



Spatial Systems Associates, Inc. develops a robust *Facilities Management Information System (FMIS)* for Charles County's Buildings & Trades Division

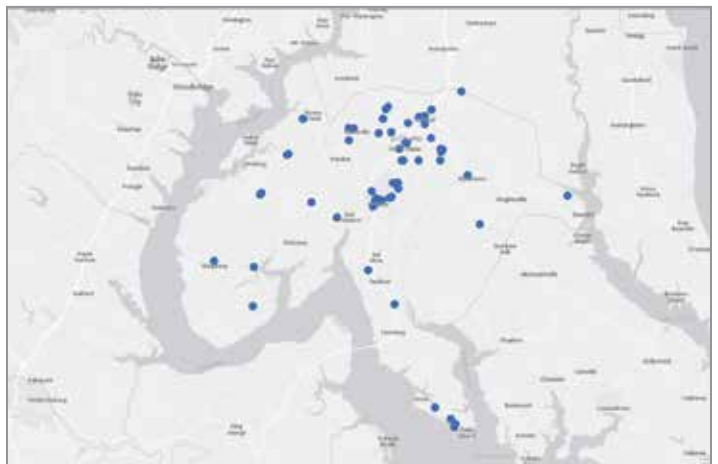
Charles County, located just outside of the District of Columbia in Southern Maryland, is home to close to 150,000 residents. The County covers roughly 461 square miles consisting of largely rural areas with the Potomac River running along its western shoreline. A majority of Charles County's development has taken place in the densely populated northern half of the County, seeing an annual population growth of around 2 percent.

THE CHALLENGE

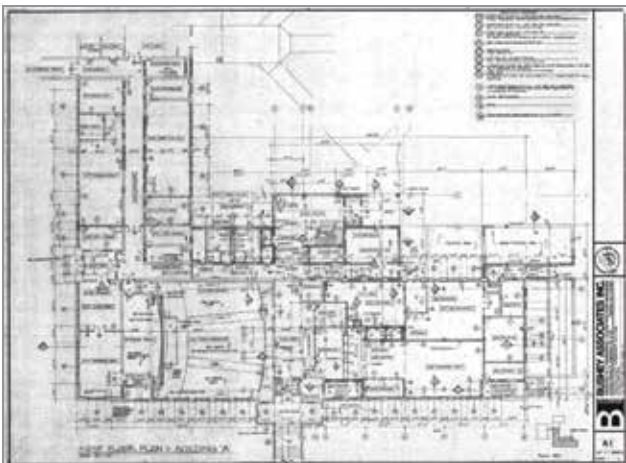
The Charles County Department of Public Works—Buildings and Trades Division is responsible for monitoring operating conditions and providing the best possible maintenance of County buildings with cost effective capital construction, upgrades, and general improvements. These measures include preventative and unscheduled maintenance of buildings and systems, inspection and maintenance of county buildings to ensure safety and proper performance, as well as engineering services.

The County owns and maintains over 75 facilities. As part of their maintenance process, document retrieval and renovation updates are critical. The County has had a reliance on hard-copy construction drawings stored in flat files at a single location. Many of these documents were the sole source of information, and while these source documents contained all of the critical information necessary to identify facility information, they are also subject to deterioration and damage and were often difficult to locate when necessary.

The County needed to move these documents from their hard-copy environment and begin to develop a more centralized and robust mechanism for accessing the information. To complete this requirement, Charles County contracted Spatial Systems Associates, Inc. (SSA) to assist in developing a robust facilities man-



In order to provide B&T personnel with the digital documents, and subsequent GIS data, SSA developed an ArcGIS for Server mobile application. This application provides County staff with all building-related GIS data, as well as the relevant digital document for each building—all at their fingertips on their mobile devices, thus completely removing the need to return to the office to review the hard-copy plans.



As the field crew take measurements of the interior spaces, the distance and direction are loaded into the application. This routine removes duplication efforts that would be required by traditional pen and paper measuring processes, while at the same time building the GIS data as the measurements are taken.

agement information system (FMIS) to provide the Department with easy access to their data.

THE SOLUTION

To assist Buildings and Trades in meeting its objectives, SSA introduced a phased approach to build GIS datasets that could



be fully integrated into the Department's evolving business methodology. This was initiated by creating high resolution digital versions of the County's hard-copy documents. SSA has scanned over 2,000 plan drawings at 400 dpi grayscale and then inventoried and indexed the documents based on the County's existing building identifier. With the scanned documents inven-

toried and accessible, SSA then developed a County-specific buildings geodatabase, on top of Esri's Building Interior Space Data Model (BISDM) data model. The geodatabase contains all County-owned facilities and includes information such as building, room type, size, asset type, etc. All data was extracted directly from the source documents. As a source of reference, all digital construction drawings were associated with the rooms that were represented on the drawing, which allows for quick retrieval of the documents directly from the GIS data.

Buildings and Trades (B&T) does not have internal GIS support within the Department. They do, however, have access to tablets with countywide wireless service. In order to provide B&T personnel with the digital documents, and subsequent GIS

data, SSA developed an ArcGIS for Server mobile application. This application provides County staff with all building-related GIS data, as well as the relevant digital documents for each building—all at their fingertips on their mobile devices, thus completely removing the need to return to the office to review the hard-copy plans. Access to this data provides the County with hands on information while performing their maintenance routines.



With the GIS data established, the County required source document and data updates in the buildings that would reflect renovations or changes that had taken place over the years. To address this, SSA deployed a field application that received automated data inputs from a laser distance measurer via Bluetooth. As the field crew takes measurements of the interior spaces, the distance and direction are loaded into the application. This routine removes duplication of effort that would be required by traditional pen and paper measuring processes, while at the same time building the GIS data as the measurements are taken.

In addition to the interior space data, the field crew also identifies the locations of required assets (electrical panels, fire safety devices, etc.), and populates make, model, and amperage information. Accompanying the GIS data are associated photos that the crew takes while visiting each room and asset. These photos are stored within the geodatabase and easily retrieved via the identify results window within the web application.

This successful project continues to date, with SSA performing field updates for each of the County's facilities. The results of this effort are a centralized information system that gives the Buildings and Trades group the necessary information to assist in their mission to provide the best possible condition and maintenance of County buildings with cost effective capital construction, updates, and general improvements to public buildings.

