CASE STUDY: CITY OF HAMILTON, ONTARIO

HAMILTON MANAGES INFRASTRUCTURE WITH COMPLETE GEOSPATIAL INTEGRATION USING INTERGRAPH SOLUTIONS FOR CROSS-DEPARTMENTAL APPROACH TO PLANNING PROJECTS

The City of Hamilton, Ontario, is Canada's ninth largest city. It faces all the complexities of managing infrastructure associated with a city of over 500,000 residents. The city's Public Works department provides everything from the water its citizens use each day, to the roads they drive on, the parks they enjoy with family and friends, and the recycling services that allow them to contribute to environmental preservation in Canada.

Profile: City of Hamilton

The City of Hamilton is located near the southwest corner of Lake Ontario and covers 1,117 square kilometers. In the heart of Canada's most populated province, Hamilton is a dynamic urban center. The city's diverse economy is driven by outstanding transportation infrastructure, internationally renowned educational institutions and hospitals, and a well-educated labor force with a strong work ethic. Hamilton's major industries include manufacturing, health care and life sciences, goods movement and agriculture-related companies. Web site: www.myhamilton.ca

When the city amalgamated seven municipalities into one, it needed an infrastructure management system to bring all of this together. The city wanted an integrated solution that would provide a true enterprise geospatial system, helping identify and create capital spending infrastructure projects. Replacing major infrastructure assets for sewer, water, and roads was a priority. The system was also needed to analyze customer service requests. The city receives more than 100,000 customer service requests each year, generating more than 100,000 work orders. The large volume of data made it difficult to

identify any patterns or trends. In addition, a mobile resource management system was needed to ensure data accuracy and report on vehicle locations and actions. The Hamilton Street Railway is responsible for tracking the entire transit fleet for rider and driver safety, vehicle maintenance, and governmental reporting. City officials also wanted to leverage data provided by the geospatial system for data maintenance, hydraulic modeling, asset management integration, and automated field data collection.

The Project Objectives

Provide a visual and networked approach for identifying and coordinating capital water, sewer, and roads projects

Ensure data accuracy and enable historical reporting of vehicle locations and actions

Identify patterns and trends with customer service requests

The Solution

The city selected Intergraph® and its GeoMedia® technology to build a fully integrated, cross-departmental approach to infrastructure planning and hydraulic modeling. Hamilton selected Intergraph based on the company's long history of cooperative system implementation, including strong asset management integration and an in-house mobile resource management solution.

Intergraph GeoMedia enables users to bring data from disparate databases into a single geographic information system (GIS) environment for viewing, analysis, and presentation. No translation of data is required. Because everyone is obtaining information from the same source, problems with redundant and out-of-date data are avoided. GeoMedia's data server technology supports open standards, providing direct access to all major geospatial/CAD data formats and to industry-standard relational databases. The solution delivers productivity-enhancing tools that allow users to create, validate, maintain, and analyze network data, all within the GeoMedia environment.

Hamilton first began using GeoMedia technology in 1995 and continues to use it today. The flexibility of the solution supports rapid decision making and the efficient deployment of resources. The centralized database enables multi-departmental interaction. Built on an Oracle database, the city uses GeoMedia technology to support total geospatial integration and infrastructure management of several projects.

For data maintenance, Hamilton has implemented GeoMedia PublicWorks Manager as its maintenance tool. GeoMedia PublicWorks Manager is designed to help manage many of the aspects of complex water and wastewater projects – from initial data entry to network analysis and reporting. With hydraulic modeling, the city builds models of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, and floodplain regulation. With its asset management integration project, Hamilton manages asset inventory, customer service, and work order forms. A simplified geospatial infrastructure management system enables data analysis that is deployed to desktop users and laptops for use in the field.

For its integrated decision support system, Hamilton uses a custom GeoMedia toolset that provides a visual and networked approach for identifying and coordinating capital water, sewer, and roads projects. It addresses the city's capital planning infrastructure and management needs. The integrated approach ensures that potential capital projects, and their included assets, are reviewed and approved by all necessary stakeholders (roads, water, and sewer) before the projects are officially initiated. For customer service analysis, the city is able to visualize spatial patterns and put preventative measures in place.

Hamilton also uses a customized Intergraph solution for mobile resource management. The in-house automated vehicle location tracking system ensures data accuracy and enables historical reporting of vehicle locations and actions. With automated field data collection, users can quickly configure a GPS-based data collection device for a broad range of assets for many municipal departments. Users can browse the database and pick the asset and attributes that need to be collected.

From day-to-day operational requirements to infrastructure planning and hydraulic modeling, Hamilton's fully integrated approach utilizes Intergraph technology to deliver the tools to its staff to get the job done. The simplified workflows make more information available to enable better decisions, while improving quality assurance and quality control. Intergraph technology has also resulted in the ability to perform rapid work order assignment and resolution.

Key Benefits

Visual and networked approach for identifying capital works projects

Simplified GIS/asset management environment for data analysis

Ability to leverage data across multiple departments

"The City of Hamilton has been using Intergraph software since the mid-1980s and has since become a spatial data and technology rich environment," says Gerry Davis, City of Hamilton's senior director, capital planning and implementation, Public Works. "In partnership with Intergraph, Hamilton's Public Works department is often recognized as an industry leader for the innovative integration of geospatial technology, used throughout the operations and maintenance and capital planning infrastructure functions, with more recent initiatives in mobile workforce management."

"Canada is an important market for Intergraph, and we are encouraged to see progressive cities like Hamilton embracing geospatial technology to optimize operations and better serve citizens," said Rob Patten, vice president of Security, Government & Infrastructure for Intergraph Canada. "As more cities around the world are encouraged to operate more efficiently while conserving resources, we expect to see technology implementations like this continue to grow."

The Future

Moving forward, Hamilton plans to increase deployment of the mobile resource management solution to more efficiently track its vehicles. The city will also continue to look for additional innovative ways to use Intergraph technology to improve its operations.

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