

COMMITTEE OF THE WHOLE – NOVEMBER 21ST, 2005

ENTERPRISE GEOGRAPHIC INFORMATION SYSTEM (GIS) STATUS UPDATE AND FUTURE DIRECTION

Recommendation

The Commissioner of Economic/Technology Development and Communications, in consultation with the Chief Information Officer (CIO), recommends:

1. That this report be received for information.

Economic Impact

The planned GIS activities for 2006 require primarily internal staff resources. Once a long-term funding program is established for corporate GIS activities, then there will be future budgetary impact commencing in 2007.

Purpose

The purpose of this report is to update Council on the current status and future direction of the enterprise Geographic Information System (GIS) initiative.

Background - Analysis and Options

In 2001, Council approved the enterprise GIS strategy. The strategy set out a multi-year initiative to establish a foundation for an enterprise GIS that would result in efficiency improvements in many City departments. These improvements would be the result of better information sharing between departments, better information management, and better use of information for decision making and operational management.

The primary areas targeted by the GIS strategy were:

GIS Organization Structure

The GIS strategy outlined specific organizational structure and staffing requirements for effective development and support of enterprise GIS. In accordance with the strategy, a GIS unit was created and integrated within the Information & Technology Management (ITM) department. The GIS unit has been staffed and appropriate funding has been established through the City's budgeting process. Although initial staffing has been completed for the GIS unit, additional resources are still required, as outlined in the GIS strategy. Complete staffing of the GIS unit is an issue of budget constraints and is being persistently raised during the City's yearly budgeting process.

In addition to creating a dedicated GIS unit, a corporate GIS Steering Committee has been established. The GIS Steering Committee is made up of key departmental stakeholders, who are responsible for enterprise GIS stewardship, priority setting, justification and securing necessary resources for enterprise GIS initiatives.

Data Maintenance and Acquisition

Establishment of an enterprise GIS database is a key deliverable of the GIS strategy. The enterprise GIS database has been established. It currently

contains foundation data layers with appropriate geo-coding and descriptive information. The available data layers include the Single Line Road Network (SLRN), parcel fabric, property lines, municipal addresses, aerial imagery, recreational facilities, civic buildings and properties, parks, schools, etc.. Many of the data layers have been populated with data. Data has been collected from existing manual and electronic records, through subscription, and acquisition.

More effort is required to fully achieve the GIS strategy objectives relating to data standards, ownership, collection, maintenance, and publication. These issues will be the focus of future GIS initiatives.

Hardware / Software / Operations

The GIS strategy identified a clear need for establishing a stable, efficient, and responsive technical environment for the enterprise GIS. The technical environment consists of standards, software servers, database servers, GIS data maintenance tools and utilities, application environments (test and production), database environments (test and production), data maintenance tools, systems maintenance tools, reporting tools, development tools, etc..

The GIS technical environment has been established in accordance with the GIS strategy. The technical environment is currently being further enhanced to enable greater compliance with “open standards” and to facilitate greater integration with other corporate systems.

Applications Development

The GIS strategy identified a number of GIS applications that either needed to be developed or GIS-enabled in order to realize process efficiency value of GIS. The GIS strategy also envisioned Web-enabled GIS applications that would deliver GIS data to external consumers.

During the course of the enterprise GIS implementation, a number of applications have been developed or GIS-enabled for use in various City departments. These applications include the Development Tracking System (DTA), DTA Web, Draft Plan, M-Plan, Economic/Technology Development Site Selection, VaughanNavigator, Parks & Properties, Access Vaughan / GIS integration, etc..

In addition to these GIS applications, numerous data maintenance and reporting tools were implemented. These tools include Vaughan Parcel Index (VPI), ESRI development and data maintenance tools, map layer creation / edit / reporting tools.

To date, a number of City departments and organizational units are positioned for greater operational efficiency with the aid of enterprise GIS. These departments and organizational units include Economic Development, Planning, Engineering, Finance, Access Vaughan, Buildings & Facilities, Parks, and Clerks.

In summary, all primary objectives in the areas of GIS Organizational Structure, Data Maintenance & Acquisition, Hardware / Software / Operations, Applications Development have been achieved within the outlined time frame and budget. The benefits of these achievements are starting to be realized in numerous City departments in the form of better service to residents and more efficient operations.

The City of Vaughan is being recognized as a leader amongst its peers in the use of GIS. The City's achievements in the area of GIS were showcased at the Municipal Information Systems

Association (MISA) conference in 2004, as well as many other Information Technology industry and geomatics industry conferences. The City is also an active and influential member of the YorkInfo Partners group, a group of York Region public sector organizations committed to the advancement and application of GIS technologies for delivery of superior public service. In 2005, the City received an excellence award for innovative use of GIS technology from ESRI Canada, a leading geomatics industry vendor.

Future Direction of GIS

Considerable accomplishments have been realized in the initial stages of enterprise GIS implementation. A good foundation has been established to ensure successful long-term evolution of GIS at the City of Vaughan. It should be recognized that enterprise GIS initiatives are not projects, which have specific start and end dates. Adoption of GIS technology to deliver superior public service is an innovative way of doing business and a long-term commitment to evolutionary, cyclical business process analysis and improvement as required.

Evolution of GIS should be both business needs driven and responsive to changing organizational and business priorities. To facilitate healthy evolution of GIS and other technologies, the ITM department is adopting a systemic methodology of analyzing corporate and departmental business needs in order to identify business process improvement opportunities. Such opportunities would be valued and justified for appropriate resources, then prioritized and realized through the department's Project Management Office (PMO), and under the stewardship of the corporate GIS Steering Committee.

To ensure success of future GIS initiatives, time and effort needs to be taken to re-enforce the following elements of the GIS foundation:

Change Management and Needs Assessment

Many new GIS opportunities exist within the City departments. However, having experienced the initial capabilities and future potential of GIS applications, departments need time to adapt current processes and to envision future GIS applications and potential uses of GIS information. This will be accomplished by business analysis activities in City departments over the next 6 – 12 months.

Internal Competency and Capacity

There is a need to strengthen the organizational competency and capacity to support current GIS applications and to design, build, deliver, adapt, and support future applications and data maintenance and reporting tools. Competencies in the areas of database administration, spatial data administration, systems architecture, cartography, and applications development need to be enhanced. The staffing capacity for such competencies needs to be expanded as well. This need is identified in the ITM 2006 operating budget submission and is supported by the GIS strategy. Should Council approve the identified resources, then action can be taken in 2006 to secure such resources.

Information Management

Complete, timely and accurate data is critical to any system. In the process of implementing the initial set of GIS applications, a number of data management issues were identified. These issues deal with availability and quality of data needed for effective delivery of services, and operation of related GIS applications. Further study and analysis of organizational and departmental data requirements is needed.

The ITM department has initiated the Information Resource Management (IRM) program that will determine appropriate organizational roles and responsibilities for corporate data standards, data ownership, collection, quality assurance and publication. This initiative will result in further enrichment of the enterprise GIS database with complete, timely and accurate data. The IRM project will involve all City departments and will carry on through year 2006.

Long-term Funding

Once the City's immediate and long-term business needs have been assessed, appropriate GIS competency and capacity secured, and an enterprise-wide Information Management framework established, future commitment to GIS can be scoped. Driven by the organizational requirements and enabled by organizational capability and capacity, a multi year funding program for continual evolution of GIS will be developed.

Upon establishment of a long-term funding program, organizational and departmental GIS opportunities can be prioritized and realized on a year-to-year basis as part of the City's planning and budgeting process.

Relationship to Vaughan Vision 2007

Planning and Managing Growth – Enterprise GIS applications enable numerous City departments achieve higher levels of efficiency, effectiveness and customer service;

Technology and Innovation – GIS and the related data can be used in innovative ways to effectively address various business and citizens service issues.

The recommendations made in this report and related initiatives are consistent with the priorities previously set by Council and the necessary resources have been allocated and approved.

Conclusion

All primary objectives of the GIS strategy in the areas of GIS Organizational Structure, Data Maintenance & Acquisition, Hardware / Software / Operations, Applications Development have been achieved within the outlined time frame and budget. The benefits of these achievements are starting to be realized in numerous City departments in the form of better service to residents and more efficient operations.

In addition to the business benefits being realized, the City of Vaughan is being recognized as a leader amongst its peers in the use of GIS. The City's achievements in the area of GIS are recognized within the IT industry, Geomatics industry, and public service sector.

Many more business improvement opportunities exist within the City departments. Such opportunities should be systematically identified and realized through business process improvement and application of appropriate technologies, such as GIS. This approach requires a long-term commitment to GIS.

To position the City for successful long-term commitment to GIS, time needs to be taken to assess organizational business requirements, establish appropriate GIS competency and capacity, and establish an enterprise-wide Information Management framework. This exercise will allow proper scoping of future GIS initiatives and associated resources and funding requirements.

Driven by the organizational requirements and enabled by organizational capability and capacity, a multi year funding program for continual evolution of GIS will be developed in 2006 and presented as part of the City's 2007 planning and budgeting process.

Attachments

None

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Respectfully submitted,

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