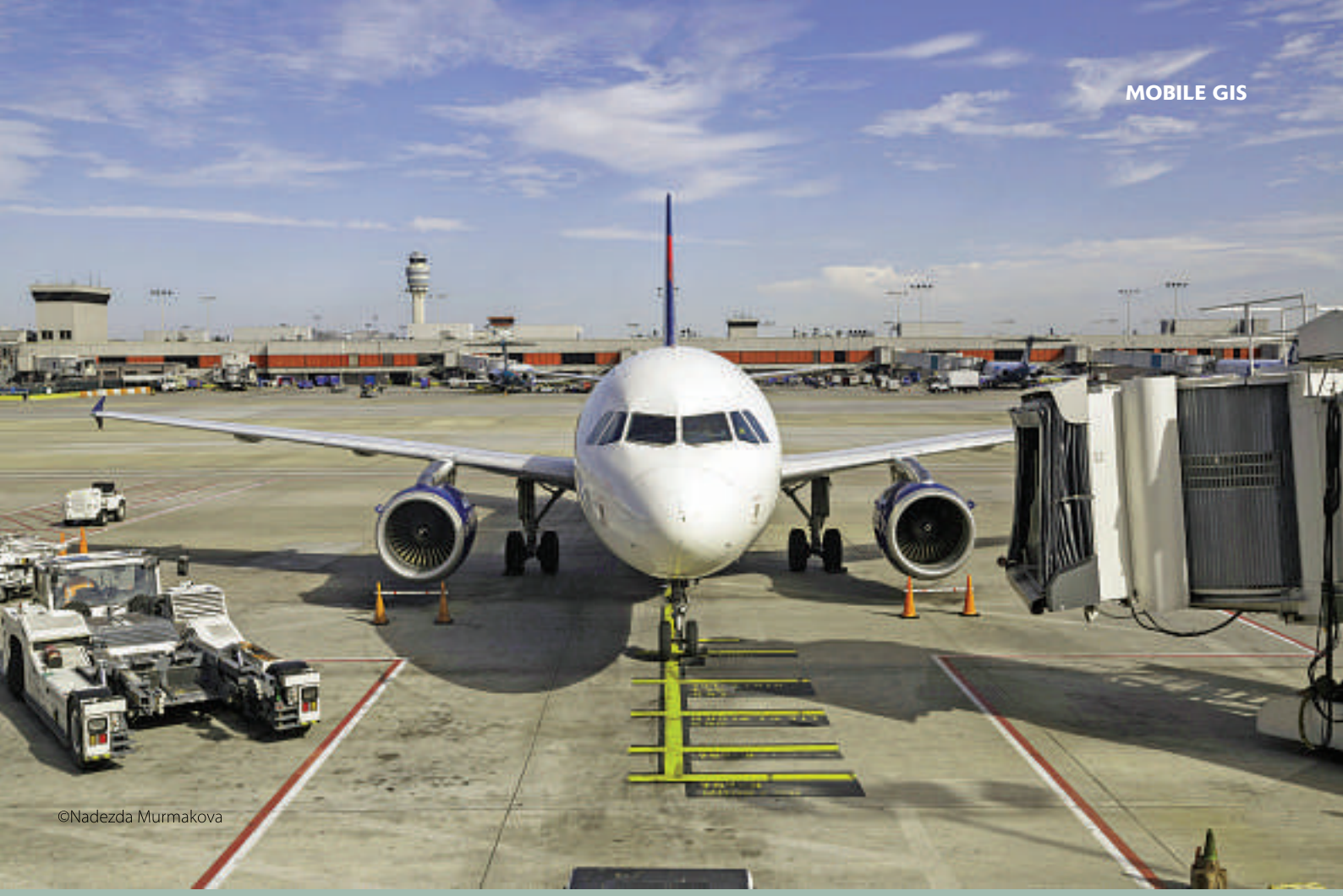


FROM CONSUMER TO PRO

THE BUSIEST PASSENGER AIRPORT IN THE WORLD HAS TAKEN ADVANTAGE OF INNOVATIONS IN MOBILE GIS TO IMPROVE ITS ASSET MANAGEMENT PROCESSES AND THE ACCURACY OF ITS DATA COLLECTION. MONICA MILLER RODGERS AND KATHERINE LEHMULLER REPORT

Hartsfield-Jackson Atlanta International Airport (ATL) in Atlanta, Georgia, US, has been the world's busiest passenger airport for the past 15 years, with more than 2,700 flights coming and going, serving more than 250,000 passengers every day. Preparing for future trends in transport, the airport has recently added new facilities and boasts a complex consisting of seven concourses and five runways, the longest close to 3.6km long. The entire infrastructure encompasses more than 1,900ha.

Air transport is constantly expanding and budgets continue to tighten. New strategies call for more efficiency, and this in turn calls for faster, more streamlined processes and tools. The best solution for substantially improving an airport's efficiency is to properly manage and document the location and health of its infrastructure's assets and utilities. Operation and maintenance costs of running an airport have major impacts on budget planning and help to enable a positive revenue balance at the end of the year.

ATL has an enormous number of complexities to manage, document and monitor. Managing these presents a significant challenge to accomplish effectively. The airport has many different utility systems, such as storm water, sewer, aviation fuel, electricity, fuel pits, fat, oil and grease separation systems, and telecommunications; these in turn contain access holes, inlets and fuel hydrants. Any airfield pavement defects such as cracks, spalls or joint seal failures on runways and taxiways also need to be detected, and repairs planned well in advance.

Each of these systems requires constant monitoring because of increasingly complex and demanding regulations, with significant fines if proper compliance is not demonstrated. GIS tools help airport staff to visualise all these systems on a single map and help complete operational tasks faster and more effectively. Asset management also documents the exact location of the airfield's lights, signs and markings, and it is imperative that airport asset-management knows exactly which light, sign or marking require service. GIS systems enable easy identification and simplify maintenance in a timely and cost-effective manner.

Another way to collect data

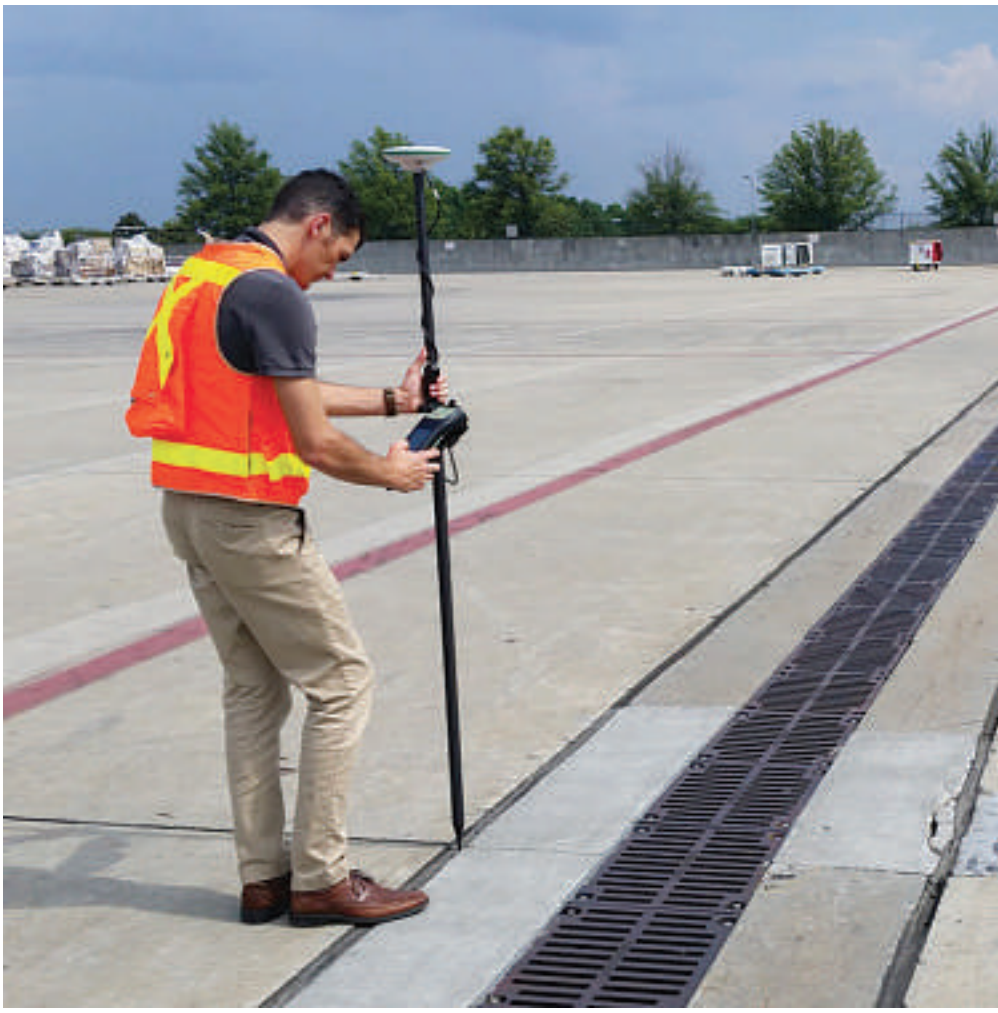
For the past seven years, ATL has relied on survey-grade, GPS data-collection technology to collect utility, pavement and other critical infrastructure data information with centimetre-level accuracy. This equipment, however, uses proprietary software and it was difficult to manage collected data throughout airport operations, mainly because it didn't work efficiently with CAD, GIS planning or the workflows used by the airport's engineering and GIS staff. Therefore, ATL has been

looking for the right solution to map, collect and record its asset and utilities information in one centralised database, and to share this information between decision-makers and field crews.

Three years ago, the airport decided to use Esri's Collector for ArcGIS to collect and update data in the field using smartphones and tablets. Airside and landside operation teams, who worked back in the office on pavement management, required a common software interface to communicate with field crews efficiently and Collector for ArcGIS provided the missing link. The software could set up the collection project, and manage and edit the data in real-time, then export it for use with other systems, such as CAD, with the ArcGIS Online environment.

Smartphones and tablets with Collector for ArcGIS installed on them were used by field crews and proved very popular. They easily understood how to use the already familiar smart device interface and within a short period of time, were quickly collecting, viewing and sharing data in real-time across multiple platforms – online and offline. It was especially helpful for airside and landside operation teams who could easily and simultaneously communicate with multiple field crews any edits made.

Brian Haren, senior GIS program coordinator at ATL, explains: "Landside and airside operations have a requirement to share information on airfield status and needed repairs in real-time. In the past, this meant



Testing the Leica Zeno 20

Hartsfield-Jackson Atlanta International Airport encompasses an area greater than 1,900ha

identifying repair locations using imprecise methods such as verbal descriptions passed by email, text message or phone call. With Collector for ArcGIS, the crews can now share precise location, description, and photo information in real-time across the wide variety of platforms. This has resulted in more timely and efficient responses to critical airfield repair issues."

Moving to a new GIS

When word spread of the recently released Leica Zeno 20 handheld GIS asset collector running on an Android operating system, the airport was immediately interested. The device could run Esri's Collector for ArcGIS, so a survey-grade asset collection device could now be used to collect data with centimetre-accuracy, which the commercial-grade smart-devices previously used could not.

The airport tested the system using an external lightweight GNSS antenna on a pole, and not only did it provide the centimetre-accuracy required, it also could map and record the data in one centralised databank and share this information in real-time. The entire airport now worked with optimised workflows, with back-office crews efficiently managing data and easily incorporating it into their GIS and CAD systems.

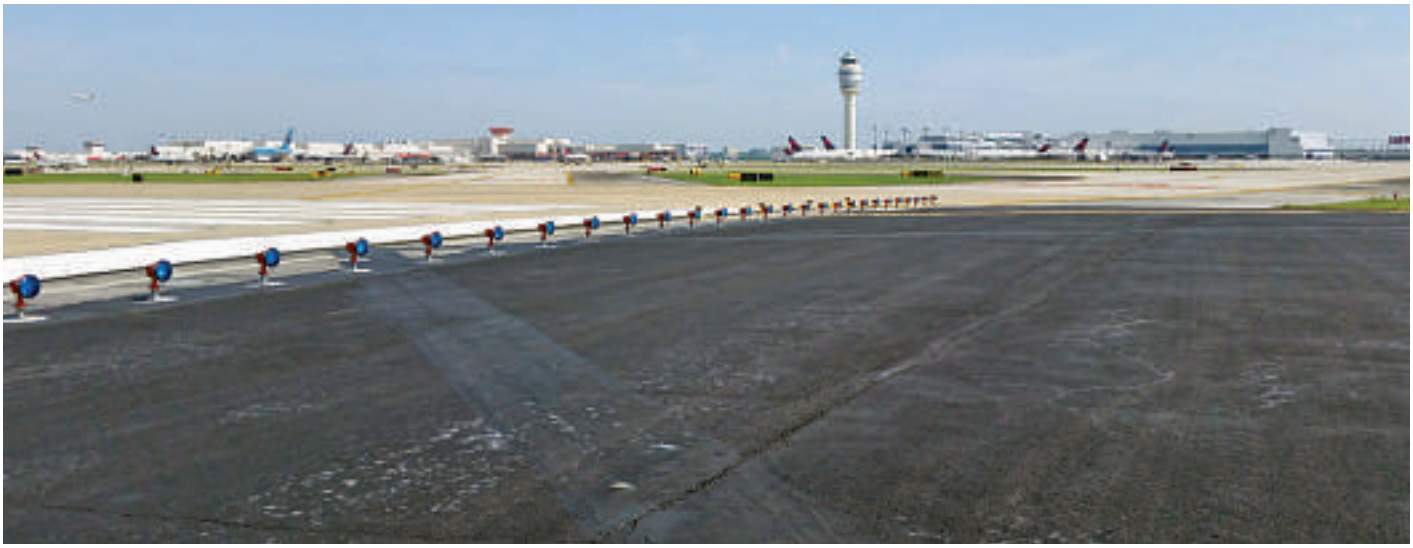
This combination of the Collector for ArcGIS app, Leica Zeno 20 and ArcGIS Online Subscription has now been branded as the ZenoCollector. With the ZenoCollector, field crews could view collected asset data with high-resolution background imagery on large displays. Important decisions could quickly be made in real-time, based on the quality and accuracy of the data collected using ArcGIS Online, a cloud-based mapping platform. Project managers and other key personnel are also able to follow the progress of data collection from their desktops or mobile devices as it occurs.

"The Leica Zeno 20 running Collector for ArcGIS allows us to bring our high precision 2D data collection workflows completely into the ArcGIS environment," says Haren. "This means Esri's ArcGIS Online becomes the hub around which all field data collection activities revolve, eliminating the need for separate third-party solutions and expensive desktop applications. The ZenoCollector provides our aviation GIS, engineering and facilities teams with an easy-to-use data collection experience that is consistent with our consumer-grade smartphone and tablet systems, yet provides the high accuracy and precision we demand for critical airport infrastructure location and identification."

Using the ZenoCollector enables ATL's field crews to accurately capture numerous assets efficiently and communicate in real-time with all involved, documenting the health of this complex infrastructure with survey-grade accuracy. Over the course of time, decreased labour costs and proactive planning will be possible, resulting in a vastly improved lifecycle of utilities and assets at the airport.

A SURVEY-GRADE ASSET COLLECTION DEVICE COULD NOW BE USED TO COLLECT DATA WITH CENTIMETRE-ACCURACY

Monica Miller Rodgers is senior writer and Katherine Lehmuller works for the communications team at Leica Geosystems (www.leica-geosystems.com)



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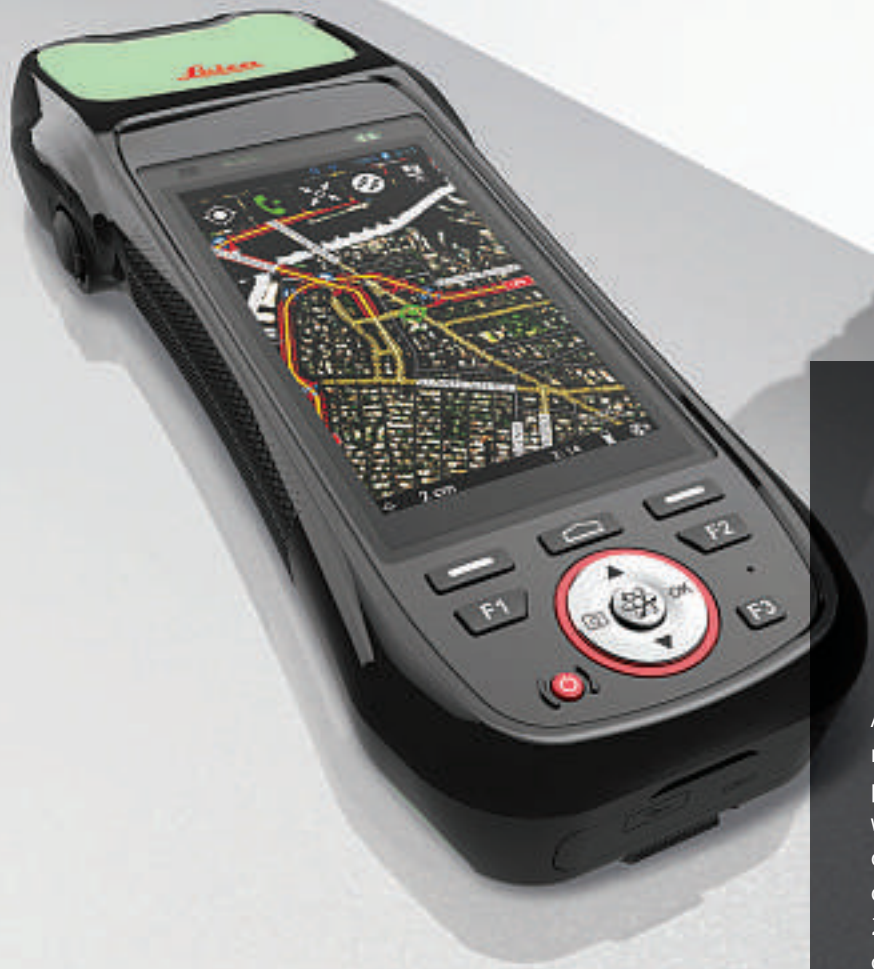

Zeno

Leica Zeno 20
Simplicity without limitations

A GIS collector that goes further and does more, much more, than you ever thought possible. Leica Zeno 20 gives you intuitive workflows that are extremely easy, yet still offering more ways to collect data than any other solution on the market. Leica Zeno 20 sets the standard for GIS/GNSS data capturing.

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