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### **GEOMATICS BUSINESS SOLUTIONS - ANNUAL REPORT 2006**

**The Planning and Economic Development Committee recommends the adoption of the recommendation contained in the following report November 30, 2006, from the Commissioner of Planning and Development Services:**

#### **1. RECOMMENDATION**

It is recommended that this report be received for information.

#### **2. PURPOSE**

To inform Committee and Council on progress in the development of a geospatial information infrastructure, and of GIS business solutions developed to assist in the efficient delivery of York Region operations and growth management.

#### **3. BACKGROUND**

The Geomatics Branch develops business solutions, implements applications and re-engineers business processes to incorporate geographic information and create efficiencies in the corporation's operations. GIS applications allow users to use and analyze information with respect to location as part of their business processes. The geospatial infrastructure to support business applications is responsive to the needs of the corporation, encouraging data-sharing and reducing information silos. With the strategic goal of providing access to managed geospatial information, the geospatial infrastructure includes a self-service environment. The Geomatics Branch supports over 100 staff using desktop GIS applications in departments throughout the corporation. Other staff, and the public, access the York Region GIS through YorkExplorer, the Region's internet mapping service.

#### **4. ANALYSIS AND OPTIONS**

##### **4.1 2006 Highlights**

##### **4.1.1 YorkExplorer Internet Mapping**

YorkExplorer is an internet mapping service delivering interactive geographic information and map products to staff, partners, and the public, that has undergone significant expansion in 2006. YorkExplorer is the tool of choice for many to access geographic information about York Region. YorkExplorer is used heavily by the public

and regional staff: in October 2006, for example, over 8,750 visits to the site were made, with the average visit lasting longer than 16 minutes. Site usage is continually growing, for instance, from approximately 6,600 visits in August 2006 to 8,750 visits in October 2006.

YorkExplorer mapping services have been expanded in 2006 to include:

- 15 public interactive views
- 6 password-protected interactive views for regional staff use
- 4 Web Map Services that internal and external users can be pull into their own GIS applications
- 3 map services embedded in other York Region websites
- 144 downloadable maps.

All products are fully documented with searchable metadata, so the viewer knows all pertinent information on the currency and accuracy of the maps available.

Improvements were made to the YorkExplorer website. The internet maps now directly access the Region's most recent published spatial data, and any duplicate data will be eliminated to reduce site maintenance efforts. YorkExplorer Usage Analysis has been improved with the addition of LiveStats XP software. A clear picture of how many people are using the site, when they are using it, and how they are using it can be generated now. For example, in October 2006; Over 900 visits from internal users (York Region staff):

- 7,850 external users visited the YorkExplorer website
- 6750 published map products downloaded, with
- 500 downloads of the Regional Municipality of York Boundaries map, the most popular download.

The site is more heavily used during the workweek as compared to weekends. YorkExplorer's Address Locator was the most popular entry page for visitors. The YorkExplorer navigation interface has been improved, and more closely integrated with new Geomatics Branch web content developed for the corporate web site.

Web map services allow a GIS user to incorporate York Region map images into their own application through the internet. These were accessed approximately 12,000 times in 2006, up from 4,000 times in 2005.

Additional interactive views were added to YorkExplorer in 2006 to aid specific business units. These include:

- An *elevation view*, that enables users to look at the spot heights and contour information to within 5m, and assists in the planning for water and waste-water services (publicly accessible).
- A *commercial pollutants tracking view*, that enables users to interactively update information on potential water contaminant hazards associated with dental products (password protected for transportation and works staff).

- A *forestry view*, that shows regional forests and significant woodlands throughout the region, and assists in natural heritage planning (publicly accessible).
- A *benchmarks view*, that shows where provincially surveyed spot height markers are located, and is useful for land surveyors (publicly accessible).
- Additionally several existing views were improved with the addition of data layers, such as the 5m contour data layer added to the regional basemaps (publicly accessible and password protected views).

#### **4.1.2 Improved GIS Hardware and Software Environment**

Following extensive hardware and data preparation work in 2005, regional staff were provided access to the Region's Spatial Data Warehouse in 2006, and an older file-based geospatial information source was retired in April 2006. At the same time, desktop users were upgraded to ESRI's ArcView 9.1, without service interruptions using automated software deployment. These changes improved the efficiency, security and reliability of the York Region's GIS infrastructure.

In support of Emergency Operations, a copy of geospatial data on hard-drives is now stored at both off-site and on-site locations, so that it is accessible in case access to the building or the IT system is compromised.

The following new GIS software was installed in for use by Geomatics staff to improve the efficiency of data creation and geospatial analysis:

- Safe Software's Feature Manipulation Engine (FME) suite: This software suite provides the capacity for automating data transformations. Routine data exports to support third-party applications that use GIS, such as YRT's Trapeze bus routing system have been automated. Similarly routine data exports to support YorkInfo Partners that use York Region spatial data have been automated, saving time and improving export reliability. Automated editing tools were built to expedite editing of roads, parcels and address points, and to allow Transportation and Works staff to directly edit speedzones in the Region's road network.
- ET GeoWizards: This software provides additional analytical tools within ArcGIS for analyzing and modifying spatial data.
- SketchUp: A professional drawing software for creating 3D buildings for use in 3D GIS, and video editing software for editing 3D video output.

Additionally, ESRI's ArcGIS Explorer and GoogleEarth technologies were explored for potential use for internet 3D GIS.

The Geomatics Branch migrated to the new corporate FTP system to facilitate the efficient transfer of large spatial data files between the Region, local municipalities and consultants working on behalf of the Region, and the existing Geomatics FTP site was retired.

As a result of these initiatives and earlier improvements to the geospatial infrastructure and information management activities, York Region Geomatics Branch was recognized with the URISA Ontario Silver Best Municipal GIS Award, and also with the URISA Ontario Silver Best Web GIS Award (see York Region receives URISA Awards For Municipal Enterprise and Web GIS, PEDC report, May 11, 2006).

#### **4.1.3 Business Process Re-engineering**

In 2006, business solutions were developed and implemented for internal clients to create more efficient and effective business processes. Such applications include:

- A geospatial project was created using the Region's Citrix technology for Transportation and Works staff and the consortium of consultants working on the South-East Collector Project. The web-based project ensures that all consultants are working on the most recently published mapping for an area that includes portions of York Region, Toronto, and Durham Region, and that they are not duplicating their geographical analysis.
- A website for the YorkInfo Partnership was created in October 2006 that enables local municipalities, conservation authorities and school boards to contribute web-pages, project documents, and contact lists to allow improved co-ordination of the partnership, and collaboration work on projects.
- Asset management applications including a new streetlight GPS application and upgrades to the street tree GPS applications were undertaken. The Geomatics Branch has also arranged several vendor demonstrations of asset management software for other departments, and is actively engaged in improving management of the Region's assets.

The Geomatics Branch continues to support commercial applications used by emergency services and Transportation and Works that have GIS components to them. Supported systems include:

- York Region Transit's Trapeze scheduling and routing software applications
- Transit's Transview scheduling software
- INIT Automated Vehicle Location (AVL) tracking for VIVA buses
- Police Services' Versaterm dispatch application
- EMS's Grey Island AVL application
- Marvlis Ambulance positioning application
- e-Drawings
- Traffic Engineering System.

The Branch has worked to improve the efficiency of data provision to these applications using FME data transformations. Geomatics also supports the custom desktop and GPS applications (such as the transit facility, street light, street tree and West Nile Virus GPS applications) developed internally to assist regional business operations.

A 3D GIS Program was started in 2006 (see Urban Visualization Modelling, PEDC report, August 23 2006), to assist with growth management and transit initiatives.

#### **4.2 2007 Directions**

In 2007, the business solutions group will focus on upgrading the GIS software to take advantage of new geospatial processing functionality, and enable additional functionality to web-based GIS. This is part of an overall strategy to continually improve the self-service environment for GIS users across the corporation.

In 2006, the Geomatics Branch made two applications for funding to the federal GeoConnections program, in collaboration with local municipalities and conservation authorities. While GeoConnections will only fund one project at a time, if successful, the proposed projects will provide sustainable development-targeted funding for either a regional atlas or a web-based geospatial applications for planning decision making in 2007-2008.

The 3D GIS program initiated in 2006 will continue to be a development area in 2007. (see Urban Visualization Modelling, PEDC report, August 23 2006)

The integration of GIS into the Region's business processes will continue in 2007. Asset management is a key area for further integration, and the Geomatics Branch will actively participate in corporate initiatives aimed at improving asset management practices.

### **5. FINANCIAL IMPLICATIONS**

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

### **6. LOCAL MUNICIPAL IMPACT**

Local municipalities and the public use information made available through the YorkExplorer website. Through the YorkInfo Partnership, local municipalities and conservation authorities are made aware of technical infrastructure the Region develops. In May 2006 the Region hosted a workshop on ArcSDE with industry participation that was attended by staff from five area municipalities and two conservation authorities.

A website for the YorkInfo Partnership was created to enhance collaboration amongst YorkInfo Partnership members. GIS staff from all local municipalities can post GIS related-materials to the site, and download GIS-relevant materials.

Two applications for funding led by York Region in co-operation with local municipalities were made to the federal GeoConnections program in October and November 2006. While GeoConnections will only fund one project at a time, if

successful, the proposed projects will provide sustainable development-targeted funding for either a regional atlas or a web-based geospatial applications for planning decision making. Decisions on these cost-shared funding applications are expected in early January 2007.

## **7. CONCLUSION**

The Geomatics Branch continues to integrate GIS into business processes across the corporation, providing needed information for regional operations, planning, and the management of growth. York Region GIS users now access published spatial data through a Spatial Data Warehouse that is secure and robust. The YorkExplorer internet mapping website offers more services, and is heavily used by regional staff and the public.

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The Senior Management Group has reviewed this report.