



SOARING TO NEW HEIGHTS

Milwaukee airport streamlines operations with GIS system

By Lindsay Ferguson

Managing the operations and maintenance of one of the fastest-growing airports in the world is no small task. All of that accurate, timely information has to be available to a busy and mobilized workforce. The General Mitchell International Airport (GMIA), in Milwaukee, Wis., had long struggled with a series of computerized systems to administer the internal workings of the airport. After having to deal with a legacy work order system where event tracking was a collaboration of forms, logs and spreadsheets, GMIA embarked on a plan for a new solution.

Recognizing the benefits of geographic information systems (GIS), GMIA elected to build a solid enterprise system based on Esri technology. A key part of the implementation involved a series of educational interviews to determine where and how GIS could improve work processes. These

interviews clearly laid the path GMIA would take and helped prioritize the changes that were needed to improve airport operations and maintenance.

In November 2009, assisted by AECOM, a global provider of technical and management support services, GMIA embarked on an aggressive enterprise implementation utilizing Esri's ArcGIS coupled with Cityworks by Azteca Systems Inc. In December 2011, after nearly 18 months of planning, design and implementation, GMIA went live with its GIS-centric program.

"GIS now is central to the airport's asset and work management, including airport-specific workflows such as the Federal Aviation Administration [FAA]-mandated inspections and airport operational logbook," said Timothy Pearson, GIS specialist for Milwaukee General International Airport.

"Previously, the inability of management to see a snapshot of the airport

status was a real challenge," said Mark Loach, lead project developer, AECOM. "The new GIS-centric solution changed all that. Quick, easy and accurate information now is available for the first time to airport officials, airlines, maintenance personnel and operations staff."

Logbook: The Life of the Airport

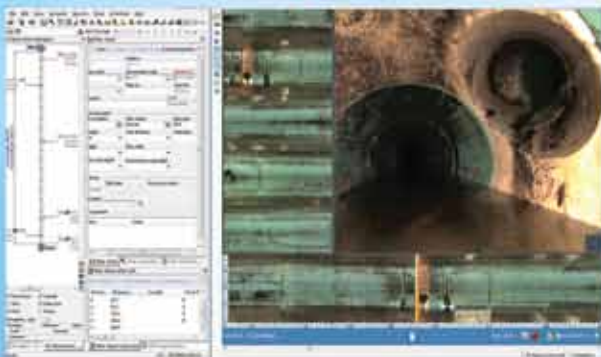
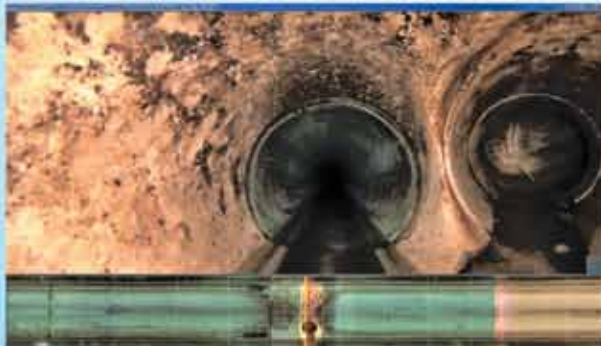
At GMIA, two groups oversee daily operations: Airside Operations and Landside Operations. Each of these groups uses logbooks to capture a record of their daily activities. Everything that occurs on the airfield and within the public space is entered into the logbook—incidents, weather, staffing, airline issues, alerts and so on. GMIA created customized entries using the Cityworks "service requests" to facilitate the capture of these events.

"Digital logbook entries now are trackable and searchable," Pearson said.

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“Entries contain all of the information that otherwise would be recorded on multiple forms, entered into separate logs, and maintained by different offices. Everyone now is aware of what occurred and has access to the same information.”

Inspection Process

Each day, airports perform a variety of FAA-mandated inspections. The FAA Part 139 inspection involves the examination of airfield assets, including lights, signs, pavement, navigational aids, security items and more. With the ability to customize the new system, the airport not only has developed very specific work order templates for every asset, but also has streamlined the workflow of the operational staff.

“As part of the Part 139 Inspection process, GMIA designed a reporting method using Crystal Reports and the Cityworks reporting tools that allow each shift to report on its inspection and subsequent work orders,” Pearson said. “This automated process frees the coordinator to focus on managing the field without worrying about forms and paperwork. The management of these inspections now is much more transparent and effective, enabling the airport to meet compliance goals and ensure public safety.”

Maintenance & More

In managing thousands of assets and an array of maintenance procedures throughout the airport, GMIA has compiled a comprehensive geodatabase that includes both airfield-specific assets such as lights, signs and navigational features as well as internal facility management features like HVAC, security and safety assets. A significant part of the GIS models the insides of the airport buildings with extensive floor plans and room-related assets. These features all are accessible within the system, including many data layers that are linked to the airport’s property management software. GMIA continues to add more refined details within interior spaces, such as electrical and lighting systems, flooring and wall coverings. The system also tracks leased space so that users can quickly determine who is renting a space, how to contact them and how to access the space in an emergency.

“Using Cityworks, we designed work order templates to accompany each of our assets,” Pearson said. “A coordinator using a laptop or tablet can select assets, determine the work required and select the proper template, ensuring the work is routed to the correct shop. Users also can view and manage outstanding items and items requiring immediate attention. These streamlined work orders can easily be linked to logbook entries, allowing management to link events to work performed.”

As the system continues to be refined, airport maintenance supervisors will be able to manage equipment, materials and labor statistics, all from the same interface and database. Additional users include GMIA parking management, security, safety, aircraft rescue and fire fighting services, properties and noise management.

“Since the new system was introduced, work has been streamlined,” Pearson said. “The time it takes to complete

work orders has been shortened, and routing of work has improved dramatically, with virtually no errors. We've literally eliminated paper from our system, which has made information more trackable and searchable."

GMIA now has a way to track events, categorize issues and easily view the current status of the airport. Through a series of reports using Cityworks' report engine and Crystal Reports, information is automatically disseminated to departments, airlines and others.

"Information now is distributed quickly, concisely and to the people that really need it," Pearson said. "From a data management perspective, changes made to the map service by one user now are available to all users, eliminating the need to constantly update maps for multiple departments, which provides significant time savings to the airport. Our new system also has helped the airport better justify staffing needs. With a firm handle on labor and work statistics, we have a much more accurate picture of the time, effort and efficiency of our maintenance efforts."

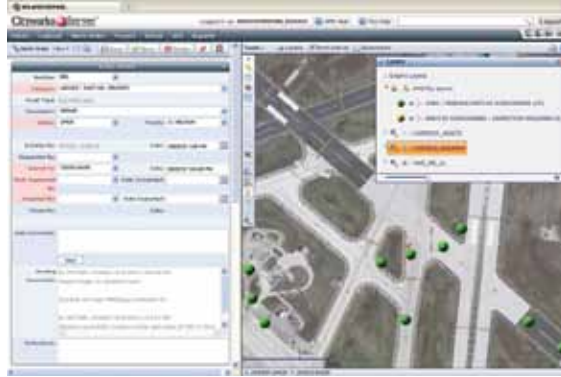
The Future

GMIA soon will introduce Cityworks Server PLL (permitting, licensing and land) to its enterprise system, as well as integrate with Hyland's OnBase document management system. The airport also plans to develop and improve work order processes such as labor entry, statistics, inventory and others. With AECOM, GMIA aims to develop a variety of Crystal-based reports to further assist airport management with data analysis.

Pearson added, "GMIA's Enterprise GIS system utilizing ArcGIS and Cityworks meets the airport's needs, providing more than we ever thought possible." **SWS**

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The General Mitchell International Airport's work order system ensures that work is routed to the correct shop. The work orders also can be linked to logbook entries, allowing management to link events to work performed.

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