



Region of Waterloo

Using the power of GIS to meet local Source Protection Plan requirements

The Region of Waterloo, a two-tiered municipality located in Southern Ontario, provides more than 60 per cent of municipal services to a growing population of 570,000 people. Their innovative approach to source water protection is leading the way in North America.

About Region of Waterloo

The Region of Waterloo is committed to creating an inclusive, thriving, and sustainable community through innovative leadership and a range of services including: water supply, public health, social services, planning, regional roads, waste management, ambulance service, public transit, community housing, emergency planning, and airport services.

The Region's GIS department includes seven staff, one supervisor, and one manager. The Region supports approximately 25 internal and 15 external facing Geocortex applications, and has integrated Geocortex into other custom-built applications through embedded Geocortex viewers.

GIS/mapping supports many business areas within the Region, such as water, transportation, utilities, cultural

resources, health, and land use planning. Geocortex supports applications in Water Services, Transportation, Planning, Public Health, and Housing (to name a few), and is utilized as the Region's GIS Locator application, which is the primary mapping program available for public use.

The Challenge

Ontario utilizes a multi-barrier approach to protect drinking water, which includes the protection of surface and ground water that supply municipal drinking water systems. The Clean Water Act directs communities to collaboratively develop and implement locally-driven, science-based Source Protection Plans that identify activities that may pose a risk to water sources along with tools to mitigate those risks.

The Region recently began implementing the local Source Protection Plan, along with associated regulatory requirements and responsibilities, as directed through the



“ We can now process complex information and present it in a format that is easy to understand. This makes it much easier to manage the Region’s almost 400 individual Source Protection Plan policies and approximately 50,000 properties where these policies could apply. ”

Eric Thuss, Risk Management Official
Region of Waterloo

Clean Water Act. One requirement is that all development applications and building permits within source water protection areas are to be screened to ensure that any proposed activities are compliant with Source Protection Plan policies. As the Region is a two-tiered municipality, most of these applications are submitted to the local municipalities (city and township offices), and manually assessing the hundreds of applications received per year could result in unnecessary delays. The Region is also responsible for implementing Source Protection Plan tools for the thousands of existing activities where policies apply. This includes collecting and managing comprehensive data sets, including activities, inspections, tasks, correspondences, and other relevant data.

The Region was looking for a GIS-based solution to help collect and manage their data, and to calculate the hundreds of potential activity/circumstance/location combinations to determine whether any of the nearly 400 Region policies apply to existing or proposed activities.

The solution needed to be user-friendly and accessible, as a core purpose of the application was the ability for the public to determine how the Source Protection Plan may impact activities - both occurring and/or proposed - on their property.

The Solution

The Threats and Policy System (TAPS) solution consists of two components: TAPS Public and TAPS Admin.

TAPS Public allows users to determine how the Source Protection Plan may impact the activities related to their property and, through a questionnaire, apply for a Notice of Source Protection Plan Compliance under Section 59 of the Clean Water Act, which can then be submitted to the local municipality receiving the development application or building permit. Users can also use the system to generate a property report, which provides a high-level summary of activities that may be prohibited or may require the negotiation of a Risk Management Plan.



TAPS Admin is the administrative component of the application, which allows Region staff to monitor the system and manage all data and information created by public and internal users. TAPS Admin uses assignments to alert staff of duties and responsibilities requiring attention, and features multiple workflows for processes ranging from activity confirmation inspections to incentive payouts to logging correspondences.

The Results

Through TAPS, the Region has a publicly-accessible application to help meet the requirements of the Clean Water Act; specifically, the application allows public applicants to determine whether their property is within a source protection area and discover any potential Source Protection Plan policy implications related to current or planned activities on the property. Applicants are also able to apply directly for a Notice of Source Protection Plan Compliance as part of a building permit or development application submission through TAPS.

Region staff use TAPS as an initial screening tool to direct more resources towards the applications that are more likely to have policy implications, rather than manually screening and assessing hundreds of development applications or permits every year. Region staff can more efficiently and effectively deliver program requirements across complex protection areas for more than 100 municipal supply wells and that potentially impact tens of thousands of properties. Region staff also use TAPS to coordinate and collaborate in other source protection program areas.

In the two years since implementation of the Source Protection Plan began, public users have generated over 1,000 Notices of Source Protection Plan Compliance using the TAPS application. The Region of Waterloo estimates that generating a Notice manually would require 15-20 minutes of staff time, and so have already saved over 250 hours since the application's launch.