

**Report to/Rapport au :**  
**Information Technology Sub-Committee**  
**Sous-comité de la technologie de l'information**  
**and Council / et au Conseil**

**April 15, 2013**  
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CITY WIDE / À L'ÉCHELLE DE LA VILLE

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**SUBJECT:** CITY OF OTTAWA TECHNOLOGY ROADMAP 2013-2016 – GIS  
RENEWAL PROJECT STATUS

**OBJET :** VILLE D'OTTAWA FEUILLE DE ROUTE TECHNOLOGIQUE 2013-  
2016 – STATUT DE PROJET DE RENOUVELLEMENT - SYSTÈMES  
D'INFORMATION GÉOGRAPHIQUE

**REPORT RECOMMENDATIONS**

That the Information Technology Sub-committee and the Finance and Economic Development Committee receive this report for information.

**RECOMMANDATIONS DU RAPPORT**

Que le Sous-comité de la technologie de l'information et que le Comité des finances et de développement économique prennent connaissance du présent rapport.

**BACKGROUND**

A geographic information system (GIS) or geospatial information system is a system that captures, stores, analyzes, manages and presents data with reference to geographic location. In the simplest terms, GIS is the merging of cartography, statistical analysis and database technology.

An Enterprise GIS is a geographic information system that is integrated through an entire organization so that a large number of users can manage, share and use spatial data and related information to address a variety of needs, including: data creation, modification, visualization, analysis and dissemination.

The City of Ottawa's enterprise GIS business application suite supports a number of City services including: the 311 Contact Centre, Building Permits and Inspections, Inquiry Tracking, Elections Support, Bylaw Services, Permitting & Licensing, Property, Roads & Traffic Information and Public Health Information Line support. It also supports web services to the public, including development applications, zoning, and building permits on ottawa.ca. The enterprise GIS solution supports the integration of operational workflows and changes data into information that can be leveraged for decision make purposes. In addition, GIS provides the spatial context/ geographic information that identifies the location of features and boundaries. Dr. Roger Tomlinson, commonly referred to as the "Father of GIS", once said that "over 80% of all municipal information has a spatial component or context."

The GIS suite is comprised of the Municipal Application Partnership (MAP) and eMAP web mapping applications that utilize the end-of-life Autodesk Mapguide and VISION\* technologies for GIS functionality. The MAP application resulted from a public/private partnership between the twelve Ottawa area pre-amalgamation municipalities and SHL VISION\* Solutions. SHL VISION\* Solutions was later acquired by Autodesk who marketed the MAP enterprise application suite to other organizations under the name Autodesk AMP. The goal of the partnership was the joint development of municipally focused business applications with GIS functionality, with MAP being the resulting application. MAP is an enterprise application with functionality for collecting and sharing information, coordinating activities and managing workflow throughout the City of Ottawa, with the added benefit of spatial functionality.

This GIS technology is almost 20 years old and, having reached its end-of-life, is required to be replaced. As a result, a strategy was developed and presented to ITS Management in June 2008, to replace VISION\* enterprise spatial services. This strategy represents a key component of the [Five-Year Technology Roadmap](#) for the City of Ottawa.

The strategy that was presented was centered on the City of Ottawa further leveraging its investments in ESRI® GIS technology to simplify the City's enterprise spatial architectures, provide a vendor supported enterprise spatial technology, and position the City appropriately with current technologies to meet the current and evolving needs.

In April 2009, an Enterprise GIS Architecture Roadmap was completed that reviewed current GIS technology as well as high-level business requirements for spatial technology, and developed a high-level GIS architecture option and implementation plan to utilize ESRI solutions as the core technology for enterprise spatial services.

The GIS Renewal project was initiated in early 2010 and included key activities outlined in the Enterprise GIS Architecture Roadmap to implement ESRI technology as the core for spatial services that would eventually replace VISION\* technology in the City.

By the end of the GIS Renewal project, it was projected that the City would be in a position to implement/utilize ESRI technology solutions to meet the majority of the City's business needs. It was understood that further investments might be required at a later time to continue to refine and implement the planned ESRI architecture. It was further understood that VISION\* technology would only be relied upon to deliver spatial services to the MAP application until that suite of business applications was retired. It was decided that MAP replacement activities would be covered under separate projects, with the first being the procurement and implementation of the Citizen Service Management (CSM) solution implemented in December 2011.

Due to the complexity and level of effort for the GIS Renewal Project, and to provide focus to meet key dates for dependent projects, the GIS Renewal project was delivered via a series of sub-projects and activities. These sub-projects aligned with the master project objectives, and were identified as:

- GIS Roads Data Model Design
- VISION\* Spatial Editing Migration
- ESRI Enterprise Architecture Design
- Mapguide (eMAP) Replacement

The GIS Renewal project would lay the foundation for the spatial enablement of City software solutions with modern and supported GIS technology.

## DISCUSSION

The GIS Renewal sub-projects are now successfully completed. The replacement of the the eMAP web mapping application on Ottawa.ca with the new geoOttawa application, planned for Spring 2013, represents the final release of the GIS Renewal project. While the City will still rely on VISION\* technology for providing spatial data and functionality in MAP the renewal project has removed the City's reliance on this dated GIS technology for all other aspects of its GIS needs.

This renewal has resulted in a powerful, flexible and efficient data "eco-system" which allows data, created and maintained by various operational areas, to be automatically published to a single Enterprise GIS database. This Enterprise GIS database allows for a consumption model where data can be created once and used by many different systems and for many different purposes. Examples of this Enterprise database being

put to use can be seen within internal City operational systems, for open data, and can be viewed by staff and the public using the new geoOttawa web mapping application.

This GIS data is delivered through mapping services which facilitates the 'build once and consume often' approach employed for the current collection of web applications. The new geoOttawa application, rather than contain a great deal of application code, "consumes" functionality through web services and mapping services. As a result, geoOttawa can quickly be augmented, updated and evolved without a need to rewrite the whole application. For example, a web service, such as a location service, allows you to search for locations like addresses, parks and city facilities. The location service that is used by geoOttawa is also used by other City systems resulting in consistent functionality and information. Furthermore, when this location service is enhanced, all systems using that service benefit from the enhancement, again, utilizing the 'build once and consume often' concept.

In this modern technology architecture, what the user of the system sees is a presentation layer that allows them to use the various services in a coordinated way to complete tasks. Users see many examples of this in current web applications that integrate maps, social media, payment processors and many other services into a web site, resulting in a tool that supports a particular objective such as finding a store location, buying a product or service, and many others. The geoOttawa application will be leveraged with minimum investment to provide better access to staff and the public through variations such as geoOttawa Lite, geoOttawa Mobile and geoOttawa Accessible. It also supports the embedding of maps within the pages of ottawa.ca to provide additional context to those pages.

With the GIS Renewal complete, MAP replacement becomes the focus moving forward. A portion of MAP functionality was retired with the implementation of the CSM system, with further plans driven by the Service Ottawa program to enrich this implementation over the next few years. In addition, there is currently work being done on the implementation of the Enterprise Permit and Licensing (EPaL) system which will see a further reduction of reliance on MAP for the day-to-day operations in areas such as Building Code Services, Bylaw Services and Parking Services. Further EPaL implementations over the next 2-3 years will reduce substantially, or remove completely, any reliance on MAP thus allowing the retirement of this critical but old technology.

## RURAL IMPLICATIONS

There are no specific rural implications associated with this report.

## CONSULTATION

Staff have worked closely with client departments and in particular GIS users in the implementation of the new enterprise GIS technology. With respect to geoOttawa, client departments, E-Media, Service Ottawa and the Accessibility Office were consulted.

## LEGAL IMPLICATIONS

There are no legal implications associated with this information report.

## RISK MANAGEMENT IMPLICATIONS

There are no risk implications associated with this information report.

## FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

## ACCESSIBILITY IMPACTS

Accessibility requirements have been taken into consideration in the GIS Renewal project.

## ENVIRONMENTAL IMPLICATIONS

There are no specific environmental implications associated with this report.

## TECHNOLOGY IMPLICATIONS

This information report has no additional technology implications other than those described in the report.

## TERM OF COUNCIL PRIORITIES

GIS Renewal is identified as a deliverable on the Technology Roadmap. This Roadmap has been identified as part of the Council Priorities under the Service Excellence category (SE1 - Ensure a positive experience for every client interaction – Reference Number 47) as part of the approved City's Strategic Plan.

## DISPOSITION

The City Operations Department will action any direction received as part of consideration of this report.