
Since GIS technology has developed rapidly to support all platforms – corporate networks, individual desktops, web, mobile devices, and the virtual cloud – it is a viable system for modernizing municipal processes.

Strathcona can now identify patterns across the county, and modify schedules and budgets to prepare for the coming year.

“Without adopting a mobile solution, we simply wouldn’t have been able to comply with this new legislation. Access to real-time data means that work is never duplicated and the entire organization is aware of the latest ongoing activity,” notes Sean Smyth, GIS analyst for Strathcona County.

Measuring Program Effectiveness

Maintaining consistent, mapped civic address records is essential to delivering municipal services. The Regional Municipality of York addresses this challenge using GIS. With a yearly population growth of 30,000, demands for address information in the region is frequently expanding. In response, they developed a robust address locator that supports various programs throughout the community.

The centralized address point database includes common street name information for roads, address points, and parcels. The region used GIS to improve the geocoding process, so that the system can automatically reconcile misspelled, nonstandard, or alternate street names. When users search for a particular address record, the locator yields a more than 90 percent address match rate. The system serves as the backbone of environmental programs such as Water for Tomorrow, which offers residents rebates on water-efficient toilets and rain barrels. To analyze results, the region’s Geomatics Branch geocodes thousands of records and creates density maps that display demographic characteristics of the program’s participants. This helps the region determine optimal sites to promote water-efficient tools.

“GIS is a valuable system for increasing productivity,” says John Houweling, Geomatics Director at York Region. “Through automated geocoding, we can produce data and maps showing households participating in the region’s programs in a matter of hours rather than weeks. This allows us to monitor the effectiveness of our programs and guide future projects to ensure that we’re delivering the right services where they’ll make the most impact.”

As a next step, the region’s environmental services department initiated a pilot project to evaluate actual water consumption patterns in communities across the region based on geocoded addresses.

Moving Services Online

Since GIS technology has developed rapidly to support all platforms – corporate networks, individual desktops, web, mobile devices, and the virtual cloud – it is a viable system for modernizing municipal processes, defining new efficient service delivery and governance models, and making services environmentally sound.

Consider New Brunswick, where mining exploration is a key industry. To promote sustainable mining, they replaced their traditional ground staking process with an online map staking system. The system increases government transparency by providing public access to information about land staking activities in their community.

To create this system, the province merged their mineral title acquisition and administration system and their resource allocation mineral management system with GIS. Through the online system, prospectors worldwide can now access maps, search land, and register for their prospecting licence without leaving their home or office. They can also view rivers, streams, and other

features to determine where to locate a claim and overlay geology to pinpoint geological hotspots. Once a land acquisition is confirmed, they can make a secure online payment and the new claim is represented on a web map.

The new online map staking system has created greater administrative efficiencies for the government and industry. It has streamlined the entire claim acquisition process, and enables faster resolution of title conflicts, as well as rapid permit and payment processing.

Another example is the City of Airdrie, Alberta, which moved to an online, virtually paperless census collection system that has reduced annual costs by nearly 80 percent and increased productivity by 50 percent.

The city equipped enumerators with ruggedized tablets that allow them to access live GIS maps from the corporate network while in the field. To overcome security concerns, a personal identification number (PIN) system was implemented that processes municipal addresses and creates eight-character id numbers. The PIN numbers are hand-delivered to residents who are then given three weeks to fill out the online census. After this time, enumerators go door to door to the outstanding addresses.

By 2011, 55 percent of residents were using the online system, reducing the amount of field enumeration by over 50 percent. The city now conducts its census collection for only \$20,000, or \$1.42 per address, as compared to other similarly sized cities that spend over \$100,000, or up to \$7 per address.

“Moving to the online census system has greatly enhanced efficiency for enumerators and keeps our city’s demographic data current. Our web-based process has also cut field enumeration by half, providing significant savings on travel costs, as well as reducing our

reliance on paper forms,” says Corey Halford, IT Data Services Team Leader for the City of Airdrie.

Empowering Citizens to Become Environmental Stewards

GIS is also a powerful engagement tool. Through cost-effective web and mobile mapping applications, municipalities can provide self-serve access to information and analysis tools that can guide residents’ actions and encourage them to preserve the environment.

A good example is the District of North Vancouver’s solar application, which promotes the adoption of solar water heating systems in private homes. Through an online map, residents can

locate their home, see how much sunlight hits each square metre of their roof in a year, determine the best spot to place a solar water heater, and find out how much money they can save by installing the system.

The GIS application uses Light Detection and Ranging (LiDAR) or remotely sensed data, and takes into account the slope and orientation of individual roofs, the location and height of trees and buildings, sun movement, cloud-cover patterns, and other data. Now, at the click of a button, residents can determine if their home is suitable for solar technology.

Without question, GIS is a powerful and versatile technology. Its ability to

integrate and map data from numerous sources provides rich context for smarter environmental analysis and planning. The efficiencies gained from geoenabling processes improve productivity while mitigating risk to the environment. Protecting the environment is not the government’s responsibility alone: GIS facilitates public participation in decision making and finding the right balance between economic, environmental, and social priorities.

We only have one world. Using GIS helps us to make the best use of our environment while protecting it – ensuring a sustainable future for us and the generations to come. [MW](#)

as published in

Municipal World

CANADA’S MUNICIPAL MAGAZINE – SINCE 1891

1-888-368-6125

www.municipalworld.com