Better Informed, Better Decisions

Sharing the Power of Location-Based Information Across the Government of Nova Scotia

NOVA SCOTIA

Better Informed, Better Decisions

Quick Reference

Vision

- *Location-based information supports the Government of Nova Scotia in achieving excellence in decision-making and service delivery.*

Mission

- *Establish ONE integrated, efficient location-based information systems approach across government by building on data, technology, and expertise in individual program areas.*
- *Improve planning, decision-making, and the delivery of services to citizens of Nova Scotia by using effective location-based information and tools.*
- *Demonstrate continuous progress each year by setting realistic targets and achieving these targets.*

Goals

- *To have a governance structure that ensures effective use of location-based information.*
- *To provide government with an authoritative and single source of location-based information.*
- *Integrate location-based information and expertise into operational and strategic activities within Departments.*
- *To develop geomatics awareness across government.*

Outcomes

- *A sustained government-wide direction will be in place to maximize the use of location-based information, related technologies and processes.*
- *Custodianship will be in place for all location- based information.*
- *Location-based information, its technologies and processes, will be shared across government.*
- *A high level of awareness will increase location-based information usage to achieve better decision-making and to enhance service delivery.*
- *The right balance of skills will exist across government to maximize the value of location-based information within departments, agencies and with other levels of government.*

Acknowledgements

The GeoNOVA Program would like to thank the Geomatics Strategy Advisory Group (GeoSAG) and the Deputy Minister Project Sponsors from Service Nova Scotia and Municipal Relations, Treasury Board and the Office of the Chief Information Officer, and Department of Natural Resources for their support and advice in the creation of this strategy for improving the use of location-based information across the Government of Nova Scotia. The departments and agencies that participated in the development of this strategy include:

- Agriculture
- Chief Information Office
- Communities, Culture and Heritage
- Community Services
- Economic and Rural Development and Tourism
- Education
- Energy
- Environment
- Finance
- Fisheries and Aquaculture
- Health and Wellness
- Inter-Governmental Affairs
- Justice
- Labour and Advanced Education
- Natural Resources
- Nova Scotia Community College
- Office of Aboriginal Affairs
- Policy and Priorities Office
- Service Nova Scotia and Municipal Relations
- Transportation and Infrastructure Renewal
- Treasury Board Office

Table of Contents

Executive Summary 5

Introduction 6

Supporting Location-Based Information Delivery 6

Why is a Strategy Necessary? 6

Where We Are: 2013 8

Where We Are Going: 2017 8

Vision 9

Mission 9

Goal: To have a Governance Structure that Ensures Effective Use of Location-Based Information 10

Key Actions: 11

Goal: To provide Government With an Authoritative and Single Source of Location-Based Information 12

Key Actions: 12

Goal: Integrate Location-Based Information and Expertise into Operational and Strategic Activities within Departments 13

Key Actions: 13

Goal: To Develop Geomatics Awareness across Government 14

Key Actions: 14

APPENDIX A – Glossary of Terms 15

Executive Summary

Better Informed, Better Decisions

The Government of Nova Scotia currently uses location-based information in several departments including Community Services, Natural Resources, Health and Wellness, Service Nova Scotia and Municipal Relations, etc. These users realize this information and related technologies are important assets. Many other departments are not using this asset because they find it difficult to access the data and the technologies, even though they could benefit from its application.

The Government of Nova Scotia is fortunate to have invested in extensive data holdings and technology, and to have one of the finest training programs within the province for the use of location-based information. These resources can be applied to improve government services and decision-making, however, they are currently underutilized across the provincial departments and agencies.

DID YOU KNOW?

***Location-based Information** is information that identifies the geographic location of features and boundaries on earth (the natural, built or perceived environment). This information can be mapped or analyzed and used by government for informed decision-making.*

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

The Good News

With the advent of new technologies and new approaches to managing information, we have an opportunity to increase the use of location-based information across government, particularly for emerging and new users. This strategy focuses on making information easier to distribute widely and to make available in a "managed environment" for users across government.

Starting in January 2012, the Geomatics Strategy Advisory Group (GeoSAG); a group of twenty-one members, representing various departments, gathered regularly to determine the direction government should take relative to geomatics (i.e. the discipline of gathering, storing, processing, and delivering of location-based information). From the early stages GeoSAG recognized the need to align this strategy to governments' priorities and to other strategic initiatives especially the *Technology and Information Management Strategy* for the Government of Nova Scotia.

The development of this strategy followed a best practice strategic planning process. During that time a vision and mission were defined along with four associated strategic goals and several related outcomes. The Vision, Mission, Goals and Outcomes were all used to help define the Actions necessary to achieve these Goals.

Implementation of this strategy over the next five years will result in "Better Information" and "Better Decisions" across virtually all departments and agencies. In turn, this will support government in meeting its priorities to create good jobs and grow the economy, deliver better health care, and ensure government lives within its means.

To lead the implementation of this strategy a Strategic Location-Based Information Council will be established. This Council will ensure a successfully executed strategy with results that will:

- enhance a user's ability to make informed decisions and in turn improve on government's programs and services.
- streamline access to location-based information and remove redundant activities.
- ensure location-based information is a standard data source and widely used across government.

Introduction

Supporting Location-Based Information Delivery

"Location-based" information is information that identifies the geographic location of features and boundaries on earth (the natural, built or perceived environment). A road or river, a power utility line that spans across a city or a province, are all examples of location-based information. Other less obvious forms of location-based information include virtual or non-physical features like a provincial or electoral boundary or a 3 dimensional map depicting influenza rates to monitor the spread of the disease over time. Although these later features really do not exist on the earth's surface, when illustrated geographically, they help people visualize trends or patterns that cannot be seen easily in tables or sets of numbers.

DID YOU KNOW?

Studies show 80% of data collected, stored, and maintained by local governments includes references to geography (Franklin and Hane 1992).

In fact, further studies by the Municipality of Burnaby, report that 90% is more realistic and now many governments are scrambling to develop strategies to leverage location-based information.

It's also worth noting that location-based technologies are not new and have been around since the 1970's. What is NEW, is that with the advancement of those technologies, government can NOW easily distribute location-based information much more cost-effectively to everyone in government. In turn the opportunity to maximize the potential of location-based information is now placed in the hands of staff. The time has never been better to enhance the programs and services offered by government.

Why is a Strategy Necessary?

Millions of dollars have been, and continue to be, invested in location-based information in Nova Scotia, however, it is an underutilized asset in government. There is widespread use in some resource and land management departments and agencies, but there is substantial underutilization in many departments. Barriers preventing widespread use across government arise largely from a lack of awareness, cumbersome processes to access data, and limited access to technologies and technical skills. Implementing this strategy will help remove those barriers and enhance government's ability to deliver on departmental programs and services.

The Government of Nova Scotia has been a leader in a collaborative approach to geomatics for over 30 years. Duplication in mapping programs was essentially eliminated many years ago, and several departments have made innovative, cost-effective use of this data and technology. Forest management and land registration are just two examples of programs that have embedded this technology into the design and delivery of their programs. New uses to support the delivery of health and community services are emerging. Socio-economic statistics have been linked with mapping and made available to all departments through Community Counts.

The Department of Service Nova Scotia and Municipal Relations has been the lead provincial department for geomatics since the department was established. It is also responsible for the GeoNOVA Program developed in the late 1990's where it has encouraged collaboration across departments in the use of location-based information. SNSMR also operates the GIS Operations Office in Amherst that is responsible for many foundational geographic products including base mapping, property mapping, and the civic addressing program.

Previous geomatics strategies focussed primarily on the collection and management of geographic data – the principle of "collect it once, use it many times" has been widely applied. This strategy, looking out to 2017 differs in that it has a major emphasis on generating wide spread application of the data and technology beyond traditional users.

Building on the leadership of SNSMR and the experiences of users from across government, the Government of Nova Scotia is ready to expand location-based information sharing across departments.

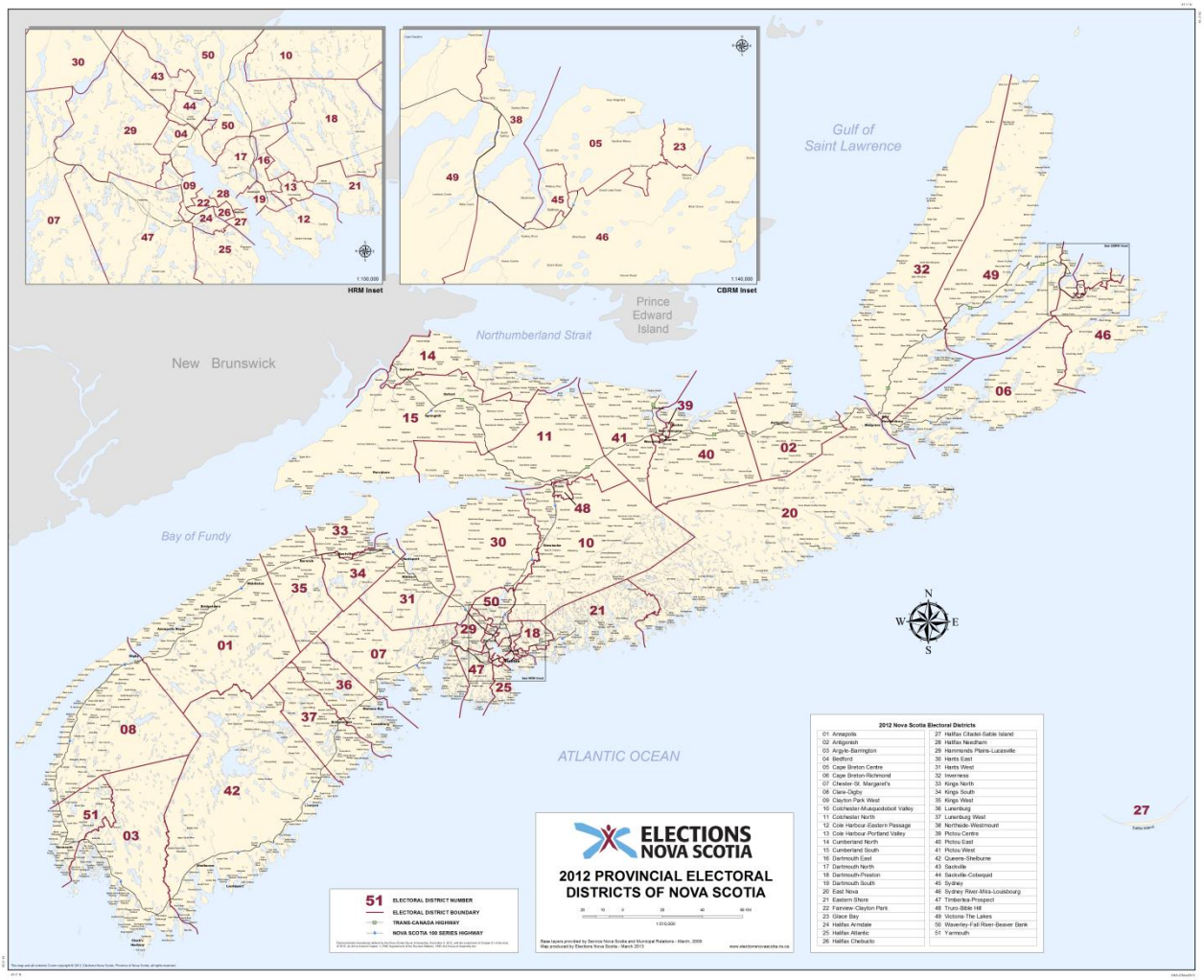
At the outset of the planning process, it was recognized that a collaborative approach is essential for success. As a result twenty-one departments and agencies were actively engaged to advise on the development of this strategy. A key partner was the Chief Information Office who assisted in the alignment of this strategy with the Government's *Technology and Information Management Strategy.*

By implementing this location-based information strategy, one of the CIO's key objectives will be realized – *Promote the use of geographic information systems to enhance the quality and value of program information to support more informed decision-making*.

DID YOU KNOW?

The Department of Natural Resources continues to manage the mapping of the latest land acquisitions. This includes on-going mapping of new wilderness areas and nature reserves across the province.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA



[source: Elections Nova Scotia, 2013]

Where We Are: 2013

DID YOU KNOW?

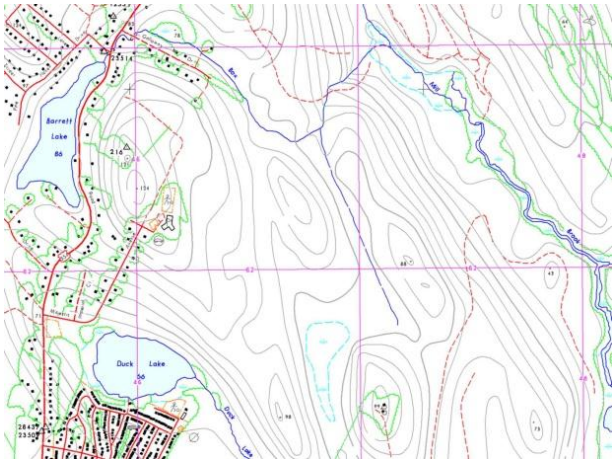
The Department of Finance, Community Counts has a location-based application called the Socio-Economic Status tool that helps people visualize areas of socio-economic advantage and disadvantage across Nova Scotia.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

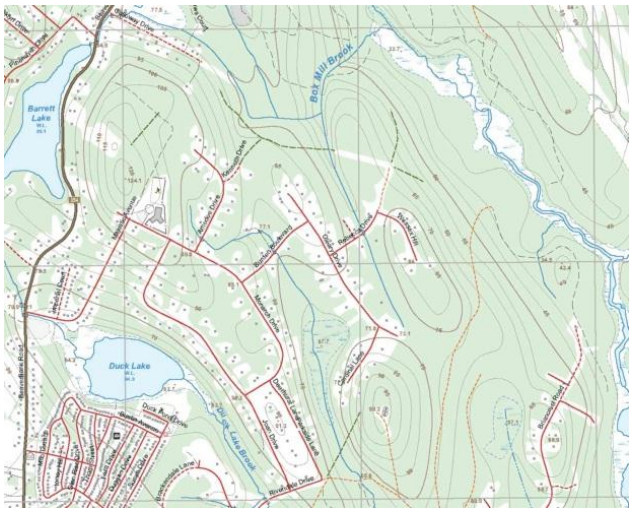
In 2013, location-based information is one of the most important corporate assets maintained by the Government of Nova Scotia. Today's challenge is to increase information usage through awareness and to provide staff with access to better tools, good business processes, and solid technical training.

There are some departments doing great work in utilizing location-based information and collaborating with others to help enhance their service delivery (e.g. Health and Wellness's Primary Health Care Planning Program). However, there are still many departments that have rarely utilized location-based information, although much of their information can be tied to geography.

The opportunity is great. There is a shift in thinking and a recognized need to improve service delivery by using location-based information. Departments are expecting to have the data, tools, and procedures at their disposal so they may readily access, use and share location-based information.



Topographic Map 1997



Topographic Map 2006

Where We Are Going: 2017

During the implementation of this strategy there will be a consolidation of ideas and skills among business and geomatics specialists. Information will become stronger, better known and more clearly defined. On the ground, location-based information will be an integral part of government's toolset and will contribute to a new standard for excellence in public services. Essentially, by 2017, location-based information will be fully utilized in day-to-day operations for both traditional and non traditional users to support the delivery of services and the process of complex decision-making.

Vision

The Government of Nova Scotia's ability to make strategic use of location-based information is paramount to effective and informed decision-making. The Government's Vision for location-based information is:

Location-based information supports the Government of Nova Scotia in achieving excellence in decision-making and service delivery.

Mission

To achieve the Vision, the Government of Nova Scotia will:

- ***Establish ONE integrated efficient location-based information systems approach across government by building on data, technology, and expertise in individual program areas.***
- ***Improve planning, decision-making, and the delivery of services to citizens of Nova Scotia by using effective location-based information and tools.***
- ***Demonstrate continuous progress each year by setting realistic targets and achieving these targets.***

Goal: To have a Governance Structure that Ensures Effective Use of Location-Based Information

DID YOU KNOW?

The Department of Community Services could better communicate and promote the availability of quality child care if access to an online mapping technology was available.

This could be used by parents who are looking for employment opportunities in Nova Scotia and require licensed child care.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

Very early in this strategic work it was evident that those who use or want to use location-based information tools and technology, understood the need for good governance and the need to ensure it was the strategy's first implementation priority. As a result, the strategy places a priority on the early implementation of a strong governance framework. The governance for this location-based information strategy reflects the following key principles:

- The location-based information holdings and supporting technology are managed as a corporate-wide resource of the provincial government.
- Processes are in place to ensure accountability with roles and responsibilities clearly defined and applied.
- Location-based information systems priorities are driven by business needs of departments and agencies to ensure value is delivered to the users.
- Location-based information systems will be sustained, through regular performance review and adjusted as required to evolve with emerging requirements of the government.

How It Will Look

The governance framework put in place for location-based information and geomatics is similar to government's Technology and Information Management Governance Model. Essentially some elements are centralized and managed by one agency on behalf of all departments, and some elements are decentralized, and managed by individual departments. Other important aspects of the governance framework include:

- The Corporate Geomatics Infrastructure (CGI) and standards for location-based data are managed corporately to serve all user departments.
- To ensure data collected in all areas of government is managed as a corporate-wide resource and made available to others, clear roles and responsibilities regarding the creation and maintenance of data by various departments will be put in place.
- Individual departments will be responsible for application development to meet departmental business needs, consistent with corporate standards.

Leadership will come in the form of a *Strategic Location-Based Information Council*. This team will include the Deputy Minister of Service Nova Scotia & Municipal Relations, the Deputy Minister responsible for Treasury Board Office and CIO, the Deputy Minister of Natural Resources and the Deputy Minister of Transportation and Infrastructure Renewal and their senior officials. The Council will ensure that appropriate policy, technical and administrative resources are assigned to support its work priorities. Special purpose working groups drawn from departments and agencies may be established to undertake priority corporate tasks.

The Council's mandate is to:

- Oversee the implementation of this strategy and report annually on progress.

- seek out strong business application opportunities that incorporate location-based information.

- promote leadership, awareness and collaboration amongst departments.

Key Actions: The establishment of a framework to manage, monitor and promote location-based information and its related technologies on a corporate-wide basis is required to achieve effective governance. Key actions include:

- establish and sustain the Strategic Location-Based Information Council to provide leadership and ensure provincial resources are deployed effectively to implement this strategy.

- Define and implement clear roles and responsibilities, and accountabilities for all stakeholders.

- Create a Provincial Location-Based Information Forum, consisting of a mix of business and geomatics specialists, that will encourage collaborative thinking towards application and data development.

DID YOU KNOW?

The Department of Economic and Rural Development and Tourism use location-based information for their economic analysis. They benchmark Nova Scotia's performance with other jurisdictions using mapping to identify areas of economic concentration within key economic sectors.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

Expected Outcome

A sustained government-wide direction will be in place to maximize the use of location-based information, related technologies and processes.

Benefits

- Location-based information will be managed as a corporate-wide asset, aligned with the provincial approach to technology and information management.

- There will be clarity around defined roles, responsibilities, and accountabilities of all stakeholders.

- A performance measurement process will be in place and assist with ensuring delivery.

[Source: https://fleming.maps.novascotia.ca/Geonova/index.html]

Goal: To provide Government With an Authoritative and Single Source of Location-Based Information

An authoritative and single source of location-based information plays a vital role in the effectiveness of both the delivery of public services and government decision-making. Information must come from an appropriate source that is accountable for the quality and accuracy of that information.

The Government of Nova Scotia is not the sole source of the location-based information required for its operations. Other governments, particularly at the municipal level, generate significant location-based information. The Government of Nova Scotia will continue to work closely with municipal and federal governments to partner in the collection, maintenance and use of location-based information and technologies.

DID YOU KNOW?

Service Nova Scotia and Municipal Relations' civic address information is used by almost 200 staff for their daily activities.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

Key Actions: A single, authoritative source of information will be accomplished through the following primary actions:

- Manage the infrastructure, data standards, technology, licensing, and discovery and access to data as corporate assets.
- Identify departments as data custodians to collect and maintain their data and work with departments to eliminate areas of overlapping responsibility.
- Complete the design and implementation of the Corporate Geospatial Infrastructure (CGI) and ensure the CGI expands to meet the evolving needs of departments.
- Develop a Quality Assurance Program for all aspects of the integrated location-based information systems that serve departments.
- Put the tools and processes in place to make location-based information easy to find and easy to share across departments and agencies.

Expected Outcome

Custodianship will be in place for all location-based information.

Benefits

- Users will have a clear picture of where data came from and how reliable that information is before it's utilized in service delivery and decision-making.
- There will be an increase in productivity during information searches. Hours or days of searching, will likely be a matter of minutes.

Expected Outcome

Location-based information, its technologies and processes, will be shared across government.

Benefits

- There will be easy and secure access to data within all levels of government and at all locations across the province so staff may fulfill their core responsibilities and enhance government's programs and services.
- There will be increased collaboration across departments that use location-based information where ideas will be shared easily.

Goal: Integrate Location-Based Information and Expertise into Operational and Strategic Activities within Departments

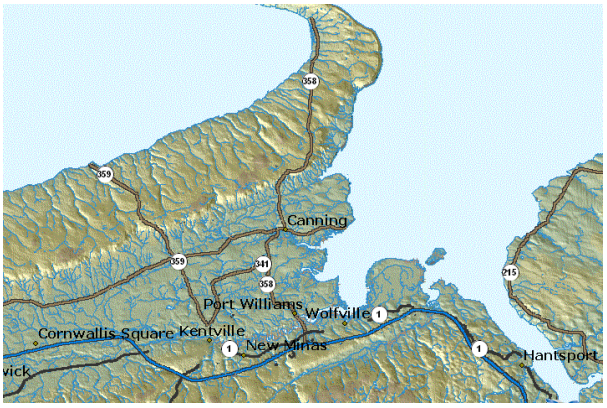
By making location-based information tools more accessible to staff, government can integrate location-based information into daily departmental activities and decision-making.

Key Actions: To ensure location-based information is integrated into departmental activities these actions will take place:

- Identify departmental business needs and determine where there is opportunity for location-based information and technologies to support those needs.

- Develop departmental "proof of concept" pilot projects where location-based information is applied. One initiative that could be explored would improve the management of assets such as provincial roads and bridges. The Department of Transportation and Infrastructure Renewal has identified this as a potential opportunity. Many other opportunities exist in departments such as Health and Wellness, Environment, Education and Community Services and encouragement should be given for all to put forward proposals.

- Provide targeted training and awareness that aligns to departments to help them identify ways to use location-based information to improve their programs and services.



Shaded Relief Map
[Source: https://fleming.maps.novascotia.ca/Geonova/index.html]

DID YOU KNOW?

Geomatics supported the Department of Community Services' "Early Years Project" to demonstrate the geographic distribution of 200 early childhood development programs across the province. This helps determine how those programs could best be integrated.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

Expected Outcome

A high level of awareness will increase location-based information usage to achieve better decision-making and to enhance service delivery.

Benefits

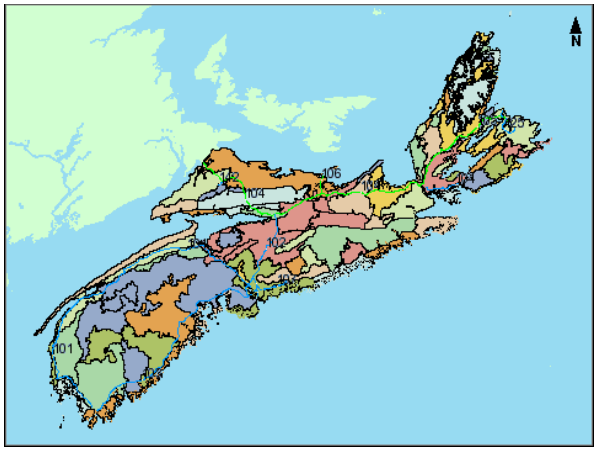
- There will be an increase in the use of location-based information and tools that already exist in government.

- Government's younger professionals who live in a culture of technology will expand the application of location-based information to find innovative approaches to programs and services.

- There will be service improvements and cost avoidance and reductions as a result of the incorporation of new location-based information and tools.

Goal: To Develop Geomatics Awareness across Government

Geomatics Awareness will be achieved by promoting, planning, training and demonstrating projects that incorporate location-based information tools and technologies into day-to-day operational activities.



Natural History Map
[source: Atlas of Nova Scotia, geonova.ca]

DID YOU KNOW?

Government staff are asking for change. They are seeking direction. They want to unleash location-based information and they want to be part of that change.

GeoNOVA
GEOGRAPHIC GATEWAY TO NOVA SCOTIA

Key Actions: This strategic goal will be accomplished by these primary actions:

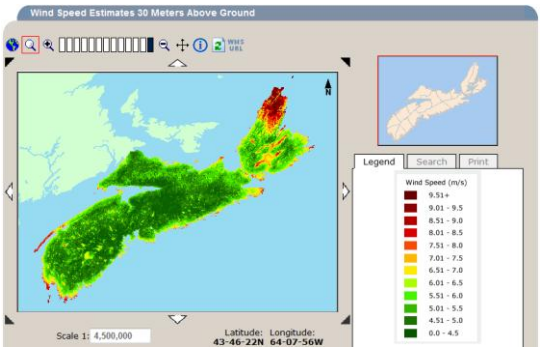
- Design and implement a Skills Development Program for government staff in partnership with the academic community.
- Develop an Awareness Plan for location-based information across Government.
- Report annually on accomplishments and new ways that location-based information is being used by departments and agencies.

Expected Outcome

The right balance of skills will exist across government to maximize the value of location-based information within departments, agencies and with other levels of government.

Benefits

- Through awareness staff skills will be enhanced and as a result they will improve on ways to apply location-based information to assist in government's decision-making process.
- The right people will be trained in the right knowledge areas, at the right time.
- There will be alignment between what we do with location-based information tools and governments' priorities.



Wind Atlas of Nova Scotia
[source: Atlas of Nova Scotia, geonova.ca]

APPENDIX A – Glossary of Terms

Authoritative Source

This is an entity authorized through a governance framework to develop or manage data for a specific business purpose. The data this entity creates are known as authoritative data.

Base Mapping

A map or chart (digital or in paper form) showing certain fundamental information, used as a base upon which additional data of specialized features are compiled or overprinted. In Nova Scotia, base mapping is synonymous with topographic mapping.

Civic Addressing Program

The Civic Address Program supports a host of provincial and municipal business processes. It helps supports emergency services and property related services. It is also responsible for the Nova Scotia Civic Address File (NSCAF) which is the Government of Nova Scotia's single authoritative source for civic address data.

Corporate Geospatial Infrastructure

The CGI is a technical solution that supports the newly formulated Geomatics Strategy for the Government of Nova Scotia and it represents an opportunity for government to bundle and share services at every level including business process, hardware, software, application development and hosting, metadata, MOU's for data sharing, and support for provincial geomatics.

Custodianship

The governance and process that defines administrative control over granting access to an organization's documents or electronic files while protecting the data as defined by the organization's governance policy or its standard IT practices.

Expected Outcome

Explicit statements the Strategy must make and the results it must effect in its environment to achieve its desired mission. Outcomes are the results anticipated from key actions.

Geographic Data

Geographic Information constitutes any information that can be referenced to a specific location.

Geomatics

The discipline of gathering, storing, processing, and delivering location-based information.

GIS Operations Office

Located in Amherst, Nova Scotia, this office is part of the GIS Section within Service Nova Scotia & Municipal Relations. Its mandate is to maintain and update the 7 Corporate Geographic Databases on behalf of the Government of Nova Scotia including: the NS Spatial Referencing Database, the NS Aerial Photography Database, the NS Topographic Database, the NS Orthophoto Database, the NS Civic Addressing Database, the NS Geographic Names Database, and the NS Property Record Graphics Database.

Geomatics Strategy Advisory Group (GeoSAG)

A stakeholder group consisting of 21 representatives across government departments and agencies, appointed by their respective Deputy Ministers. Its primary role is to advise on the development of this geomatics strategy for government.

GeoNOVA Program

The government of Nova Scotia's recognized corporate entity overseeing government-wide geomatics activities. It currently operates within a multi-level, need driven governance structure that includes a Steering Committee and several working groups that are formed around specific issues.

Governance

Is the act of consistent management, cohesive policies, guidance, processes and decision-rights for a given area of responsibility.

Location-Based Information

Location-based Information is information that identifies the geographic location of features and boundaries on earth (the natural, built or perceived environment). This information can be mapped or analyzed and used by government for informed decision-making.

Proof of Concept

A proof of concept is a realization of a certain method or idea to demonstrate its feasibility or a demonstration in principle, whose purpose is to verify that some concept or theory has the potential of being used. A proof of concept is usually small and may or may not be complete. It is sometimes referred to as a Pilot Project.

Property Mapping

The process used by the government of Nova Scotia so as to provide information on registering land or property in Nova Scotia. It also provides information on renting property in Nova Scotia.

Quality Assurance Program

It is the systematic measurement, comparison with a standard, monitoring of processes and an associated feedback loop that confers error prevention.

Single Source

Means that data should only be stored once but can also mean that the data is consistent and visible in one place in order to avoid differences in the exact same information across different systems. This does not mean that the all attributes must be maintained in a single system as it needs to be practical in terms of an approach for best managing a maintenance process.

Skills Development Program

The Skills development program refers to a set of processes that will give resources the opportunity to improve their skills specific to the geomatics needs within the Government of Nova Scotia. It will include training pertinent to the level of expertise required by a specific department to harness and maximize the use of location-based information for their department or agency.

Strategy

Strategy is a long term plan of action designed to achieve a particular goal or set of goals or objectives. Strategy is management's plan for strengthening the performance of the enterprise.

Technology and Information Management Strategy

This refers to governments 3 year strategic report (2010-2013) entitled "Connecting the Future Today". It was developed within the Chief Information Office.