Municipal Asset Management and the Business Case for a Geoscience Information and Visualization Platform

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The City of Ottawa is creating a geoscience information and visualization platform to capture, maintain, and provide access to geoscience information collected through its operations. Geoscience information is a critical gap in the City of Ottawa’s ‘authoritative data sets’ within its asset management approach. Data capture will include data valued at about $3,000,000 annually, the estimated costs of geology investigations for municipal planning, development proposals, designs, and construction. The platform will be developed in coordination with the Ontario Geology Survey, The Geological Survey of Canada, and local Conservation Authorities. All information will be made available to the public.

Geology is the foundation for all things in Ottawa. It defines where our farms, forests, and wetlands are situated; and provides aggregate resources for our roads. It is also the foundation for our homes, buildings, and bridges, and it is the environment for our underground services which include water, sanitary and storm pipes, gas lines, and other utility needs. Geoscience and geology information is essential for municipal planning, design, construction, and environmental protection including source water.

The purpose of the asset management approach is to optimize system function within resource constraints. Components include:

- data collection and review
- data consolidation, storage, and ready access
- synthesis, analyses, and reporting
- system objectives, assessments, and priority setting
- decision making

Asset management starts with a consolidated inventory. Others have created systems to capture and store data including the following:

- The Ministry of the Environment maintains an Ontario-wide water well database
- The Geological Survey of Canada and the Ontario Geological Survey maintain and provide geological data, interpretations, and maps
- geotechnical consultants have well maintained databases of information
- databases developed for Source Water Protection Projects

A consolidated inventory requires information from all available sources, including those listed above with a unifying structure and model for interpretation. The capture of geoscience information will follow processes similar to those followed for City’s infrastructure databases, requiring the provision of the information as part of City project terms of reference, tenders, and development agreements.
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Extensive efforts are invested in retrieving, reviewing, and organizing this information for projects. Most notably, significant effort was invested in information development for regional groundwater studies and the Source Water Protection (SWP) projects that provide enhanced understandings derived from this wealth of information. The data, knowledge, and understandings that have been gained through SWP are in danger of being shelved and ultimately lost if a concerted effort in knowledge management is not undertaken.

The maintenance of knowledge is the foundation for robust decisions and innovation and without integrating the understanding of information derived from data and the associated lessons learned, the result is a duplication of effort every time a new project is initiated and ongoing data collection is largely inaccessible.

1 An example of such a system is provided by Holyh, S and Greber, R; 2014. Groundwater Knowledge Management For Southern Ontario for the Oak Ridges Moraine, in Friend E., (ed), Waterloo Moraine - Water, Science and Policy Special Issue, Canadian Water Resources Journal, 39, 2, 240-253.