third and use the existing facility innovatively to comply with the new permit.

The project team determined the scope to include the following:

- Construct new effluent filter structure with integral new chlorine contact basin and new chlorination system and building
- Modify existing chlorine contact basins into post-aeration basin and filter backwash supply water wet well
- Modify existing sludge holding tank into filter mud well
- Construct new rotary drum thickener for WAS thickening and modify existing digesters and digested sludge pumps
- Construct new 2,000 SF administration building and modifications and improvements to existing operations/lab building
- Construct new electrical and I&C system for 90% of WPCP including existing solids handling and digestion systems

The City of Warner Robins Saves Millions

Haskell delivered the 12 MGD capacity plant at $28.5 million, which was originally estimated to cost over $50 million. The final cost not only met the 30 million budget, but it also came $1.5 million beneath the City’s budget.

<table>
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<th>Warner Robins Savings Break Down</th>
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<tr>
<td>Initial 12 MGD Renovation Cost</td>
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<tr>
<td>Progressive DB 12 MGD Cost</td>
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<td><strong>Total Savings</strong></td>
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Energy Efficiency: The Savings Continue

In addition to saving nearly $21.8 million, the City of Warner Robins still has plenty more savings to come. The facility will realize lower daily energy usage along with the ability to treat more water with less energy.

Overall, the facility renovations allow the City of Warner Robins to efficiently serve their current citizens and plan for their population growth in the future.