

Geomatics Systems Management

Background

Geomatics includes the set of tools and methods used to acquire, represent, analyze and integrate geographic data. The term “geomatics” is derived from the contraction of the words “geography” and “informatics.” Geomatics is closely related to the geographic information that represents an object or phenomenon in space.

Within the Ville de Montréal (the City), the Système d’information géographique et spatiale (SIGS) presents all the geographic data found in the associated systems to which it is connected. Databases and a Serveur d’imagerie containing aerial photos of the territory of the Island of Montréal make up these associated systems.

Geomatics has extremely numerous fields of application, such as surveying, topography, urban planning, snow clearing and traffic signal operations.

Purpose of the Audit

The purpose of this audit was to assess the effectiveness of the control mechanisms in place to ensure the integrity, confidentiality and availability of data in both the SIGS environment and the hosted databases and files to which it is connected.

Results

Overall, we concluded that the City has established several control mechanisms that ensure sound geomatics systems management.

Some improvements are required in the areas of the roles and responsibilities framework associated with management of the SIGS and the owner of this system, management of privileged logical access to geomatics systems, the management framework for SIGS incidents and the IT contingency plan for the SIGS within the City.

Main Findings

Governance

- No roles and responsibilities matrix has been developed for management of the SIGS. The concept of owner has not been defined within the City.

Privileged Logical Access Management

- Although the informal processes are adequate, no procedure for managing privileged logical access to geomatics systems has been developed.
- There is no procedure concerning authentication parameters for the Oracle databases.
- With the exception of the Serveur d'imagerie, the authentication parameters set forth in the City's logical access management standard are not all applied in the geomatics systems.

Resources Specialized in Geomatics

- The stakeholders associated with geomatics systems management have a sufficient number of specialized resources. A succession and reorganization plan exists for the stakeholders involved to ensure appropriate succession. A training program or plan has been defined and training programs are pursued based on needs.

Functional Documentation

- The existing documentation helps ensure sound geomatics systems management. It is reviewed and updated by the appropriate resources and is known to and used by those who require it in accordance with their responsibilities.

Security Configuration

- Management of the SIGS security configuration is adequate.

Incident Management

- No procedure for managing SIGS incidents has been documented. The informal management process is in keeping with sound practices.

Backup Copies Management of Configuration Parameters

- A procedure for managing backup copies has been developed and is in keeping with sound practices.

IT contingency plan for the SIGS

- Although a business impact analysis has been conducted, no IT contingency plan for the SIGS exists within the City.

In addition to these results, we have made various recommendations to the business units, which are presented in the following pages. These business units were given the opportunity to agree to the recommendations.