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GEOMATICS BRANCH – ANNUAL REPORT 2010

The Planning and Economic Development Committee recommends:

- 1. Receipt of the presentation by Karen Close, Acting Director, Geomatics; and**
- 2. Adoption of the recommendation contained in the following report dated January 24, 2011 from the Commissioner of Planning and Development Services.**

1. RECOMMENDATION

It is recommended that this report be received for information.

2. PURPOSE

This report informs Committee and Council on key program and project activities delivered by the Geomatics Branch in 2010.

3. BACKGROUND

Geospatial Information influences our lives

In our everyday lives we experience the advantage that location adds to decision making. From global positioning systems (GPS) receivers built into cars to Google Transit on mobile phones, to new location-based social media channels like Twitter, the power of location has resulted in an increased interest in municipal geographic information system (GIS) programs.

While geographic information systems (GIS) have been a mainstream technology for over 20 years, GIS has moved beyond acceptance to being a vital business tool supporting municipal policy, service planning and delivery.

York Region has invested in GIS, or more generally, geospatial information technology since the mid-1990's, and has a program that serves most lines-of-business in the corporation. Further, through the YorkInfo Partnership, the benefits from the investment are extended to local municipalities, conservation authorities and school boards in York Region.

Key accomplishments in 2010 included satisfied customers, new web mapping applications that improve access to information for work planning and coordination.

4. ANALYSIS AND OPTIONS

The Geomatics Branch supports the corporation

The Geomatics Branch operates within the Planning and Economic Services Department. The Branch has a responsibility to support all departments in the Region, York Regional Police, York Region Rapid Transit Corporation, Vaughan Fire and Central Fire Services, school boards and conservation authorities that have an interest in the Region.

The Geomatics Branch has developed and manages a corporate geospatial information infrastructure. The ‘corporate geospatial information infrastructure’ is the name given to the ecosystem of geospatial data, technologies, people, processes, and products made available to the departments and agencies listed above.

The Environmental Services Department and Transportation Services Department are heavily reliant on the corporate geospatial information infrastructure, particularly to support the management of tangible capital assets and the capital delivery program. The Planning and Economic Development Service Department utilize the Geomatics Branch for mapping and analytical services. The Community Services and Health Department are well positioned to extend the success that GIS technology has brought to some specific programs, such as the tobacco inspection and food premise inspection programs.

Successfully adjusting to increased operational commitments

The Geomatics Branch has a considerable operational portfolio. Commitments include keeping geospatial information such as address information up-to-date for the benefit of “first responders” (Police, Fire, EMS), updating mapping products such as the Street Atlas map book, delivering technology training open to regional and local municipal staff, supporting York Region’s Transit’s business applications to co-managing geospatial information technology such as web map servers and geospatial database servers.

In 2010, operational commitments increased. This is a result of new applications launched in 2010. In addition, geospatial information was added to the spatial data warehouse to meet the needs of various internal departments. As the operational commitments expand and service delivery expectations increase, the Geomatics Branch has suitably used contracted resources to advance new initiatives.

Responding to regional growth

At the end of 2010, 14 geospatial data layers were added to the spatial data warehouse. The spatial data warehouse now holds 553 geospatial data layers maintained to the schedule established. Regional development growth resulted in a composite 38 per cent increase in the number of parcels, address points, road segments, subdivision plans and related scanned land plans added to the spatial data warehouse.

Two additional business applications that have geospatial technology embedded went into operation in 2010. A total of 20 business applications are now in operation. The Geomatics Branch supports these business applications in various ways defined within a support contract.

Forty-five new users of Desktop GIS software in 2010 brought the total user count to approximately 250. The Geomatics Branch coordinates the deployment of Desktop GIS software with Information Technology Services Branch. Once deployed and set up, staff use the software to perform geospatial analysis and create maps and reports.

Helping others understand and use GIS technology

The Corporate Learning program includes nine (9) GIS courses delivered by the Geomatics Branch. In 2010, approximately 200 learners attended 21 class sessions. Available to Regional staff, York Regional Police and the YorkInfo Partners, this training program consists of introductory to advanced level courses that provide a flexible, phased approach to learning.

As new geospatial applications, products, data and courses are implemented in 2011, the Geomatics Branch will continued to review and adjust operational service levels and/or negotiate funding adjustments to retain the same service and support levels from the departments.

Geomatics Branch services delivery is highly valued by department staff

The Geomatics Branch provides a range of services to the corporation. In 2010, the Geomatics Branch put more emphasis on one-on-one interaction with department staff. This approach was taken in response to feedback gained from department staff in 2009. Personal interactions often resulted in superior products being delivered as Geomatics staff were able to add more value.

Custom-made maps are still a common service requested. Over 424 maps products were designed and delivered in 2010. The number of custom maps has increased as the value of map-based communication is recognized. Self-service capability within departments has offset some of the total potential demand on the Geomatics Branch.

Another common service provided by the Geomatics Branch is the brokering of geospatial data to and from contractors and other organizations working for, or with, the Region. In 2010, approximately 70 bundles of geospatial data were delivered to the Region's contractors. In 2010, enhancements to a self-service geospatial data delivery application were made. When re-launched early in 2011, staff from other departments should be able complete this task themselves.

General consultation and technical support requests demanded more time of Geomatics staff. With 250 installations of Desktop GIS software corporate-wide, first-level technical support is directed to Geomatics Branch staff from the Region's Technology Help Desk.

Many Geomatics Branch staff were recognized both formally and informally for exceptional service delivery. In many cases this was due to being highly responsive under difficult timelines.

“Google-ization” strategy creates easy-to-use mapping applications and satisfied customers

Geomatics adopted a “Google-ization” strategy in 2010. This strategy -- *use* Google Maps, *be like* Google Maps, and *be like* Google Earth -- resulted in significant positive results and satisfied customers.

Using Google Maps with the addition of regional mapping data has proven to be popular and valuable. Called “mash-up” maps, the Geomatics Branch introduced this new product in 2009. In 2010, the Geomatics Branch worked with department web administrator staff to have many service and facility locations mapped in such a way that these locations can be used by Google Maps or Bing Maps or others common web mapping tools used by residents. The Region's Health Services Department used “mash-up” maps to promote the access to flu shot clinics and other public health services. In all, over 25 “mash-up” maps were added to the Region's corporate website, www.york.ca, and related websites such as www.yrt.ca, and www.waterfortomorrow.ca. The addition of these “mash-up” maps improved the usability of the Region's website, and notably, promotes the use of transit for travel. The use of “mash-up” maps targeted cases where the public is expected to be the primary user. A panoramic virtual tour of the accessible trail at the Hollidge Tract regional forest, done as a “mash-up” map, was a noteworthy accomplishment in 2010.

yrGeoView – the Region's *like* Google Maps application – was officially launched on February 4, 2010 with a presentation delivered to the Planning & Economic Development Committee. The yrGeoView application enables the Region to publish diverse and authoritative mapping information to the needs of business. The capabilities of yrGeoView increased with each of the five (5) incremental releases completed in 2010. Important functionality added includes the ability to show real-time information such as live pictures of traffic on select regional roads, and seamlessly include Google's StreetView product to get an on-the-ground understanding of most streets in York

Region. More yrGeoView maps went live after February 4th 2010. The maps focussed on the needs of internal lines-of-business. The following yrGeoView maps are now available to Regional staff and potentially select local municipal staff:

- transportation management map
- water/wastewater infrastructure map
- land development and infrastructure planning map
- food premise inspection map
- emergency management- critical infrastructure map

The Region-sponsored website, www.investinyork.ca incorporated yrGeoView to help website user appreciate the geographic context of the York Region. Three new publicly-available yrGeoView maps are planned for release in the first part of 2011.

The power of three-dimensional visualization

Google Earth is a powerful tool for anyone to explore our world. A pilot project to assess the value of a 3D viewer – *like* Google Earth – for staff use was successfully completed in 2010. The project included the configuration of no-cost software. Branded as ‘yrGeo3D’, the application is available to regional staff and soon, local municipal staff, by request. The power of yrGeo3D is the ability to visualize future build forms, particularly in urban environments. The practice of assessing scenarios aided by 3D visualization tools is known as “GeoDesign” and is expected to be demand area for the region and local area municipal GIS programs in 2011 and beyond.

Helping others leverage the power of three-dimensional visualization

In 2009, the Geomatics Branch provided geospatial information in the form of 3D building models of existing structures and technology training to willing local area municipal staff. This was done as a joint partner project to enable in-house support for smart growth planning. Partner-created 3D buildings of the existing built form in the Towns of Markham, Newmarket and Richmond Hill, and proposed buildings and scenarios for the Towns of Aurora, Newmarket, and Markham enriched the 3D geodatabase in 2010. Using proposed building information, potential scenarios depicting the 2051 build-out along areas of Yonge street south including the Yonge Street Area Study (north and south) in Vaughan, the Yonge-Steeles Corridor Study in Markham, and the Richmond Hill Centre in Richmond Hill have been prepared and were well received.

Accurate addressing improves property notification mail-outs

In an effort to continuously increase the accuracy and timeliness related to addressing, mailing address data from Canada Post was appended to the civic address information that the Region has. Prior to this 2010 accomplishment, use of the civic address proved to be less than ideal for property notification mail out campaigns, especially in rural areas where community names like “Holland Landing” in the Town of East Gwillimbury are

part of the mailing address but not the civic address. The Geomatics Branch led the development of an application to bulk-append the Canada Post mailing address information four times a year. Mail returns have decreased significantly and the Region's capital delivery program will benefit. Other business units in the Region have been shown the benefits of address correction and the Geomatics Branch worked with the Information Technology Services Branch to establish this as a standard for applications to conform to. Other business units in the Region and local area municipalities can leverage the accurate addressing – now with mailing addresses.

Three-year plans to meet corporate geospatial technology and information needs

In 2009 and 2010, the Region invested in two (2) complementary projects to position the Geomatics Branch to meet known and expected business needs outward to the 2014. Completed in 2010, an assessment of the existing corporate geospatial technology infrastructure was performed. The assessment resulted in some low-effort, high-value steps taken to make some GIS application more stable. Consultation with regional departments was important input towards the definition of a “road map” comprising seven (7) geospatial technology projects. These projects were reviewed with management from the Information Technology Service Branch and have been incorporated, or reflected in the larger technology planning cycle.

Late in 2010 a project was started to develop a geospatial information management strategy. The strategy will define a phased approach to dealing with geospatial information gaps and integration requirements and approaches. As an example, not having a managed, comprehensive and integrated geospatial data layer of the region-wide wastewater conveyance system is a challenge for the continuous modelling of capacity and the meeting the reporting requirements of the inflow and infiltration program.

GIS Day event promotes GIS capabilities to Region staff

GIS Day, an industry-supported event, has helped organizations celebrate and promote the benefits of GIS technology and the services and application offered by the GIS unit.

The Geomatics Branch held a successful GIS Day event in the week of November 15, 2010 at three regional locations. Staff were invited to try new applications, participate in workshops, and share their success stories and needs. The Lake Simcoe Region Conservation Authority also participated and many region staff learned of the mapping resources that support the watershed. A well received event, the Geomatics Branch understands the benefit-cost of hosting a GIS Day event and will consider all options in the future.

Future Developments

The yrGeoView application will be enhanced in 2011 with new functionality. The yrGeoView application will be used for the VivaNext construction project on Highway 7 to help all stakeholders understand construction progress and manage issues.

The Region's Vision 2051 project will use an interactive web map as a way for stakeholders to submit ideas, comments, or media, such as digital pictures.

There are many ways to integrate business application with the GIS technology deployed in York Region. Key business applications for work management, constituent relationship management, and business intelligence are positioned to integrate location into the workflow, and maps into the product output. Integration to corporate-wide business systems will start in 2011. The geospatial technology infrastructure will be upgraded and expanded in 2011. A GIS software upgrade is being coordinated with other technology upgrades in the region. An ESRI enterprise licence agreement will be pursued in 2011 to reduce 3-year total costs related to software acquisitions and maintenance while removing cost barriers to manage and analyze geospatial information.

Continued enhancement of the 3D GIS capabilities should enable more staff to create better visual products with less time required. The partnership with the local area municipalities will continue to drive broader uses of the tool to support more planning decisions.

From the Geomatics Branch program perspective, business drivers will advance the program to be nimble, scalable, technologically sophisticated and diverse. A variety of data sources, submitted by sensors and people along with internal authoritative data will be connected to answer specific business problems in near-real-time (e.g., parcels, ownership data, and road closures). Vision, professional development, and co-operation with information technology staff will enable this adaptation.

5. FINANCIAL IMPLICATIONS

There are no financial implications associated with this report. Geomatics Branch operations are included in the Planning & Economic Services Department operating budget. Negotiated interdepartmental service agreements support the operational management of the corporate geospatial information infrastructure and the delivery of specific services sought by the departments.

6. LOCAL MUNICIPAL IMPACT

Local Municipal staff, staff from other government agencies, and residents access the Region's online mapping resources. Through the YorkInfo Partnership, local

municipalities benefit from York Region geospatial information, technology, products and services and engage with the Region's GIS technology through shared web map services and 3D GIS pilot projects. The YorkInfo Partnership's goal to enhance collaboration through the sharing of existing data and on creation of new databases, standards and data sharing protocols reduces duplication and improves quality.

7. CONCLUSION

Geospatial information technology for public services has gone mainstream and its value is universally accepted. In 2010, the Geomatics Branch delivered an ambitious program. Use of geospatial information technology and demand for services increased significantly and is expected to continue. The Geomatics Branch is confident that it will continue to provide cost-effective services and continually enhance the corporate ability to enable everyone to leverage the power of location.

The Geomatics Branch recognizes that it is to constantly evolve the services and applications offered. As well, efforts to promote and accomplish self-service will be important in order to redirect the expected increased demands. The Geomatics Branch will meet this challenge.

For more information about this report, please contact Karen Close, Acting Director, Geomatics Branch at (905) 830-4444 Ext. 1529.

The Senior Management Group has reviewed this report.



Geomatics Branch 2010 Annual Report

Presentation to
Planning & Economic
Development Committee

Karen Close
Acting Director, Geomatics
March 02, 2011

Slide 1

Presentation Overview

- ❑ Background
- ❑ Supporting the Corporation
- ❑ Geo-Analytics in Decision Making
- ❑ *"Google-ization Strategy"*
 - ❑ *using Google Maps*
 - ❑ *yrGeoView*
- ❑ *3D Visualization*
- ❑ Wrap Up & View Ahead



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Slide 2

Geospatial Information Influences Our Lives



"The Location of Anything is Becoming Everything" Geospatial Revolution Project



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Slide 3

Making 'Location' Accessible

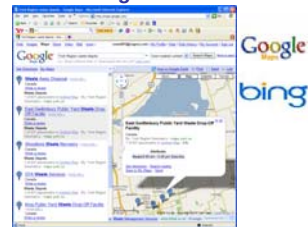
Google Maps Mash-Ups



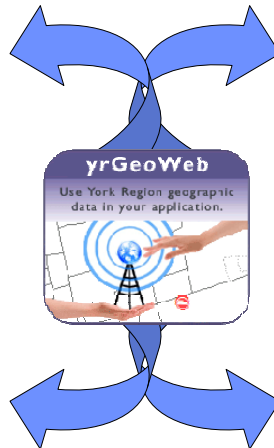
GPS Navigation Devices



Search Engines



Google Mobile Maps

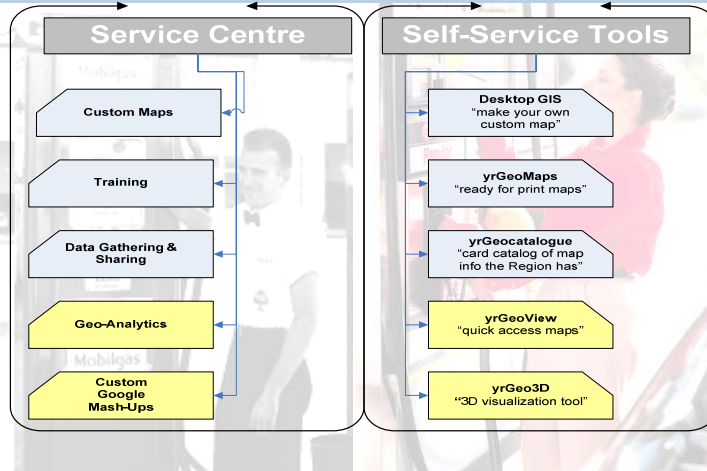


Find and use Locations - "No Wrong Door"



Slide 4

Geomatics Supports the Corporation



"Geographic Knowledge: Our New Infrastructure" Jack Dangermond



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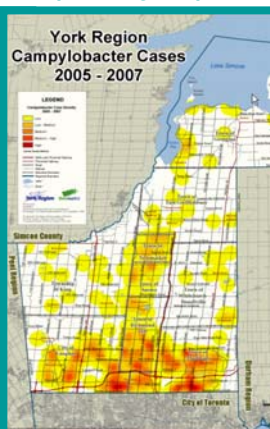
Slide 5

A Highly Valued Service – Geo-Analytics

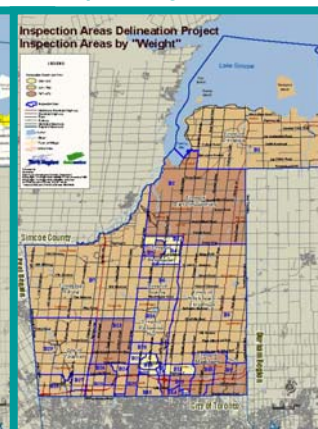
1 Optimizing Access



2 Optimizing Response



3 Optimizing Workload



"Understanding Precedes Action" Richard Saul Wurman

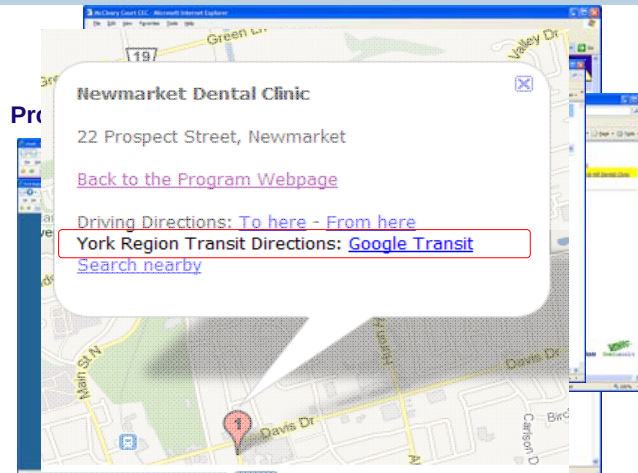


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Learning from Google – use Google Maps

Services



Promoting Choice...getting from here to there

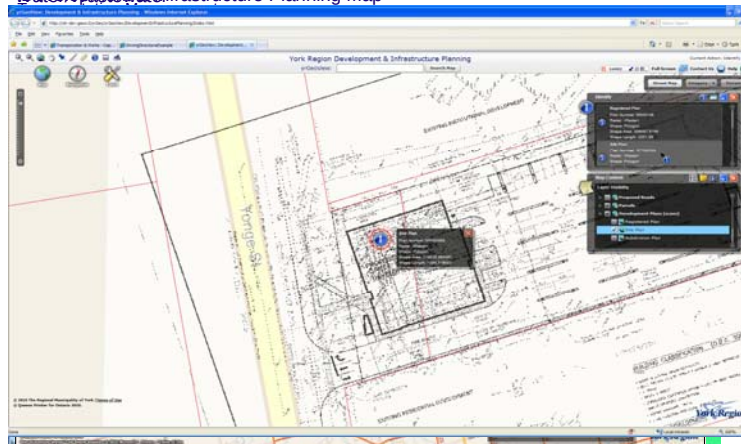


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Learning from Google – be *like* Google Maps

Development Infrastructure Planning Map



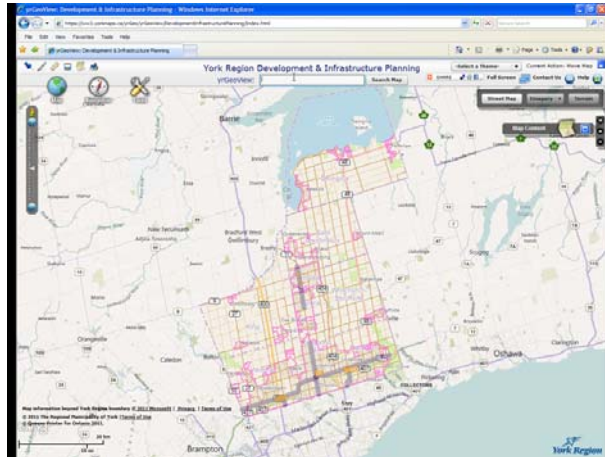
The Right Information - Anytime - For The Right Decision



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Slide 8

Demonstration



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Slide 9

3D Visualization



Appreciating the existing built form along regional corridors



Understanding the opportunity of the potential future built form

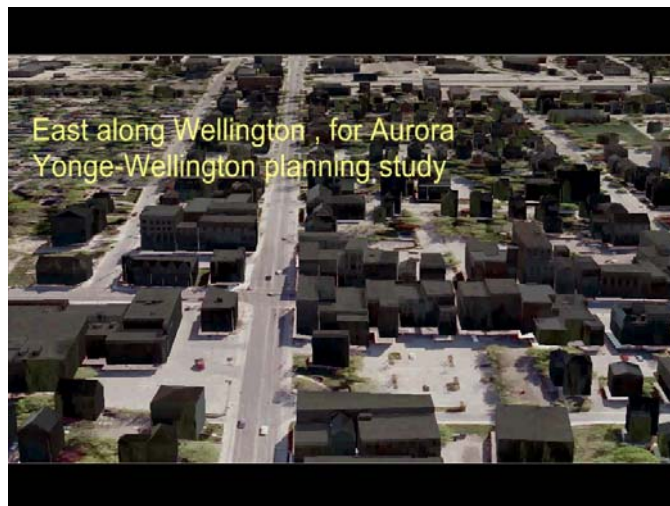
Making Opportunities Visual



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Slide 10

Demonstration



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Slide 11

Summary

- ❑ 2010 accomplishments enhanced
 - ❑ Decision support
 - ❑ Information access
 - ❑ Visualizationand are delivering value to a range of users

- ❑ 2011 plans will yield additional value with:
 - ❑ Integrating location into more business applications
 - ❑ New business areas capitalizing on spatial analysis
 - ❑ Sharing applications with YorkInfo Partners



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