

INFORMATION MANAGEMENT

Integrated Geometric System Takes GIS One Step Further

By Ian Lucas

Direct IT Canada

Geographical information systems (GIS) are quickly becoming an essential asset and work management tool, changing the way that municipal enterprises locate, view, and make use of spatial, asset and work data.

In Ontario, because the new Municipal Act calls for municipalities to track minimum maintenance standards and implement patrolling, it is all the more advantageous to implement electronic asset-management systems linked to GIS and work-management applications.

Emerging as the industry leader for implementing a full GIS solution is the Sault Ste. Marie Innovation Centre – SSMIC. This non-profit organization won the 2003 Best Municipal GIS Gold Award from the Ontario Chapter of the Urban and Regional Information Systems Association for its integrated geometric system (IGS).

To develop its IGS solution, SSMIC began by forming an unprecedented strategic partnership with both the municipality and the Public Utilities Commission of Sault Ste. Marie, to share information and resources.

"The goal from the onset of the project was to develop a network tool to assist all departments in the efficient retrieval, reproduction and analysis of spatially related municipal infrastructure," says Patrick Planting, applied systems coordinator, Engineering. "Four years later, all departments are seeing the benefits of the true enterprise-wide GIS solution."

Together with EDS Canada, ESRI Canada and J. D. Barnes Ltd., SSMIC has designed, developed and implemented a proprietary IGS that is an enterprise-wide solution. SSMIC also worked with Direct IT Canada to link its solution directly to the work-order management, achieving immediate results for both the City's Public Works department and the PUC.

At a basic level, SSMIC's solution links governments' and public utilities' existing corporate systems, such as finance, work management, property assessment and customer information, to the IGS database. This database represents information such as land base, building, administration, transportation, water, wastewater, electrical and telecom information.

Taking the GIS system one step further, the IGS solution links work orders directly to the relevant geographical databases through Direct IT Canada's Work Manager software. This means that users can also access hyper-linked documents such as engineering plans, digital photos, intersection drawings and sewer service lateral records. The application also permits users to capture data that was previously stored in a number of locations, thus ensuring that all available data is available to the user immediately and with much less effort.

"Several important applications that have been created are having an immediate impact on our day-to-day work activities," says Planting.

SSMIC has developed a logical cluster of applications giving enhanced GIS functionality to all IGS users. The applications designed include Batch Plotting, Hyperlinks, Link Manager, Geometric Network Tracing Functions, Outage Reporting for Utilities Distribution, Routing and Events Management on the Transportation model.

They have several advantages:

- Batch Plotting – Permits the automatic production of different operational maps used by an organization, like topographic, field operation or zoning.
- Hyperlinks – A powerful mechanism to attach multimedia files to any geographic feature included in the geodatabase.
- Link Manager – A generic interface enabling linkage to Work Management Software with the IGS.
- Geometric Network Tracing Functions – Advanced functions that enhance the standard network tracing capabilities of the system.
- Outage Reporting for Utilities Distribution – Tools to analyze and report on service outage for water, electric and telecommunication distribution.
- Routing on Transportation – Creates routes on the transportation network.
- Events on Transportation – Creates events on the transportation network.

"GIS applications in our Works department provide us with improved access to the technical information necessary in the repair or maintenance of municipal

INFORMATION MANAGEMENT

facilities," explains Jim Smithers, manager of systems and training. Public Works and Transportation Department.

"One important application that was created is our GIS viewer," adds Planting. "This basic mapping interface delivers all of our data to all levels of staff and is used daily for quick information inquiries. Our hyper-linking functionality also permits users to view scanned documents quickly and then print them from their location."

With the 1GS system, users benefit immediately from the ability to:

- Access data quickly;
- Geographically locate data;
- Integrate different types of corporate data;
- Execute geographical queries;
- Maintain up-to-date data; and
- Cooperate with other strategic corporate solutions.

"Work planning processes are generally improved by the instant and effortless retrieval of information,

which might be too laborious to obtain manually," says Jim Smithers.

The workgroup, led by project manager Paul Beach, has worked closely with EDS Canada Inc., ESRI Canada, J. D. Barnes Ltd. and Direct IT Canada, each partner providing its own expertise to the project.

- EDS Canada Inc. was involved in the beginning stages as the IT project manager, conducting systems analysis and software development.
- ESRI Canada provided software required for the GIS solution and modeling assistance.
- J. D. Barnes Ltd. was instrumental in capturing field data and handled the conversion of paper engineering plans to digital GIS formats.
- Direct IT Canada supplied the work-order-management software called Work Manager. Linking Work Manager directly to GIS increases the ability to access data from various sources.

"This project proves the value of the product and the expertise resident in the team that developed it," says David Williamson, business manager at SSMIC. "It also proves the value of partnerships, which enabled us to move the product out to market, in turn helping us to position Sault Ste. Marie as a hub for GIS in Ontario."

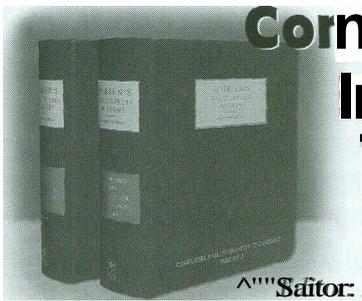
SSMIC and two of its partners, EDS Canada and J. D. Barnes, have been retained to assist Halton Region in the implementation of several 1GS data models beginning with Water Distribution, Sewer Collection, Storm Water Collection and Transportation.

"The SSMIC model permits governments and public utilities to see the benefits of a project, including the ability to maintain up-to-date data, data accuracy, control data security and integrity, as well as cooperate with other strategic corporate solutions," says Eric Boere, project manager, Regional Municipality of Halton.

To meet everyone's needs and functionality requirements, municipal governments need to implement GIS at both a strategic and an operational level. This goal cannot be achieved without solid partnerships - as SSMIC has found. And, as it develops new and enhanced GIS functionality within the flexible boundaries of the integrated geomatics system, building these partnerships is even more important.

Ian Lucas is president of Direct IT Canada, an associate member of MISA Ontario, which provides service-delivery management systems for North American local governments and utilities. He can be reached at ilucas@directitcanada.com. •

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