Esri News
for Facilities
Winter 2011/2012

Massive Research Center Uses GIS to Optimize Space Utilization and Cut Costs

NASA Langley Research Center

The Langley Research Center, established in 1917, focuses on aeronautical and space research.

The National Aeronautics and Space Administration (NASA) Langley Research Center (LaRC) in Hampton, Virginia, has a reputation for solving difficult problems. So in 2004, when confronted with the possibility of dramatically reduced future budgets, LaRC came up with forward-thinking options to downsizing the infrastructure on the 800-acre campus.

Scenarios that addressed budgetary reductions of 25 percent and more meant that a widespread area of real property, including many aging and obsolete facilities, needed to be reassessed. To address these issues, LaRC became one of the first NASA centers to benefit from Esri's GIS technology for real property management.

Space Utilization Optimization

The Center Operations Directorate's GIS team is responsible for spatial data and associated technical support at NASA LaRC. To facilitate reorganization scenarios, the team extended Esri's technology by developing space utilization optimization tools to map out and analyze the use of each area.

The team was then able to propose solutions to reduce the number of buildings in use and increase efficiency, with a goal of ultimately reducing operation and maintenance costs by $1 million per year.

GIS team leader Brad Ball recalled the stringent requirements placed on his team to reorganize a building for a long-term satellite research project, which required extensive collaboration between researchers to be successful. The satellite project manager wanted his team to be located on a single floor. Using a GIS space optimization model, the GIS team was able to show how the satellite project team could work together on one floor of a building. This required two other organizations to relocate within that building, but the GIS team identified new locations for them as well. "I am pushing [for] space optimization. I think that's probably the most valuable tool we've developed in the time I have been driving the GIS efforts here," Ball said. "I think it has value across the entire federal landscape and in industry and academia."

Cost-Cutting Benefits

In addition to the savings the agency will realize from more efficient property use, Ball believes the system is paying dividends in terms of effectiveness. He says the system's ability to integrate data from various sources allows the agency to make better decisions, resulting in opportunities for further operational improvements and reduced costs. "We can come up with new approaches to do things that we couldn't do previously because the data was not readily available," he said.

Ball cited janitorial and grounds maintenance contracts as examples of additional efficiencies and cost savings that GIS enabled.

"We were able to identify the square footage for grounds maintenance," he said. "Previously, we were just telling the contractor to cut [the grass in] this area, and we would say we have 800 acres. Well, by the time you take out the parking lots, the roads, the buildings, and wetlands, that tremendously reduces the area."

On a Path to Success

Ball said NASA LaRC's efforts to downsize are on course. The center was so successful in using GIS for real property management that now other NASA centers, such as the Johnson Space Center, use it too. Other government and private facilities and countries are showing interest as well.

"NASA Langley's master plan is being very well received," Ball said. "We're going to demolish the old buildings. We're going to have a smaller carbon footprint. We're going to compress . . . [but] we will still support most of the areas of work that we have [had] over the last 40 to 50 years."

380 New York Street
Redlands, California
92373-8100

1 800 GIS XPRT (1 800 447 9778)
T 909 793 2853
F 909 793 5953
info@esri.com
esri.com

Offices worldwide
esri.com/locations

G59190
6/13sp