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Romana Kalas
GIS Manager
Johannesburg Water

Flush with information

Water and sanitation utility company, [Johannesburg Water](#), will soon be piloting a programme that will give field personnel access, via hand-held devices, to up-to-date information about Johannesburg’s entire water and sanitation network.

Water and Sanitation Services

Johannesburg Water provides water and sanitation services to more than three million people in the 1 645km² area that makes up the urban system of Johannesburg – the largest city in Africa.

Geo spatial technology plays a fundamental role in service provision by the utility. Its geographic information system (GIS) is a powerful database that allows spatial and related data to be viewed graphically – usually in a map-based format. For Johannesburg Water, this means viewing information, pertaining to 10 000 km of water pipe and 9 000 km of sanitation pipe, in the context of cadastral information relating to about 600 000 land parcels and 102 informal settlements.

GIS information is utilised across the organisation - from the managing director’s office and the strategic planning department to the investment delivery department, which awards tenders for reticulation installation and maintenance. Other users include the utility’s call centre personnel and depots whose operational staff is responsible for pipe repairs.

Johannesburg Water also shares GIS information with other utility companies and is in the process of making information available to the emergency services.

“There have been cases where emergency personnel have been unable to locate fire hydrants in informal settlements. Now control room staff with access to our GIS information will be able to direct them straight to hydrants and other water supplies,” says Johannesburg Water’s GIS manager, Romana Kalas.

Previously a specialist resource, GIS is becoming a mainstream source of business and operations intelligence.

“Ten years ago, for example, an organisation such as Johannesburg Water would have had one or two specialists responsible for producing reports from its GIS,” says Kalas.

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Johannesburg Water's GIS system is a consolidation of the various municipalities, and their IT systems, that came together with the establishment of the Johannesburg uni-city in 2001.

"After extensive investigation, we opted for an Oracle database that operates in concert with a specialist OpenGIS utility application from Munsys Technologies," says Kalas. "The utility application is developed on an Autodesk Map platform, with the viewer element of the system provided by Autodesk MapGuide."

The open architecture of the system has enabled Johannesburg Water's GIS department to enrich information available to the organisation.

"Until fairly recently our maps displayed only a schematic view of the layout of networks. We are now scanning in as-built plans of new installations and linking them to the network.

"In a single click, a viewer has instant access to detailed information about a specific pipe – its depth, diameter, material specification, pipe capacity and length.

"The information is of particular value to the operations staff and will enrich site decision making, particularly when there's an emergency, like a burst pipe. We'll be piloting our first hand-held devices soon and estimate that immediate access to information by field personnel will enhance their service delivery significantly."

Capturing details of as-built plans is a special project for the GIS department, with a total of 60 000 plans requiring scanning.

The open structure of Johannesburg Water's system also enables its GIS department to link with other systems within the organisation and make use of their data. This facilitates seamless integration of applicable systems – to and from the GIS department.

Johannesburg Water is confident that the implementation of this pilot project will assist the company to meet its vision to be number one water services utility in Africa. Implementation of the technology will also contribute to the development of Johannesburg as Africa's world class city.

Technical support and service is provided to Johannesburg Water by GIS specialist, Open Spatial Solutions.

