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### **GEOMATICS BUSINESS SOLUTIONS - ANNUAL REPORT 2008**

The Planning and Economic Development Committee recommends the following:

- 1. Receipt of the presentation by Nancy Prout, Director, Geomatics; and**
- 2. Adoption of the recommendation contained in the following report dated December 2, 2008, from the Commissioner of Planning and Development Services.**

#### **1. RECOMMENDATION**

It is recommended that:

1. This report be received for information.

#### **2. PURPOSE**

To inform Committee and Council of York Region's Geographic Information System and how it enables efficient operations and strategic initiatives in the Region.

#### **3. BACKGROUND**

The Business Solutions Section of the Geomatics Branch manages the Region's Geospatial Infrastructure, which comprises server and desktop GIS software, data warehouse, on-line mapping, and applications. The section also plans, designs and delivers location-enabled applications to improve operations and provide improved decision support.

Geospatially-enabled applications allow users to use and analyze information with respect to location as part of their business processes. This informational infrastructure encourages data-sharing between different business units with the Region, and also between the Region and its municipal partners, through integration with other systems such as those used for asset management, and the corporate financial system. With the strategic goal of providing access to managed geospatial information, the geospatial infrastructure includes a self-service environment used by staff throughout the corporation, as well as by staff in local governmental agencies and the public.

#### 4. ANALYSIS AND OPTIONS

##### 2008 Highlights

##### **YorkExplorer is highly utilized by Region staff, partners, public and private sector**

YorkExplorer is York Region's Internet mapping service and enables access to a variety of interactive maps pre-prepared published maps. All are described in a searchable online inventory of the Region's geographic resources. YorkExplorer is available for staff, partners, and the public to use anywhere, anytime. Use is significant by other public-service agencies and utilities, regional staff, and the public.

The nature of how geographic information is accessed is changing and the Region is meeting that need. Use of YorkExplorer's web map services has doubled each year, while traditional site visits to YorkExplorer with its interactive mapping application are down slightly (6%). Web map services can be used with different GIS software and allow users to incorporate York Region maps into their own application - dynamically delivered through the Internet. The Region's web map services were accessed approximately 17,000 times in 2008, 8,000 times in 2007, and 4,000 times in 2006.

For the period of November 2007 - October 2008, key use statistics include:

- 140,100 visits to the YorkExplorer website, with the average visit lasting about 12 minutes, up slightly from the year prior.
- 1,200 visits per month from internal users (York Region staff), down very slightly from the year prior.
- 9,300 external users per month visited the YorkExplorer website, consistent with the year prior.
- 14,000 published maps were downloaded per month, up from 13,500 the year prior
- 3,000 downloads per month of the Take a Hike Map, the most popular downloaded map.

In 2008, the YorkExplorer's interactive mapping application was enhanced for ease-of-use and functionality including interactive explanation of the tools and new tools for marking-up maps instantly and sharing them with others through email.

Several existing interactive maps were enhanced cartographically, and four additional interactive map views were published on YorkExplorer, they include:

- *A road operations map*, for staff to identify assets on, and characteristics of the regional road network.
- *A bus stop inspection map*, for YRT's contractor to locate and plan the delivery of the contracted services.
- *A wellhead protection map* that shows land holders what wellhead protection zone that lands are in.
- *A trail map* that shows where trails can be accessed and where they lead.

Public and staff expectations of on-line mapping tools is much higher as a result of commercial services such as Google Maps and Microsoft Virtual Earth. These systems present geospatial information on an easy-to-use interface, although they do not have most of the capabilities, nor the depth and breadth of information available through the Region's on-line mapping services, or server-based applications, in terms of assisting in complex tasks such as police dispatch or ambulance positioning. There are now opportunities to both improve ease of use of existing Regional on-line mapping, and utilizing the interface of services such as Google Maps and Microsoft Virtual Earth to show regionally-specific information. This will be the focus of on-line mapping in 2009. An example of this kind of initiative is York Region Transit's use of Google Maps to show transit routes and service.

### **The Regional Planning Atlas applications support planning tasks**

In 2008, the Regional Planning Atlas (the "Atlas *Plus*" project) applications were completed and made available to project-partners. The applications are designed to assist planners at York Region, local municipalities and conservation authorities in responding to the growth management provisions of the provincial Places to Grow initiative (see PEDC 2008:7(9)).

An on-line property look-up view calls upon several databases that were not previously available to many planning users, and features an address label-maker so officials can more easily send out notices about public meetings and infrastructure projects. In addition to the primary audience of planners, public works staff are also able to use this application. A regulatory lands view enables land planners to easily access all the data about regulations and development restrictions that apply to a particular parcel of land. A simplified public view is tailored to the needs of property owners, developers and real estate professionals. Two other applications enable calculations about the density of particular neighbourhoods, and explore the potential for building new residential units in existing neighbourhoods so as to avoid urban sprawl. The region is now better able to monitor its impact on the environment, using baseline data and comparing these to existing conditions through a specialized environmental monitoring application.

This project enabled the Region to have a "next generation" technology platform that extends the highly successful self-service model. Over the Intranet or Internet, self-service can now include processing of complex geospatial operations in near real-time, generating sophisticated map-based reports, and distributing geographic information in new and more efficient ways.

The first internal-only application that leverages the technology investment allows Geomatics to efficiently sub-license and distribute copies of geospatial data to the Region's contractors. Over 250 custom data deliveries were done in 2008. Now, the majority of these custom data deliveries can be completed by staff with little effort using the Self-Serve Geospatial Data Delivery Application.

### **Technology enhances operations and service delivery**

The following applications were implemented in 2008 to improve the management of the geospatial technology infrastructure:

- Web map application monitoring software ensure that that any technical issues are identified and resolved quickly.
- Software license use reporting software help ensure that staff have access to the Desktop GIS tools required for their day-to-day tasks.
- Job scheduling software supports many un-attended data processing tasks allowing staff to focus on other activities.

The following software applications were enhanced to improve the efficiency of data creation, visualization and information access.

- The GIS data editing application for Roads, Address Points and Parcels is being upgraded to support the new version of GIS software that the application is based on.
- High performance workstation PCs to produce 3D GIS videos and illustrations.
- A security appliance was implemented to provide encrypted authorized access to the geospatial information delivered on the new Internet mapping platform.

The Geomatics Branch- Business Solutions Section coordinates GIS software upgrades for the corporation. The primary software suite used in the Region is ESRI's ArcGIS software. An upgrade to ArcGIS 9.2 has been partially completed. Desktop GIS users can expect that upgrade in the first part of 2009.

### **Geomatics supports efficient regional operations and asset management**

The Business Solutions Section is actively supporting asset management initiatives in all Transportation Department, Environmental Services Department and Property Services branches. Support includes assisting in identifying and implementing technology that maximizes the geospatial infrastructure.

The Business Solutions Section continues to support the geospatial data requirements of business applications that do not directly interface with the geospatial technology infrastructure. These applications are critical to the business operations, and include:

- York Region Transit's Trapeze application for bus scheduling and routing software application
- York Region Transit's TransView for scheduling door-to-door shared ride accessible public transit service
- York Region Transit's INIT Automated Vehicle Location (AVL) tracking for buses
- Police Services' Versaterm dispatch application
- Emergency Management Services' Automated Vehicle Location application
- Emergency Management Services' Marvlis Ambulance positioning application
- Environmental Services' wastewater inflow & infiltration modelling application

- Transportation Services' Traffic Engineering System
- Transportation Services' application "Mr. Compliance" for road patrol compliance reporting.

The Business Solutions Section also supports and upgrades, as necessary, the custom Desktop GIS and mobile GPS applications (such as the transit facility, street light, street tree and West Nile Virus GPS applications) developed to assist regional business operations.

## **2009 Directions**

### **Continued support for asset management, on-line addressing, alternate on-line mapping, and 3D GIS**

In 2009, the Business Solutions Section will focus on improving the responsiveness, scalability and manageability of the geospatial technology infrastructure. This supports the overall strategy of enabling the self-service model across the corporation. The 2009 activities will support more users doing more complex self-service tasks, often facilitated through specific commercial applications.

The integration of GIS into the Region's business processes will continue in 2009. Some Region departments are investing in business solutions that directly interface or integrate with the geospatial information and geoprocessing capability delivered on the Intranet or Internet. Scheduled for deployment in the next year or two are:

- Archibus for facility management
- Infrastructure Improvement Portal for W/Ww capital delivery
- W/Ww digital as-built submission application
- W/Ww engineering drawing retrieval application
- Roads asset management systems.

A project initiated in 2008 to deliver address processing web services that will correct, validate, and geocode civic addresses will be available for use in 2009. Candidate business areas/applications that will benefit from addresses being entered correctly are many. A pilot project to assess the feasibility of a corporate Automatic Vehicle Location solution for EMS and Roads is in consideration. The Geomatics Branch will expand access and interoperability by leveraging online mapping tools such as Google Maps and Microsoft Virtual Earth.

The 3D GIS program is an important corporate initiative. The 3D GIS industry is very dynamic with new capabilities, models and production approaches emerging all the time. The strategy for Region 3D GIS is to continually evolve the 3D GIS program. The goal is to mature 3D GIS from being a highly specialized service offering to a self-service offering enabled by tools, user training, and supportive accessible data.

## **5. FINANCIAL IMPLICATIONS**

Negotiated service agreements and partnerships support many of the technology management and business solution services provided to internal clients.

## **6. LOCAL MUNICIPAL IMPACT**

Negotiated service agreements and partnerships support many of the business solution services provided to internal clients. Project partners have provided the necessary GIS data for the Regional Planning Atlas application suite. Local Municipal staff use YorkExplorer and the Regions web map services to their benefit.

## **7. CONCLUSION**

The Geomatics Branch continues to integrate geospatial technology into business processes across the corporation, providing needed information for regional operations, planning, and the management of growth. York Region staff have a variety of tools to access the wealth of geospatial information stored in the Spatial Data Warehouse. YorkExplorer website is heavily used by regional staff and the public. Next year the Geomatics Branch-Business Solutions Section will ensure the self-service model can be extended by planning, designing, and implementing the necessary technology improvements to handle to the capacity requirements.

For more information about this report, please contact Andrew Satterthwaite, Manager Business Solutions at (905) 830-4444, Ext. 1546 or Nancy Prout, Director, Geomatics Branch at Ext. 1529.

The Senior Management Group has reviewed this report.