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1.0 Executive Summary

GeoNOVA's Annual Report aims to provide a brief overview of 2012 geomatics activities across government along with identifying geomatics issues, collaboration efforts and needs for the geomatics practitioners now and into the future. This report's content is gathered from a cross section of Provincial departments and agencies. It has been part of the mandate of GeoNOVA to produce this report for the GeoNOVA Steering Committee and ultimately the Deputy Minister of SNSMR. It is at the discretion of the Deputy Minister of SNSMR to disseminate this Annual Report within Government.

This is GeoNOVA's 9th Annual Report. From ongoing mapping support in the Emergency Measures Office to the development of an exciting new Corporate Geospatial Infrastructure which represents an opportunity for government to bundle and share services at every level: business process, hardware, software, application development and hosting, metadata, MOU's for data sharing and support for provincial Geomatics.

It is clear that departments are utilizing the power of geographic information to adhere to and support their respective departmental mandates.

For the purpose of this report the geomatics issues that are highlighted within our Provincial Departments revolve around 4 key themes: people, process, data and technology.

- People are the backbone of our Provincial Geomatics community and efforts are required to ensure they are continually trained and vacancies are filled as soon as possible.
- Process(es) utilized by geomatics staff that access information and obtain equipment must be balanced and respond to needs in a timely fashion.
- Geographic data is required for decision making. Continued concentration on the "core" geographic
 datasets such as Nova Scotia Civic Address File and a move toward capturing government
 owned/maintained assets (roads, bridges, culverts, signage, guardrails, buildings, etc).
- Technology holds the key to emerging GIS needs within departments. Strong strategic direction and need to further incorporate geomatics into Departmental work plans.

2.0 Introduction

The GeoNOVA Program Office, on behalf of all those who contributed to this report, is pleased to submit the "GeoNOVA Annual Report 2012". Once again, we are providing a report that highlights many of the activities that are underway within the Government of Nova Scotia. The GeoNOVA Annual Report is intended to be broad based. Geomatics is defined as the discipline of gathering, storing, processing, and delivering geographic information, or spatially referenced information This report illustrates how broad ranging geomatics is in government and how our activities tie together important messages.

Although there is a huge volume of information and examples that could be shared, we have strived to keep this report to a manageable size. It will concentrate on four areas: geomatics activities; specific issues that may have impacted geomatics business in 2012; opportunities for collaboration; and needs into the future. We certainly want to acknowledge all those that have contributed to this report and applaud their efforts in making geography a decision support tool of choice in the Government of Nova Scotia.

3.0 Overview of 2012 Geomatics Activities:

Geomatics activity within Provincial departments and agencies continued to grow during 2012 and further aligned with the Chief Information Office's, Technology and Information Strategy. Maximizing the value of information for better public services was clearly evident. Geomatics information systems are being used to enhance the quality and value of program information to support more informed decision making. As in past years, activities were varied with departments continuing to focus on core geomatics activities and others branching into theme driven areas. These accomplishments speak volumes to the continued levels of effort and dedication of our Provincial geomatics employees. The following section outlines key contributions by many sectors of Government.

3.1 Department of Community Services (DCS)

Mandate/Mission

The Department of Community Services is committed to a sustainable social service system that promotes the independence, self-reliance, and security of the people we serve. This will be achieved through excellence in service delivery, leadership and collaboration with our partners.

DCS has strived to align its geomatics activities with its Departmental mission and to support decision making.

Activities:

- "Careers Nova Scotia" maps were developed in collaboration with the Department of Labour and Advanced Education and assisted with the departmental planning process by providing a conceptual view of their future service delivery system.
- In response to an Auditor General's recommendation, the department developed a Services for Persons with Disabilities (SPD) provincial waitlist. Using this waitlist information, the department developed several maps to demonstrate client distribution and density to identify possible geographically pressures, and to consider possible placement options within their communities. A series of HRM maps were produced to assess the transportation needs of the SPD clients. By providing a visual representation of the location of clients and the location of the adult day programs, the department was able to identify and later assess possible efficiencies of Program offerings such as bus passes and shared cabs.
- The department also supported the "Early Years Project", an inter-departmental initiative looking at the integration of early childhood development programs, including the development of

comprehensive maps that demonstrate the current distribution of over 200 early childhood development programs and services throughout the province. These products help facilitate conversations on how best to integrate programs and services.

3.2 Department of Economic and Rural Development and Tourism (ERDT)

Mandate/Mission

ERDT leads the implementation of Nova Scotia's economic growth strategy – jobs Here: the plan to grow our economy. The department works closely with its economic development agencies, and partners within and outside government to achieve the three priorities of this plan which included: Learning the right skills for good jobs, growing the economy through innovation and helping businesses be more competitive globally.

Activities:

- ERDT prepared population distribution map for inclusion in its annual reports and for distribution to its Productivity and Innovation Voucher Program.
- GIS was also used for economic analysis by benchmarking Nova Scotia's performance with other
 jurisdictions and using mapping to identify areas of economic concentration within key economic
 sectors.

3.3 Department of Energy

Mandate/Mission

To maximize the economic, social and environmental value of our energy resources as we transform our energy sector into one that is greener and more diverse, more secure and more sustainable.

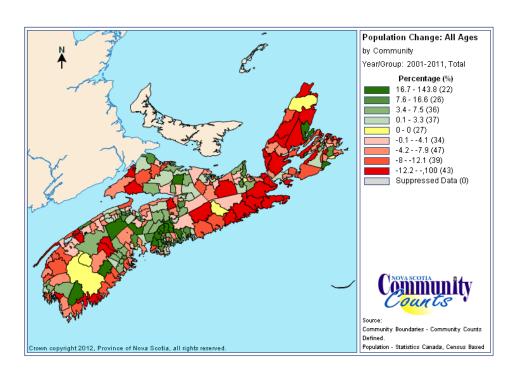
Activities:

- Accepted the Nova Scotia Community Feed-in Tariff (COMFIT) Program applications which utilized GIS and other spatial data with submissions.
- Acquired new geological data and worked with onshore and offshore petroleum related land allocation data.
- Utilized an interactive map for promotional purposes at trade shows. It is the intention to re-vamp the interactive map in the future and incorporate a new map into the website.

3.4 Department of Finance (Community Counts)

Mandate/Mission

Operating under The Statistics Act, collects, compiles and distributes statistics for government and non-government organizations. Community Counts is a website for and about communities in Nova Scotia – www.gov.ns.ca/communitycounts - that is supported by the Economics and Statistics Division of the Department of Finance. It provides statistics from many sources on a common platform that includes 14 sub-provincial levels of geography. These statistics are packaged into information products – tables, charts, maps, profiles and policy views – that are used for policy, program and community planning and decision making.



Activities:

- Socio-Economic Status (SES) Tool was launched in January 2012, allowing users to select three SES indicators: displaying graphically the SES rating for the indicators and geography selected. This is a dynamic tool for mapping socio-economic advantage and disadvantage across NS.
- Received, processed, posted and mapped data from the 2011 Census from Statistics Canada.
- Health Policy View and Health Profiles New policy view and health profiles were released in July 2012, after three years of development in collaboration with the Department of Health and Wellness and four district health authorities. Using the Population Health Framework that is recognized and used across Canada as the framework for health indicators, data was collected for 29 indicators of health, the social determinants of health, community characteristics and access to the health system.
- Collectivités en chiffres Centre Cartographique Community Counts translated its Map Centre into French to add to other core content from the website that was translated in 2011. Centre Cartographique was released for public use in September 2012.
- The Community Assets inventory were updated in 2012, including Acadian Cultural Assets, Adult Education Programs, Arts and Cultural Organizations, Community-based Learning Programs, Coops, Child Care Centres, Family Resource Centres, Food Banks, Full service Gas Stations, SchoolsPlus, Youth Conservation Core, Youth Health Centres

3.5 Department of Health and Wellness (DHW)

Mandate/Mission:

The health and wellness system includes the delivery of health care as well as the prevention of disease and injury and the promotion of health and healthy living.

The department is committed to the ongoing improvement of the health and wellness system through setting strategic direction and provincial policy to ensure services are accessible and

timely: developing standards; monitoring, measuring and evaluating quality; conducting financial and human resources planning; administering the allocation of resources; and establishing requirements for information systems.

Activities:

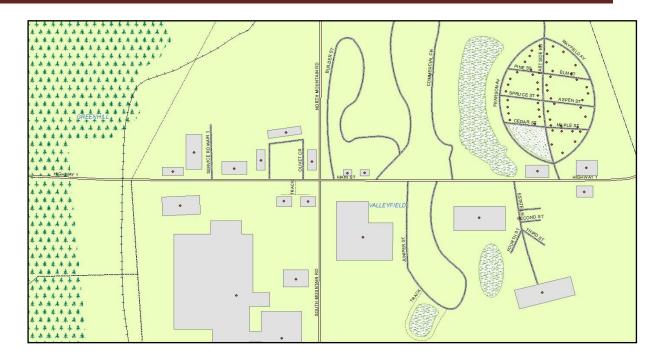
- Development of a DHW Planning Tool, placing health information into the hands of a broad user group within DHW. This tool utilized a combination of GIS technologies and compiled GIS datasets that allow visualization of resources/assets at various geographic levels.
- An inventory of NS Sport and Recreation Fields was developed to support the Sport Facility Infrastructure project.
- Active Healthy Living Team (AHLT), which has representatives in 6 Regional Offices as well as a
 central office in Halifax was supported via mapping requests including reprints of pre-existing maps;
 Trails; IT support, Large Format printing and Data analysis.
- A data QA/QC process was initiated with the assistance of DHW's trail groups. Approximated 35-40 groups provided updates to the online information.
- Over 200 analytically based projects were undertaken in 2012 including:
 - Studies of EHS Drive Times
 - Analysis of Chronic condition work flow
 - Medical First Responders and Emerging Health Services, Base Analysis
 - Distribution of Health Resources and Health Assets
 - Resource and Facility Asset Mapping
 - Mapping of Long Term Care Facilities

3.6 Department of Justice (Emergency Measures Office)

Mandate/Mission:

The Emergency Management Office (EMO), a division of the Department of Justice, aims to ensure the safety and security of Nova Scotians, their property and the environment by providing for a prompt and coordinated response to an emergency.

The EMO administers the 911 Emergency Service within NS. EMO provides all the training, specialized computer software and standard operating procedures. Call answering is provided through a partnership with public and privately owned emergency dispatch centres at four locations across the province. EMO has a rigorous quality assurance-quality control program to ensure a consistently high level of service.



Title: EMO Training Map (Used to simulate various emergencies/disasters)

Activities:

- Continued work on the multi -year Emergency Service Zones Project. This project entailed
 reviewing all the emergency agency boundaries with the RCMP, EHS and all 500 fire departments to
 ensure they are properly represented in the 911 system.
- Built a province wide Emergency Service Zone (ESZ) boundary layer as part of the MSAG (Master Street Address Guide). This new feature is currently being used in 911 Power Map.
- Developed fictional map(s) for Emergency Management training. The development of these maps have incorporated existing GSA data and fictional infrastructure (roads, civic addresses, etc). This is an ongoing project performed in coordination with the EM Training Officer and other EM experts and will be used in simulation of various emergencies/disasters.

3.7 Department of Natural Resources

Mandate/Mission:

The department has broad responsibilities relative to the management of Nova Scotia's biodiversity, forest, geological, and park resources and the administration of the province's Crown land (where management includes the development, conservation and protection of these resources).

Surveys Division, GIS and Cartography Section

The Surveys Division is responsible for the survey program within the Department of Natural Resources. In this role the division is accountable for coordinating, monitoring and evaluating all Crown land survey projects. The Division is also the record keeper for activities and interests on Crown Land. After decisions are made on how Crown land will be allocated and used, the Surveys Division, with the assistance of Regional Services, provide the tools to complete these tasks. The surveying, mapping, research and migration are required to effectively manage property.

Activities:

- Work continued regarding the on-going maintenance of the Crown Lands Cadastral GIS Database.
- Completed a major migration from Arc/Info Coverage's to ARCGIS 10 enterprise Geodatabase.
- Relocated the GIS Crown Database infrastructure from the 5th floor Founder's Square to CIO environment. All updating and maintenance is now performed out of the CIO environment managing the Enterprise Geodatabase.
- A web presence was established that utilizes a Flex application and a set of dissemination file Geodatabases with python scripting that updates nightly in the CIO environment.
- Continued management of the mapping of the latest land acquisitions of the Department into our cadastral GIS Geodatabase; which included on-going mapping of new wilderness areas/nature reserves for NSE, and generating map data and statistical products for senior management.

Digital Information Services

The Digital Information Services group is responsible for developing and maintaining the Mineral Resources Branch (MRB) Geographic Information System and associated databases, the NovaScan publications and maps database, for supplying digital data and services to clients and staff, and for developing and maintaining the MRB Internet website.

Activities:

Digital Information Services continue to provide advice and assistance as requested, along with developing databases and maps for the projects which are outlined below:

- Regional Adaptation and Change (RAC) Program: Section staff worked with the geological staff
 providing assistance with building databases, producing maps, compiling airphoto mosaics and
 gathering other required databases and images. Seventy-four 1:10 000 scale maps for Grande Pré,
 Amherst, Yarmouth, Minas Basin, Oxford and Lunenburg areas that were part of this project were
 released for distribution in July, 2012.
- Southwest Nova Mapping Project: Section staff completed databases and cartography for one 1:250
 000 scale overview map and twenty-five 1:50 000 scale bedrock maps covering primarily the
 Meguma Group in Southwestern Nova Scotia.
- Registry of Mineral and Petroleum Titles Database: The GIS version of the database was updated
 twice in 2012. Two new versions of the Mineral Rights Disposition Map for NS were released along
 with two new versions of the Mineral Rights Database. GIS staff have assisted throughout the year
 developing an online registry system.
- ArcGIS Migration Project: Section staff continued the process of migrating the branch corporate GIS databases to make them more readily accessible in ArcGIS.
- Drillhole and Drill Core Database: Section staff continued to work on new applications that will allow entry of drillhole and drill core data into a SQL Server database, and applications allow staff and the public to query the database through the Internet.
- Cobequid Highlands Lidar Shaded Relief Images: GIS staff created a digital product consisting of 144 shaded relief images derived from three contiguous Lidar bare-earth Digital Elevation Models (DEMs) of the Cobequid Highlands of Nova Scotia (released March 2012).
- Radon Potential Map: Section staff worked to produce a radon potential map for the province and have incorporated this layer into an ArcGIS radon potential model.
- Scanning of publicly released assessment and property reports continued throughout the year. The Mineral Resources Branch made a major effort to scan nearly 2000 archive assessment reports in the winter and spring of 2012 and place them on the internet. A listing of these reports can be found

at: http://www.gov.ns.ca/natr/meb/download/ar_release_june2012.asp. So far, 6192 publicly released reports have been scanned and their PDFs made available to the public for download through NovaScan. This represents 80% of publicly available reports.

- The section continues to maintain its three primary public Internet Map Server (IMS) applications. The Nova Scotia Geoscience Maps, Database and Images applications generated 403,241 maps (up 51% from 2011); the Nova Scotia Groundwater Maps and Databases generated 132,465 (up 113% from 2011) maps; and the Mineral Resource Land Use Atlas generated 86,524 maps. The GIS4 map server generated a total of 1,159,768 maps in 2012 for all DNR map services, up 79% from the 647,516 maps generated in 2011.
- In December 2012 the branch updated a number of layers in the Nova Scotia Groundwater Maps and Databases Internet Map Server (IMS). The purpose of this application is to provide the public with an interactive map service containing layers of spatially referenced information.
- Staff have assisted in the migration of an IMS server to ArcGIS 10. Currently they are creating new and migrating old services to version 10 as well as developing Flex applications to help staff and clients use the services effectively.
- Staff worked with staff from the Corporate Information and Technology Office (CITO), GeoNova,
 DNR Crown Lands and the Department of Environment to develop a shared corporate GIS Server
 infrastructure, to set up and test a virtual server environment and to transfer some applications to
 ArcGIS Server® 10. This work will continue in 2013.

3.8 Department of Service Nova Scotia and Municipal Relations (SNSMR)

Mission:

To provide Nova Scotians with seamless, easy access to government information and numerous services in a cost-effective manner while maintaining the interests of the public and by working with municipalities to build strong communities throughout the province.

Land Programs

The Land Programs role is to regulate the modern land tenure system providing for a Provincial government guarantee of basic land ownership; operate the traditional Registry of Deeds (passive document repository) until all parcels are registered in the Land Titles System and to provide an electronic Land Registry to allow for on-line searching of records, digital property mapping, scanned images of documents and plans, electronic submission of documents and links to all land information

Activities:

All regions of the Land Programs concentrated on the following:

- Continued to improve the attribute and graphic components of the Nova Scotia Property Database (NSPRD).
- Continued to focus on Nova Scotia Civic address data cleanup and reconciliation
- On-going reconciliation of Unresolved Parcel and Unresolved Area; the property boundaries within
 wilderness areas between Natural Resources and SNSMR; Transportation Plans into Parcel Fabric
 and the Indian Reserve Boundary project
- Continued removal of duplicate plan numbers in the plan index for recorded plans. This project cleans and improves the integrity of the plan index, and Property Records (LINNS)

 Conversion of Survey Plans and Documents for e-vault is underway and neared completion in Eastern Region Registries

GeoNOVA - GIS Section

GeoNOVA is the name adopted by the Province of Nova Scotia to describe it's corporate approach to the creation, maintenance, and distribution of geographic information. The GeoNOVA program encourages the creation of corporate geographic information resources collected, maintained, and distributed to accepted standards and shared amongst all users within the Province to support decision making and to reduce duplication of effort.

In conjunction with the GeoNOVA Program, the GIS Operations Office is located in Amherst and has the mandate to maintain and update the 7 Corporate Geographic Databases on behalf of the Province of Nova Scotia. The 7 databases are: 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

One of the cornerstones of GeoNOVA is the ability of users to easily access geographic information within the Province.

Activities:

- Geomatics Strategy for the Government of Nova Scotia working group was struck. The first of many tasks assigned to the working group was to define a Vision, Mission and Goals for the Geomatics Strategy. The Geomatics Strategy will be completed in by April 2013.
- The Corporate Geospatial Infrastructure (CGI) is a technical solution that represents an opportunity for government to bundle and share services at every level: business process, hardware, software, application development and hosting, metadata, MOU's for data sharing, and support for provincial geomatics. Bundling geospatial services from geomatics stakeholders within the Province of Nova Scotia not only reduce long term costs for technology and support it also provides single source access to government clients for geospatial products. CGI will support the newly formulated Geomatics Strategy for the Government of Nova Scotia.
- NSTDB Maintenance Model Report was launched with a final report due in early March 2013. This
 report builds upon input received by clients for the past 3 years and will provide recommendations
 for maintaining the NSTDB.
- NSTDB Feature Review was conducted to ascertain what NSTDB Features may not be required by the Nova Scotia Geomatics community.
- A comprehensive review of the current state of the Nova Scotia Coordinate Referencing System was conducted in 2012. As the primary user group, the Association of Nova Scotia Land Surveyors was engaged and encouraged to provide feedback on proposed modernization initiatives. A major outcome of the review and engagement processes was the decision to pursue implementing Active Control Stations in a test region of the province. The technology will enable high accuracy, GPS positioning in coverage areas. The technology will allow the Province to more efficiently pursue its geospatial mandates and provides many business opportunities for private industry.
- Working with the Chief Information Office the first data standard developed for location-based addressing/addresses was completed and published.
- LiDAR and Technical Specification reports were both completed and placed on www.geonova.ca

- Client Services GIS processes related to Property Record Database improved.
- GIS Service Centre celebrated 1 year anniversary providing support to clients with a variety of questions or requests regarding geographic applications, products & services.
- Data Distribution created a client services database for licensing and tracking.
- LiDAR technology was used for the first time for vertical modeling which assisted with the production of 13 large scale orthophoto maps for Eskasoni First Nation.
- 4500 linear kms of 1:12 500 color aerial imagery covering parts of Annapolis, Kings, West Hants, Lunenburg was completed, along with 225 color orthos from DNR images covering parts of Pictou, Antigonish, Guysborough and Cape Breton.
- 108 sheets full NSTDB revision and orthophotos covering parts of Digby, Queens, Annapolis and Lunenburg were completed along with 64 sheets partial revision.
- 211 .pdf map sheets covering Yarmouth and Shelburne counties as well as parts of Digby and Queens were created and published.
- 37 out of 45 water basins in the NSHN were upgraded to a standard which includes linked toponomy and directionality on all named hydro features.
- NSCAF rolled out online civic addressing service in June 2012. The service allows NSCAF to get daily updates.
- A NSCAF Best Practices document was created, reviewed by source providers and published to the website.
- NSCAF/NSTDB point reconciliation project was conducted and this work led to increased accuracy
 of civic points.
- On-going review of data received through the SAI Civic Data Provider Web Service; quality control
 reporting; civic suffix usage in the NSCAF database; annual GPS road collections campaign;
 monitoring municipal and First Nations civic addressing activities; bi-monthly maintenance of postal
 codes; quality control of building footprints that are being supplied by municipalities; HRM biweekly data deliveries, processing data and uploading changes/adds/deletes into NSCAF.

3.9 Department of Transportation and Infrastructure Renewal (TIR) Mandate/Mission

The mission of the Department of Transportation and Infrastructure Renewal (TIR) is to:

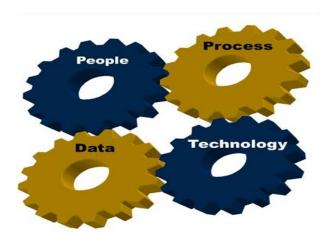
- Deliver quality public infrastructure for Nova Scotia
- Provide a transportation network for the safe and efficient movement of people and goods
- Serve the building, property and accommodation needs of government departments and agencies
- Provide quality and effective common services to government departments, agencies, boards and commissions mandate.

Activities:

During 2012 TIR reviewed the possibility of expanding the GIS Department. This expansion consists of GIS positions located within Head Office for overall direction as well as positions located within the 4 Districts across the province.

4.0 Geomatics Issues (People, Process, Data and Technology)

As is the regular practice of the GeoNOVA Annual Report, it is important to not only acknowledge operational accomplishments but also identify issues the geomatics community faces year over year. By acknowledging these issues we better position ourselves to grow. Departments were asked to identify any geomatics related issues they faced last calendar year that might have impacted (either positively or negatively) their effort. It is clear that efforts are required to continue to cultivate a cooperative culture across Provincial Departments that supports People, Process, Data and Technology. These issues have been categorized and summarized under those four key headings.



People:

Addressing GIS staffing vacancies in a timely manner was identified as a concern from several departments in 2011. In 2012 however, one department saw the introduction of new staff with introductory GIS skills that could now contribute to decision making in the department. Another department is poised to take advantage of GIS technical expertise, when the time presents itself.

There was a concern from one department that resources required to validate geographic data were now not in place and validating data had always been carried out in the past. The loss of FTEs resulted in the spreading out of assigned duties among the complement of existing FTEs therefore when new staff were hired this required training which further cut into the productivity of the entire team.

Data:

One common process theme was carried over from previous years and that included FOIPOP. One particular Department suggested FOIPOP creates a barrier for obtaining information required in their mapping section.

The availability and access to program data continues to be an issue.

Technology:

One department offered that the Corporate, Office Suite Migration (OSM), initiative to migrate to a complete Windows environment created some issues. It was suggested that this initiative created substantial down time and worked against their ability to produce results, mainly due to constant reconfiguration changes they had to apply to tools.

Changes in CIO infrastructure (directory structure changes and firewalls in particular) prevented computers with GIS software from being able to communicate with the GIS license manager server. GIS software had to be re-installed on each computer which now required its own license manager resulting in

new key codes being obtained from ESRI. This was time-consuming as well as not being a recommended installation protocol by ESRI.

5.0 Collaboration Efforts

Collaboration among departments is growing stronger each year and 2012 was no exception. Generally responses were of a very positive nature in regards to the role data, technology and procedures play in collaboration efforts amongst Provincial departments.

In terms of data collaboration efforts, our Provincial departments and agencies continued to move forward. Emerging GIS users are collaborating with well-established, geomatics departments to produce a wide array of maps. By way of example Health data from the Canadian Community Health Survey (StatCan) was provided for Health Profiles by the Health Information Office in the Department of Health and Wellness. Community counts (Department of Finance) was able provide social and economic data to the Department of Health and Wellness along with boundary files for communities, community health board and district health authorities to aid in their work.

The "Community Asset Mapping System for Children, Youth and Families" was a joint initiative between Nova Scotia Community Counts (Department of Finance) and the Child and Youth Strategy (DCS). This initiative involved mapping social assets such as Family Resource Centres, Day Cares, Women's Centres, Men's Early Intervention program sites, Boys and Girls Clubs, Big Brother/Big Sister, Family Home Day Care Agencies, Early Intervention Program and Transitions Houses. These products are publically available to serve the information needs of government, community and academic organizations, families, etc.

The Licensing Division of Community Services implemented new licensing tools which collect spatial data on licensed service providers. This data is openly shared with GIS staff enabling the department to produce mapping products much quicker by alleviating the need to manually process data.

Almost all Provincial Departments participated in the Nova Scotia Geomatics Strategy.

Upwards of 200 regional Department of Community Service staff now use the NSCAF Secured Map Viewer as part of their daily duties which includes confirming client address, verifying client residencies and accessing driving directions.

Department of Energy has continued to work closely with the Department of Natural Resources on the COMFIT program and in terms of obtaining Petroleum data.

The Department of Health and Wellness has collaborated with a number of departments in regards to Community Health Profile data, Schools data, various incident data, obtaining GIS data sets that support the Early Years project, and trails data. DHW also had discussions on collaboration with the Dalhousie University Health Geomatics Laboratory.

The NSCAF program provided the opportunity to collaborate with Elections Nova Scotia, the Department of Community Services, Emergency Measures, Department of Transportation and Infrastructure Renewal, Nova Scotia Environment, Emergency Health Services and various Fire and Police Departments, Canada, Post, Department of Finance (Community Counts), and Service Nova Scotia Department (Land Programs and Energy Rebate Program), RCMP and the federal Government National Road Network.

6.0 Needs into the Future

This year the Annual Report's contributing organizations have identified six needs, many of which are targeted at ongoing development, that are required into the future which include the following:

 Strong strategic direction and the need to further incorporate geomatics into Departmental work plans.

- Increased GIS staffing and or skills across Government with emphasis on continued training (especially for emerging GIS departments).
- Continued maximization of collaboration opportunities and the development of a government wide collaboration model.
- Continued concentration on the "core" geographic datasets such as NSCAF and a move toward capturing government owned/maintained assets. (Roads, bridges, culverts, signage, guardrails, buildings, etc).
- Continued efforts toward data discovery and investment in the data bank applications that describe that data.

7.0 Report Contributors

and Municipal Relations

We gratefully acknowledge the contributions the Provincial Geomatics Community have made toward this report and in particular, wish to highlight the efforts of the following individuals within that community that kindly gave of their time, expertise and in many cases provided collective insight from their respective business areas.

Mr. Greg Landry, Corporate Strategist, Department of Economic and Rural Development and Tourism Ms. Sarah Onichino, Data Distribution Coordinator, Nova Scotia Geomatics Centre, Service Nova Scotia

Mr. Anthony Matthews, Program Coordinator, GeoNOVA Secretariat, Service Nova Scotia and Municipal Relations

Mr. Shaun McGee, GIS Specialist, Land Programs, Service Nova Scotia and Municipal Relations Mr. Adam Holmes, GIS Analyst, Department of Social Services

Mr. Kenneth Lee, Coordinator of Spatial Information & Planning, DHW/Health Information Office (HIO)/Business Intelligence Analytics & Privacy (BIAP).

Mr. Brian Fisher, Manager, Department of Natural Resources

Mr. Robert Bowlby, Supervisor, GIS and Cartography, Department of Natural Resources.

Ms Sarah Thurbide, Petroleum Land Tenure Administrator, Nova Scotia Department of Energy

Mr. Steve MacIsaac, P.Eng, Western Region District Director, Department of Transportation and Infrastructure Renewal.

Mr. Malcolm Shookner, Manager, Department of Finance. (Community Counts)

Mr. Paul Mason, Manager, Department of Justice, Emergency Measures Organization