Land Development Tracking Enabled By GIS

By Patrick Sun, O.L.S., O.L.I.P.

Despite the latest negative news on the economy and financial world, Ontario is growing rapidly. According to the provincial growth plan, "Places To Grow" (www.placestogrow.ca), by 2031, for example, the total population for the Greater Golden Horseshoe Area (GGHA) is expected to be around 11.5 million with 5.54 million jobs for employment. The total population growth from 2006 to 2031 will be 3.4 million and 58% of that will be in the GTA (905) area; Toronto is only at 17%. That means almost 2 million more people will be coming to the GTA area by 2031. The Employment Growth for the period of 2006 to 2031 will be 1.28 million jobs with 76% for GTA/905 area and 13% for Toronto. But one of the problems is that there is not enough Greenfield land remaining for development purposes. In 2006, in the GGHA, there were 34K hectares designated as Greenfield land and by 2011, there were only 27K hectares left.

Municipalities are facing intense pressure from rapid growth in a restricted environment. Provincial land use policies are asking for intensification, while municipalities still require Greenfield development to fund infrastructure. In this environment, capital forecasting is becoming more critical with huge financial risks. On top of this, the planning process is even more complicated by split responsibilities between municipalities and regions. Development Charges (DCs) are increasingly becoming a significant contributing factor to the municipal infrastructure funding model. There is an urgent need for the ability to track the land development process and especially to be able to track the development charges.

Additionally, many municipalities are facing serious issues caused by budget cuts, and reduced staff and staff resources. Municipalities and many local government organizations are relying more and more on technology to cope with the pressure. It is not surprising that many Information Technology (IT) departments are getting more attention and pressure as a result. Many legacy systems fail to address the urgent need from municipalities to be able to track their land development process as its core functionality with the flexibility to integrate with other corporate system components. GIS (Geographic Information Systems) has traditionally served as the "mapping" tool for municipalities but it is now starting to play a more significant role in delivering business solutions.

As a relative newcomer to the municipal solutions domain, "AppTrack", a robust software application developed by Munirom Technologies (www.munirom.com), a Canadian IT company in Richmond Hill, has developed the GIS into an integration tool for linking various corporate systems and applications together and geo-enabled the Land Use Development Application workflow. This is a good example of how a business solution can leverage GIS as a fundamental part of its application platform for workflow and information flow management and more importantly for providing analytical and reporting functions for decision support. The implementation of this software application demonstrates how GIS can become an integral part of corporate systems.

The following diagram (Figure 1) illustrates the architecture of "AppTrack" and how it can integrate with other municipal corporate systems including document management, permitting and licensing, finances, and Enterprise GIS, etc. The GIS viewer can be a standalone viewer with a default map viewer or it can incorporate the municipality's corporate GIS viewer. It becomes a significant component of the system and it provides strong support for the work-
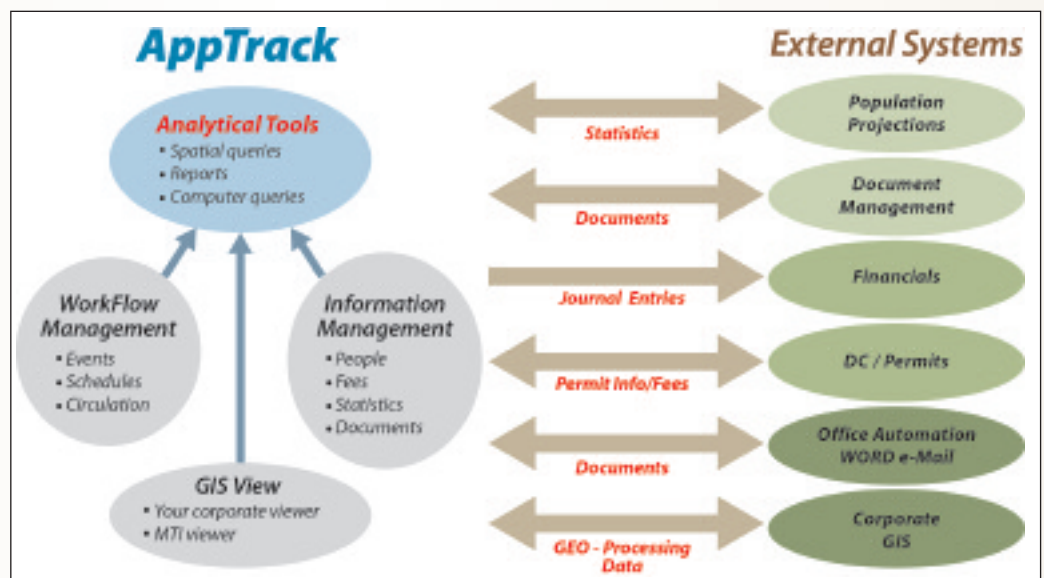

Figure 1: Land Development Tracking with "AppTrack"

flow and information flow management, and greatly enhances the functionalities of Analytical Tools.

The screenshot below (Figure 2) provides an example of how reports can be generated from selection sets by using GIS functions. In this case, an area is defined by drawing the polygon on the screen, just like any GIS, or Google or Bing Maps. The area selection set is used to drill down to the various data layers in the system and the current existing land development applications get selected (in red). From that, a user, a planner, an engineer, a clerk or a land developer, can select each application area from the
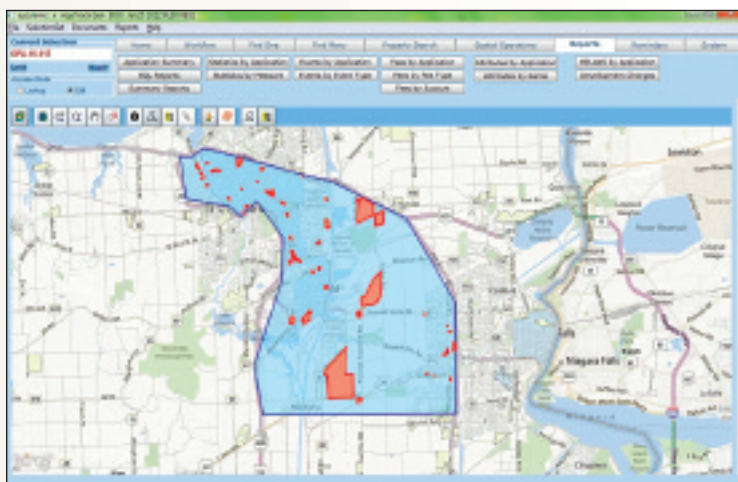
map and query on the status of each application and track any scheduled events or fees, receipts and payments. As well, the user can perform various analyses by selecting pre-set report buttons on the user's working dashboard and generate standardized reports, for example, a status report, an event report or a fees report. It is fairly quick and easy to get the reports generated once the workflow is implemented and the database is populated and maintained on an ongoing basis.

"AppTrack" is truly a GIS-enabled business solution that is being utilized by several municipalities in Ontario, including Niagara Region, the City of Brampton, and the City of Vaughan. The good news is that most municipalities in Ontario have some kind GIS capability already. A robust system such as "AppTrack" can be leveraged by many of these GIS-ready municipalities. The land development process is an area where Ontario Land Surveyors are directly involved and because of the significant role that Geographic Information Managers (GIMs) play, it is the perfect area to promote GIS and the value of the AOLS' GIM designation.

Figure 2: Reports by GIS Selections (Words, Service Areas, Districts, DA, Blocks, etc.)

Patrick Sun, OLS, OLIP is the President of MGP Information Systems Ltd (www.mgpinfo.com). He can be contacted at psun@mgpinfo.com for further discussion.