

The City of Quinte West unifies communications



With a population of 46,000, the City of Quinte West is situated on the shores of the beautiful Bay of Quinte serving as the gateway to the world famous Trent Severn Waterway. The exquisite rural natural features of the City are complemented by a strong, vibrant and diverse economic base while also serving as home to Canada's largest military base, CFB Trenton/8 Wing.

GIS framework. A GIS-based solution was a requirement since GIS is used in all of Quinte West's city departments. In addition, the inherent capability of GIS was the ideal mechanism to centralize and visually display information. PRISM-GIS also leverages Latitude Geographic's GeoCortex Internet Mapping Framework (IMF) which features a set of powerful tools that helped simplify the development of the application.

Land Information Ontario (Ontario Ministry of Natural Resources) and Emergency Management Ontario. The PRISM-911 component is a software tool linked to the City's PRISM-GIS that utilizes VoiceGate's emergency telephone notification technology to provide automatic notifications during an emergency. VoiceGate, a leading supplier of telephone equipment and voice processing systems, is the vendor that supplies the dialing engine for PRISM-911.



An area of isolation based on a chemical spill is delineated using the TIIPAD Tool which triggers a telephone notification to residents.

In 2006, City Council asked the City's GIS Division and IT staff to develop a telephone call out notification system after a series of boil water advisories were issued. This decision was the result of the time and effort spent on notifying residents during the advisories. Notifications involved a significant amount of manpower and were time consuming since City personnel had to travel door-to-door to ensure that all affected residents were advised. City Officials saw this system as an opportunity to foster collaboration with fire and police in the event of future advisories and emergencies.

The City developed a system called PRISM which stands for Protective Response Interactive Services Management. The system, which took 18 months to develop and implement, consists of two primary components – PRISM-GIS and PRISM-911.

PRISM-GIS is a web-based GIS application that leverages the city's ArcIMS and ArcSDE

Data within the PRISM-GIS includes; live weather radar feeds from the U.S. National Oceanic and Atmospheric Administration (NOAA) and Environment Canada. Other detailed layers include floor plans of schools, retirement homes, commercial buildings, cadastral data, digital elevation models, 1 meter contours, municipal public works data (water, sanitary, fire hydrants, traffic lights), airport and hospital locations, half metre

orthophotography from 2002, and various base mapping layers from the Ontario Geospatial Database Exchange. Additionally, the Quinte West Fire Department supplied their fire response times which are a series of georeferenced points spread throughout the City that list the response times from each of the City's seven fire stations. The Ontario Road Network is supplied by Land Information Ontario through a web map service (WMS).

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Steve Whitehead, Geomatics Coordinator, City of Quinte West

After developing PRISM-GIS and securing funding from GeoConnections in 2007, the City implemented PRISM-911 in cooperation with their project partners ESRI Canada,

Core users of PRISM-911 consist of select emergency responders from the Quinte West Fire Department, the Quinte West O.P.P and City GIS and IT staff who assist with the activation of PRISM-911 and the community telephone notification process in the event of an emergency. From within PRISM, the user has instant connection to a web-based version of the Emergency Response Guide Ontario (ERGO). Based on the ERGO guide for chemical spills, the City of Quinte West GIS and IT staff developed a Table of Initial Isolation and Protective Action Distances (TIIPAD) tool that can map an evacuation area. This tool collects important information including material spilled, time of day, wind direction and size of spill, and plots the evacuation area to the PRISM map. The selected residents located in the area can then be notified using PRISM-911.

One of the most significant capabilities of PRISM is that it provides for map-based interaction via map sketching so that users can communicate real-time information such as accident sites, evacuation routes, road closures, staging areas, helicopter landing sites and triage areas. This gives emergency personnel a near real-time collaborative view of events taking place in the City. PRISM also allows users to save their sessions for historical record during an emergency. Distances, approximate time calculations between sites as well as area calculations can all be performed with ease. Maps can be saved in .PDF format with the click of a button and e-mailed instantly.

PRISM has greatly increased situational awareness for Quinte's Command Centre by giving emergency responders the ability to quickly visualize, understand and share complex information from a centralized location. Emergency Responders in the field can com-

municate with the Command Centre via wireless laptops utilizing Microsoft Live Meeting which has the ability to record events as they happen, or they can choose to access PRISM directly. Users can access a host of information including detailed floor plans of schools, commercial buildings, and other buildings that are hyperlinked to the map. Prior to having this capability, emergency responders would have had to gain access to data and information from a wide variety of locations and formats.

"PRISM is truly a powerful GIS application that merges several technologies into one complete solution that has proven to be a great success for the City of Quinte West," said Steve Whitehead, Geomatics Coordinator, City of Quinte West. "The system provides the City with the ability to contact its citizens quickly and efficiently during emergency situations such as a chemical spill, fire, train derailment, boil water advisory or missing child report."

PRISM in Action

In January 2008, a boil water advisory was issued for the residents of Batawa, Ontario. The PRISM-911 application notified over 100 area residents of the advisory and then again when the notification was lifted. In April of 2008, PRISM-GIS and PRISM-911 was activated for a flood warning along a portion of the Trent River in Quinte West. The City quickly mobilized the system to notify its residents located in or near the flood plain area of the flood warning. The flood plain area was delineated in PRISM-GIS, and a recorded telephone message was created using PRISM-911 and sent to several hundred residents who were affected along 32 kilometres of the Trent River.

With PRISM the City can now activate a call out campaign within 15 minutes of receiving the emergency. The entire process can be activated remotely from wireless laptops and is available to City Officials, the Fire Department and the Quinte West OPP as a full 24/7 municipal service.

The City will be developing PRISM-GIS on ArcGIS Server and will be migrating the application to this platform in the future. The City of Quinte West is investigating the concept of a regional PRISM-911 network system where municipalities would be able to share resources. GIS staff are also currently working with GeoConnections and ESRI Canada in building GeoRSS capabilities into PRISM which will facilitate inter-agency information sharing using interoperability standards and specifications. In addition, 20 cm digital orthophotography will be supplied under the DRAPE project and implemented into PRISM by the end of 2008.

City of Quinte West
<http://www.city.quintewest.on.ca/>