

BOLLING AFB, LANGLEY AFB
& BARKSDALE AFB, USA

Utility Infrastructure Lifecycle Cost Analysis

Improving the project team's systems, procedures and deliverables increases USACE's capacity to effectively and efficiently manage the Foreign Military Sales program.

Acuity was engaged on behalf of the Air Force Civil Engineer Center to perform a lifecycle cost analysis of the utility infrastructure that supports the military family housing communities at three Air Force Bases (AFBs): Bolling AFB in Washington, D.C., Langley AFB near Hampton, Virginia, and Barksdale AFB in northwest Louisiana. The purpose of the analysis was to determine the total cost of owning, operating, and maintaining the utility infrastructure – water, storm drainage, sanitary sewer, and gas and electrical distribution – at multiple single-family neighborhoods over a 40-year study period.

Acuity categorized client-provided information – such as the age of the utilities and ten years of historical cost data – to provide insight into the types and frequency of preventive maintenance, corrective maintenance, and extraordinary expenses incurred. Cash flow diagrams were set up for annual maintenance expenses and capital replacement costs, based on the age of the utilities. Replacement costs were reflected as a one-time event and were escalated to account for inflation. Acuity used an interest rate of 2.8%, based on federal projects from the Office of Management and Budget and the U.S. Department of Treasury, and a current inflation rate of 2.2%, to account for market inflation, historical yield and current market trends, to generate a net present value just over \$27 million for this utility infrastructure project.

Acuity was subsequently contracted to provide a realistic plant replacement value for the utility infrastructure at Langley and Barksdale. Using client-provided drawings, Acuity performed quantity takeoffs and calculated a plant replacement value for each community, following the formula established in the United Facilities Criteria Department of Defense Facilities Pricing Guide.

Sustainment, Restoration & Modernization

Acuity's lifecycle cost analysis for the base housing communities supported decisionmaking efforts within the Air Force regarding a public-private partnership joint venture. Plant replacement value estimates support overall planning and execution for military facility construction, sustainment, and modernization.



703.261.1110

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