



GeoNOVA Portal Support Processes and Procedures Manual

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Version 3 – Final

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Revision History

Version	Date	Author	Summary of Changes
1.0	3-Feb-2004	Steve Crouse	Initial Draft – Incident Management reviewed by GeoNOVA
1.1	14-Feb-2005	Steve Crouse	Additions to complete first draft.
1.2	28-Feb-2005	Deryl Armstrong	Complete first draft.
2.0	14-Mar-2005	Deryl Armstrong	Final Draft
3.0	28-Mar-2005	Deryl Armstrong	Final Deliverable

Executive Summary

The purpose of the GeoNOVA Portal Support Processes and Procedures Manual is to provide the GeoNOVA Program with a standard set of processes that describe the approach to service management and support of the GeoNOVA Portal and potentially, other aspects within the GeoNOVA Program.

GeoNOVA is the Province's corporate approach to the creation, maintenance, and distribution of geographic information. GeoNOVA 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.

The GeoNOVA Program has been established to implement this approach. The GeoNOVA Program has adopted a multi-level, needs-driven governance structure that includes a Steering Committee and several nodes (working groups).

The GeoNOVA Program's focus for the present five-year program cycle is to make geographic data accessible, specifically at the desktop. The primary mechanism, through which this will be achieved, is the GeoNOVA Portal.

In support of the ongoing development and evolution of the GeoNOVA Portal, the GeoNOVA Program has initiated Operational Model Planning and Development. This process will develop business models to effectively manage the operational implementation of the GeoNOVA Portal. Implementation of a service management and support process is crucial to ensuring a stable and reliable service.

This document is the result of the work conducted within this context. Specifically, this document was developed during the Business and Technical Analysis Initiative to address the need for service management and support processes. The relevant deliverables generated during this initiative include the following:

- GeoNOVA Portal Assessment of Current Support Processes
- GeoNOVA Support Processes and Procedures Manual
- GeoNOVA Exchange Agreement Template
- GeoNOVA Service Level Agreement Template

These documents provide a broad assessment of the current service management and support processes related to the GeoNOVA Portal as well as provide support processes and procedures to support operational implementation in the future.

It is important to note that although the focus of this work is related to the operational implementation of the GeoNOVA Portal, the GeoNOVA Support Processes and Procedures, GeoNOVA Exchange Agreement and the GeoNOVA Service Level Agreement Template may be used in the broader context of the GeoNOVA Program.

There may be opportunities to leverage these processes and templates when considering the operational management of GeoNOVA Program activities outside the context of the Portal.

It should also be noted that at this time, the GeoNOVA Secretariat is referenced as the key organization responsible for the ownership and execution of the majority of support processes. This is due to the fact that the GeoNOVA Portal is in a state of evolution and is not fully implemented at this time. In order to ensure service support quality, the GeoNOVA Secretariat will retain control of operational support processes until the Portal is fully implemented. At that time, other support organizations may be identified that would be given ownership and execution responsibilities for these processes.

Some of the key features of the GeoNOVA Portal Support Processes and Procedures Manual include:

1. The consolidation of parties involved in leading service management and support. In the current state, there are multiple organizations performing service management and support functions related to the GeoNOVA Portal. Where possible, these processes should be performed under the direction of a single organization. The Support Processes and Procedures Manual reflects this by suggesting the assignment of Process Ownership roles to the GeoNOVA Program.
2. The formalization of the relationships between service delivery and support organizations. Because of the number of organizations involved in performing service management and support functions, confusion has arisen with respect to the roles and responsibilities of each party. Through formal agreements between parties (GeoNOVA Exchange Agreements and Service Level Agreements), clarity will be provided that will allow the organizations to work together more effectively.
3. The introduction of standard processes, tools and techniques to the performance of service management and support processes. The Support Processes and Procedures Manual provides a set of processes, tools and techniques for each service management and support process that can be used to formalize the approach to operational implementation and support of the GeoNOVA Portal.

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1.0 Introduction

1.1 Document Purpose

The purpose of this document is to describe the proposed approach to service management and support for providing the day-to-day user support and for handling Incidents, Problems and known errors. This document is intended to describe the following:

- The purpose of each support process.
- The strategy relating to each support process.
- The roles and responsibilities of involved parties.
- The process steps used to fulfill each support process.
- The use of any tools, techniques or automation in performing each support process.

In support of the ongoing development and evolution of the GeoNOVA Portal, the GeoNOVA Program initiated Operational Model Planning and Development. Through this process, business models to effectively manage the operational implementation of the GeoNOVA Portal have been developed. Implementation of a service management and support process is crucial to ensuring a stable and reliable service. As the evolution of the GeoNOVA Portal continues, it will become increasingly important that an appropriate service management and support process is in place in order to support the growth of the Portal.

This document provides descriptions of relevant service management and support processes related to the GeoNOVA Portal.

1.2 Situational Background

GeoNOVA is the Province's corporate approach to the creation, maintenance, and distribution of geographic information. GeoNOVA 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.

The GeoNOVA Program has been established to implement this approach. The GeoNOVA Program has adopted a multi-level, needs-driven governance structure that includes a Steering Committee and several nodes (working groups) that are formed around specific issues.

The GeoNOVA Program's focus for the present five-year program cycle is to make geographic data accessible, specifically at the desktop. The primary mechanism, through which this will be achieved, is the GeoNOVA Portal.

2.0 GeoNOVA Program Environment

The GeoNOVA Portal is an access point which allows users to find and view information and services that they are interested in without having detailed knowledge of the underlying technology or data storage locations. The GeoNOVA Portal will provide clients and stakeholders a single point of entry to search for available Geospatial data and services; display and save maps produced by a map service; download and save map data; direct access to online “Web services”; view information about map features; and develop new map/data services.

At a very high level, the following diagram is meant to illustrate the GeoNOVA Portal Environment. The representation of stakeholders is not meant to be exhaustive but to demonstrate the wide variety of relevant stakeholders responsible for service management and support of key IT components.

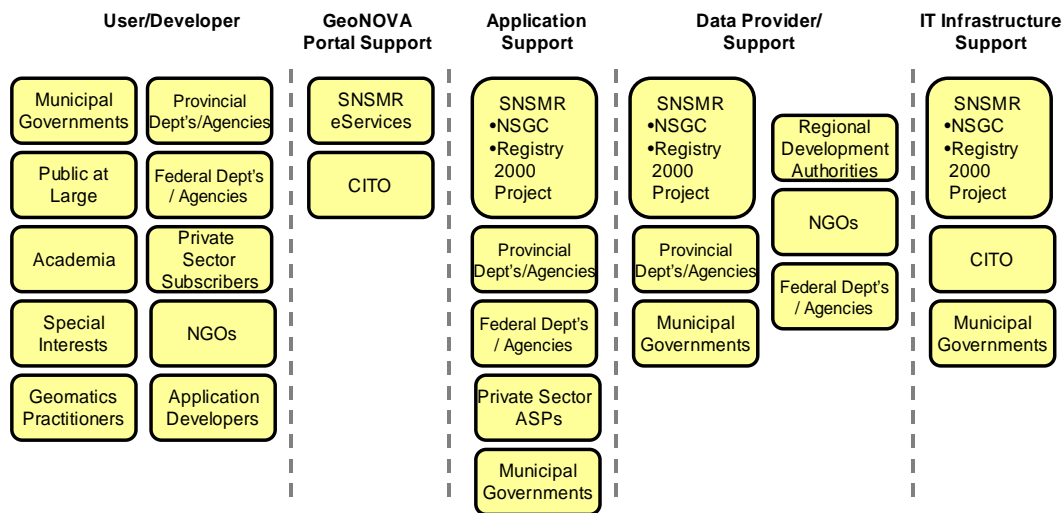


Figure 1: GeoNOVA Portal Environment

GeoNOVA clients are a broad group representing a wide variety of interests and needs. Clients can be users both inside and outside the provincial government firewall. In addition, users of the GeoNOVA Portal can include application developers using data or web services from the Portal. All clients gain access to the GeoNOVA Portal via the Internet.

Service Providers supply applications, data, web services and IT infrastructure support to the GeoNOVA Portal environment. The Portal exposes a variety of applications and web services supplied by stakeholder organizations such as other provincial government departments, federal departments and agencies, municipalities, academia and the private sector. These organizations have responsibility for the support of these applications and web services as well as

the IT infrastructure related to these applications. The GeoNOVA Portal makes available data from a variety of data sharing partners as is stated in the Architecture of the GeoNOVA Portal initiative. This data is exposed through a variety of methods including direct access, periodic extracts and through web services.

The relationships between the various stakeholder groups are managed through establishing partnerships and maintaining agreements. The following diagram defines how various agreements are utilized to define and manage the relationships between stakeholders. Of particular importance are the GeoNOVA Exchange Agreements and the Service Level Agreements. As can be seen in the diagram below, these agreements are used to frame the relationships between the GeoNOVA Program, its clients and its service providers respectively. Because the GeoNOVA Program relies on these agreements to clearly define roles and responsibilities of necessary stakeholders, they are a critical component to the management of the Portal.

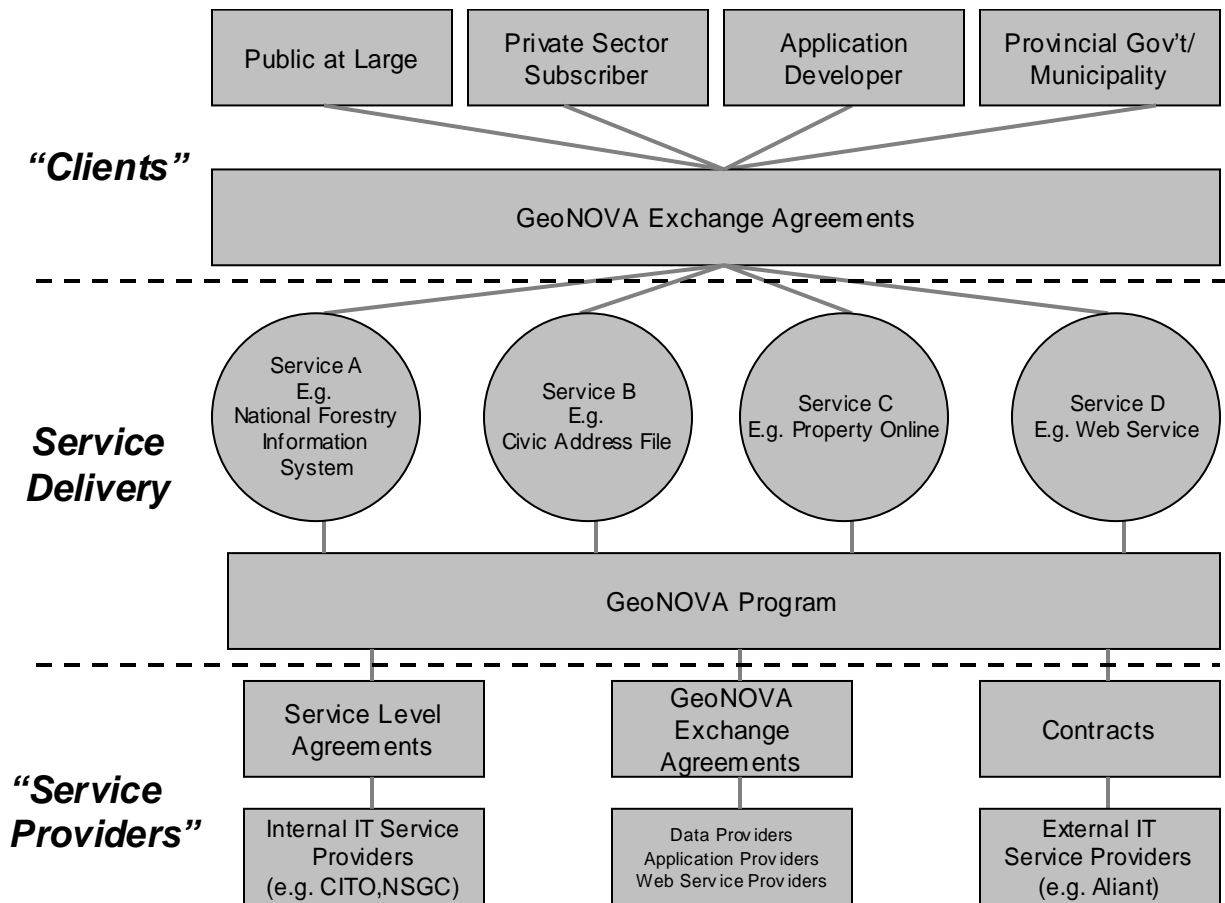


Figure 2: Representation of Relationship Between Clients, Services and Agreements

3.0 Proposed Support Processes

3.1 Evaluation Framework

From January 10 through January 27, 2005, workshops were held with key stakeholders regarding the GeoNOVA Portal. Invited stakeholders included individuals from federal, provincial and municipal governments, private sector representatives, IT service providers and academia. In part, the purpose of the workshops was to gain an understanding of the current support processes in place related to the GeoNOVA Portal and to gather opportunities for improvement. The results of the workshops were summarized and provided to invited and participating stakeholder groups for validation. Feedback provided from this process was also added to the results of the workshop output.

During these workshops, the Information Technology Infrastructure Library (ITIL) was utilized as the framework through which the current support processes for the GeoNOVA Portal were assessed. ITIL is an industry standard approach to IT Service Management and Support. It is the most widely accepted, comprehensive and consistent set of best practices for IT service management in the world as it is based on the collective experience of commercial and governmental practitioners worldwide. As such, it is fast becoming the de facto standard used by some of the world's leading businesses and governments. ITIL promotes a quality approach to achieving business effectiveness and efficiency through the use of people, process, technology and data.

To ensure coverage and consideration of all relevant support processes, each of the ITIL Service Management processes will be referenced and considered when assessing the GeoNOVA Portal current support processes. The following diagram shows the ITIL processes to be considered:

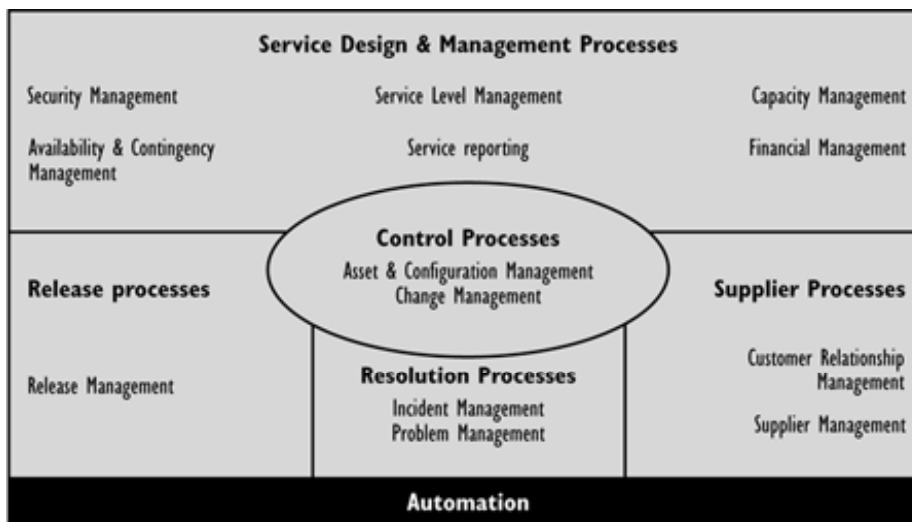


Figure 3: ITIL Support Processes and Procedures

It is important to note that the GeoNOVA Portal is in its infancy. Until now, the focus of the GeoNOVA Program has been on the development and deployment of the Portal. It is at this point that the focus has shifted to improving the operational management of the Portal. This is the purpose of this initiative as there is a desire within the GeoNOVA Program to make the current support processes more formal and mature.

Please note that for each of the following service support processes, a process flow diagram and associated description of each of the process steps is provided. Each process step is numbered and corresponds to the numbered descriptions of the process steps below the flow diagram.

For the purposes of this document the following terms are used throughout and are defined as follows:

Change Management Database (CMDB): A database that contains all relevant details of each Configuration Item (CI) and the details of the important relationship between CI's.

Configuration Item (CI): A component of an infrastructure or an item that is under the control of Configuration Management. CI's may vary widely in complexity, size and type, from an entire system (including all hardware, software and documentation) to a single module or a minor hardware component.

Customer Relationship Management (CRM) System: A CRM System is used to manage interactions with clients and customers. A basic CRM system can be helpful in scheduling opportunities for interaction with clients as well as tracking past interactions. CRM information that can typically be captured, tracked and managed in a system includes contact name of the client, a history of past interactions and a reminder system for future contacts.

Data Custodian: The named resource from a data-sharing partner with responsibility for managing and maintaining data.

GeoNOVA Exchange Agreement: A written agreement between the GeoNOVA Program its clients. The GeoNOVA Exchange Agreement can be used to define a two-way exchange of services between parties or a situation where a one-way provision of services is provided between parties. At the current time, the GeoNOVA Exchange Agreement is targeted at services provided to and from the GeoNOVA Program's clients. The agreement may have broader applications in the future with respect to services provided outside of the Portal.

Incident: Any event which is not part of the standard operation of a service and which causes, or may cause, an interruption to, or a reduction in, the quality of that service.

Problem: Unknown underlying cause of one or more Incidents.

Release: A collection of new and/or changed Configuration Items that are tested and introduced into the live environment.

Service Level Agreement: A written agreement between a service provider (of applications, data, web services or IT infrastructure) and a customer (in this context, the GeoNOVA Program) that documents agreed upon service levels to be maintained.

Service Provider: An organization supplying services or products to customers. Within the context of the GeoNOVA Portal, Service Providers would be considered organizations that supply applications, data, web services or IT infrastructure support to the GeoNOVA Program for use by the GeoNOVA Portal.

Service Request: Every Incident not being a failure in the IT Infrastructure.

Tier 1 Support: Provides initial Incident logging, basic Incident resolution services and coordinates additional Incident resolution resources until the Incident is resolved.

Tier 2 Support: Provides application, data and web services Incident support services.

Tier 3 Support: Provides technical architecture (hardware, operating system and network) Incident support services.

3.2 Service Level Management

Purpose

Service Level Management is the name given to the process of planning, coordinating, drafting, agreeing, monitoring and reporting on GeoNOVA Exchange Agreements and the on-going review of service achievement to ensure that the required service quality is maintained and improved. GeoNOVA Exchange Agreements provide the basis for managing the relationship between the service provider, in this case the GeoNOVA Program, and the client. Service Level Management is essential in any organization so that the level of service needed to support the business can be determined, and monitoring can be initiated to identify whether the required service levels are being achieved.

Agreements managed through the Service Level Management process provide specific targets against which the performance of the organization can be judged.

The goal for Service Level Management is to maintain and where necessary improve service quality, through a constant cycle of agreeing, monitoring and reporting upon service and instigation of actions to eradicate poor service, in line with business or cost justification. Through these methods, a better relationship between those providing services and their clients can be developed.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

The GeoNOVA Program currently uses a collection of agreements and licenses to define and manage the relationships with its clients and data-sharing partners. However, from the workshops held with Portal stakeholders, there was a clear indication that there is a need for a single agreement for each of the various stakeholders and the GeoNOVA Program and perhaps even with the overall service delivery mechanisms of the Geographic Information Services section of Service Nova Scotia and Municipal Relations.

The proposed strategy for implementing Service Level Management is to move towards a single agreement, specifically a GeoNOVA Exchange Agreement, for which a template was created as a result of this project. The GeoNOVA Exchange Agreement will define the client's expectations of the service levels to be met by the GeoNOVA Program in terms of the operations of the Portal.

People

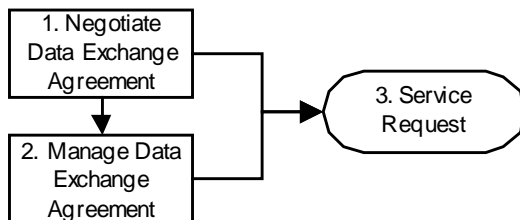
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Service Level Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Service Level Management process. Establishes policies and guidelines regarding the Service Level Management process. Negotiates and maintains GeoNOVA Exchange Agreements with the GeoNOVA clients and service providers, if the service provider also utilizes the Portal’s data as a client. Creates Service Requests, as required, to support new functionality or enhancements as required by the new/enhanced GeoNOVA Exchange Agreements.

Regarding the Process Owner for Service Level Management, the GeoNOVA Secretariat currently performs this role. This role must always be accountable to the GeoNOVA Program for the overall Service Level Management process. It is suggested that these responsibilities continue to be assigned to the GeoNOVA Secretariat. The responsibilities specific to managing the service levels prescribed within the GeoNOVA Exchange Agreements is not a full time role but it is important to note that the responsibility to continually establish, monitor and modify these agreements on an ongoing basis would require a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Service Level Management process.



Activity	Responsible Role	Description
1. Negotiate GeoNOVA Exchange Agreement	Process Owner – Service Level Management	This activity involves the negotiation of the initial GeoNOVA Exchange Agreement with the client. Using the template as a starting point, the terms and conditions are reviewed and modified appropriately with the stakeholder.

2. Manage GeoNOVA Exchange Agreement	Process Owner – Service Level Management	This activity involves the management of GeoNOVA Exchange Agreements. As existing agreements expire or new conditions / services are added through the Program that requires changes to the GeoNOVA Exchange Agreements, this activity renews and/or renegotiates the terms of the new terms of the agreement with the client.
3. Service Request	Process Owner – Service Level Management	When GeoNOVA Exchange Agreements are negotiated/renewed, new terms or conditions may necessitate new or enhanced functionality to the Portal. In addition, Service Requests for security modifications may be required as a result of GeoNOVA Exchange Agreements. These Service Requests are created and sent to the Change Management process to be assessed and appropriately assigned for completion.

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Service Level Management process:

- The GeoNOVA Exchange Agreement Template. This template defines the standard terms for exchanging information through applications, data, and web services and is used as a starting point for the negotiation of a GeoNOVA Exchange Agreement between the GeoNOVA Program and its various stakeholders.
- GeoNOVA Exchange Agreement Log. The log tracks the status of all GeoNOVA Exchange Agreements that are in place including their effective dates.
- Client Engagement Meetings: These sessions can be scheduled or unscheduled and can be used for a variety of purposes. In the specific context of Service Level Management, the sessions can be used to establish and maintain the GeoNOVA Exchange Agreements.

3.3 Service Reporting

Purpose

Immediately after a GeoNOVA Exchange Agreement is established with a client, monitoring must be initiated in order to determine if agreed upon service levels are being met. Operational reports must be produced at an appropriate frequency to confirm the adherence of the service delivery and support organization to service level commitments. In addition, exception reports should be produced whenever a GeoNOVA Exchange Agreement has been broken or threatened if appropriate thresholds have been set to give an 'early warning'.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

The process of Service Reporting occurs informally throughout the various support processes. For example, the Incident Management process communicates Incident and Service Request status to the various clients as the status changes on the requests.

The proposed strategy for Service Reporting is to provide regular scheduled communication to clients regarding their support services. This communication may be as frequent as monthly but given the volume of clients and the current number of Incidents/Service Requests, quarterly updates may be more appropriate. Service Reporting should include a summary of activities and their status performed over the reporting period and notification of any schedule service interruptions for the upcoming reporting period.

People

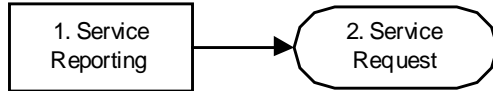
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Service Reporting	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Service Reporting process. Establishes policies and guidelines regarding the Service Reporting process. Creates and distributes service reports.

Regarding the Process Owner for the Service Reporting process, the GeoNOVA Secretariat currently informally performs this role. This role must be accountable to the GeoNOVA Program for the overall Service Reporting process. It is suggested that these responsibilities continue to be assigned to the GeoNOVA Secretariat. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Service Reporting process.



Activity	Responsible Role	Description
1. Service Reporting	Process Owner – Service Reporting	<p>This activity involves creating a summary of service related activities for all clients and distributing these summaries. The service summaries are generated from the Incident Management System.</p> <p>Service Reports should including the following:</p> <ul style="list-style-type: none"> • Number of reported Incidents • Number of resolved Incidents • Number of reported Service Requests • Number of Service Requests implemented • Outstanding Service Requests and their scheduled implementation dates <p>This communication should also include notification of any scheduled service outages.</p>
2. Service Request	Process Owner – Service Reporting	<p>During the Service Reporting process, enhancements or necessary changes may be identified for the Portal. This activity creates an associated Service Request for the Portal.</p> <p>The Service Requests are created and sent to the Configuration Management process to be assessed and appropriately assigned for completion.</p>

Tools/Techniques/Automation

There are multiple tools and techniques required to support the Service Reporting process:

- Incident Management System. The Incident Management System is used to manage Incidents and Service Requests. This system is used to generate reports to support the Service Reporting process. See the Incident Management process for details of the Incident Management System.
- Web Portal Activity Reporting. Currently, the activity of clients using the Portal is monitored and reported on. These activity reports should continue to be used and should evolve to provide additional information necessary to accurately assess the activities of clients on the Portal.
- Client Engagement Meetings: These sessions can be scheduled or unscheduled and can be used for a variety of purposes. In the specific context of Service Reporting, the sessions can be used to review Service Reports with clients.

3.4 Customer Relationship Management

Purpose

Customer Relationship Management (CRM) is about developing and nurturing a good professional working relationship between clients and service providers. The Customer Relationship Management process liaises with clients throughout the process to ensure they are kept abreast of progress. Customer Relationship Managers need to interface with all the other ITIL processes. For example, the CRM facilitates the interaction between the client and service delivery organizations during agreement discussions, and is involved in resolving client issues with the service being provided.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

The process of Customer Relationship Management occurs informally throughout various support processes. For example, the Incident Management process provides a method to capture information about specific Problems or Service Requests. In turn, Service Reporting provides periodic updates to clients. However these processes do not provide the mechanisms to capture general client feedback and information about client’s future plans and potential needs.

The proposed strategy for Customer Relationship Management is to utilize client workshops and one-on-one meetings to develop and maintain good client relationships.

People

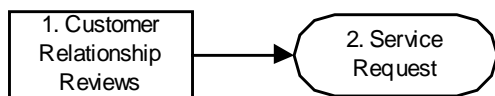
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Customer Relationship Management	<ul style="list-style-type: none"> • Accountable to the GeoNOVA Program and has overall responsibility for the Customer Relationship Management process. • Establishes policies and guidelines regarding the Customer Relationship Management process. • Conducts client workshops and one-on-one meetings to foster good client relationships.

Regarding the Process Owner for the Customer Relationship Management process, the GeoNOVA Secretariat currently performs this role. This role must be accountable to the GeoNOVA Program for the overall Customer Relationship Management process. It is suggested that these responsibilities continue to be assigned to the GeoNOVA Secretariat. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Customer Relationship Management process.



Activity	Responsible Role	Description
1. Customer Relationship Reviews	Process Owner – Customer Relationship Management	This activity involves conducting workshops and one-on-one meetings with clients to discuss the GeoNOVA Portal. The goal of this activity is to provide information to the client regarding the Portal and to gain feedback from the clients regarding how the Portal can better serve their needs.
2. Service Request	Process Owner – Customer Relationship Management	During the Customer Relationship Reviews, enhancements or necessary changes may be identified for the Portal. This activity creates the associated Service Request for the Portal. The Service Requests are created and sent to the Change Management process to be assessed and appropriately assigned for completion.

Tools/Techniques/Automation

There are multiple tools and techniques required to support the Customer Relationship Management process:

- GeoNOVA Exchange Agreement. As the primary vehicle for defining the relationship, roles and responsibilities of the GeoNOVA Program and the client, the agreement is vital to establishing and managing the expectations of the client.
- Client Engagement Meetings/Informal One-on-One Reviews: These sessions can be scheduled or unscheduled and can be used for a variety of purposes. In the specific context of Customer Relationship Management, the sessions can be used to solicit feedback from clients regarding their satisfaction with the Portal and to ultimately manage the expectations of clients.
- Customer Feedback Forms. The GeoNOVA Portal provides clients the opportunity to provide feedback to the GeoNOVA Program through Customer Feedback Forms. By using this feedback to gauge customer satisfaction with the Portal, the management of relationships with clients is aided.
- CRM System. A basic Customer Relationship Management system may be helpful in scheduling opportunities for interaction with clients and with tracking past interactions. Basic CRM information to be gathered includes the contact name of the client, a history of past interactions and a reminder system for future contacts.

3.5 Incident Management

Purpose

The primary goal of the Incident Management process is to resolve service delivery issues and restore normal service operation as quickly as possible. The objective is to minimize the adverse impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained. Normal service operation is defined by the levels of service articulated within GeoNOVA Exchange Agreements (with clients) and Service Level Agreements (with service providers).

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

It is important to note that there are typically three levels of service support groups that provide Incident management services. These levels are:

- Tier 1 – provides initial Incident logging, basic Incident resolution services and coordinates additional Incident resolution resources until the Incident is resolved.
- Tier 2 – provides application and data Incident support services.
- Tier 3 – provides technical architecture (hardware, operating system and network) Incident support services.

These three levels of support fit well within the GeoNOVA Portal environment and therefore the proposed Incident management process is built around these three tiers of support services. These three support tiers will be responsible for the support of applications, data and web services made available through the Portal.

The workshops conducted with GeoNOVA Portal stakeholders indicated that there was a strong requirement to provide a single point of contact for Incidents involving the Portal and the services it makes available. In this context, this single point of contact refers to the Tier 1 support level.

In these workshops, GeoNOVA Portal application, data and web service providers indicated that it was their responsibility to support their own applications, data and web services (Tier 2). Similarly with the organizations that provide technical architecture support, it was identified that they would still support the technical architecture (Tier 3).

Based on the above, the proposed strategy for providing Incident Management is to establish a Tier 1 Service Desk that utilizes resources from application and data providers (Tier 2) and infrastructure support (Tier 3) to resolve Incidents.

The Tier 1 group must provide overall coordination activities among the various other groups.

A major consideration with implementing Incident Management is identifying the various client groups who may need Incident Management services and determining if all client groups are considered equal and hence provided the same level of service. In particular, the public at large may not be offered the same Incident Management services in the same manner. This will need to be addressed during implementation.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner - Incident Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Incident Management process. Establishes policies and guidelines regarding Incident Management process. Provides final resolution to escalated Incidents. Provides general communications regarding the Incident management process.
Tier 1 Manager	<ul style="list-style-type: none"> Drives the efficiency and effectiveness of the Incident Management process. Produces management information. Manages the work of Tier 1 support staff. Monitors the effectiveness of Incident Management and makes recommendations for improvement. Develops and maintains the Incident Management System. Manages escalated Incidents with Process Owner and Tier 2/3 Support.
Tier 1 Support Staff	<ul style="list-style-type: none"> Incident recording. Routing Service Requests to support groups; including when Incidents are not permanently resolved (i.e. a workaround is developed) and further development is required. Initial support and classification. Ownership, monitoring, tracking and communication of Incidents. Resolution and recovery of Incidents not assigned to Tier 2/3 support. Closure of Incidents. Monitors the status and progress towards resolution of all open Incidents. Keeps affected Users informed about progress. Escalating the Incident, when required.
Business Owner(s) - Portal Services	<ul style="list-style-type: none"> Involved in resolution process regarding escalated Incidents.

Tier 2 Support	<ul style="list-style-type: none"> • Handling Service Requests assigned by Tier 1 Support. • Monitors Incident details, including the Configuration Items affected. • Incident investigation and diagnosis (including resolution where possible). • Detection of possible Problems and the assignment of them to the Problem Management process. • Resolution and recovery of assigned Incidents.
Tier 3 Support	<ul style="list-style-type: none"> • Handling Service Requests assigned by Tier 1/2 Support. • Monitors Incident details, including the Configuration Items affected. • Incident investigation and diagnosis (including resolution where possible). • Detection of possible Problems and the assignment of them to the Problem Management process to raise Problem records. • Resolution and recovery of assigned Incidents.

Regarding the Process Owner for the Incident Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Incident Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

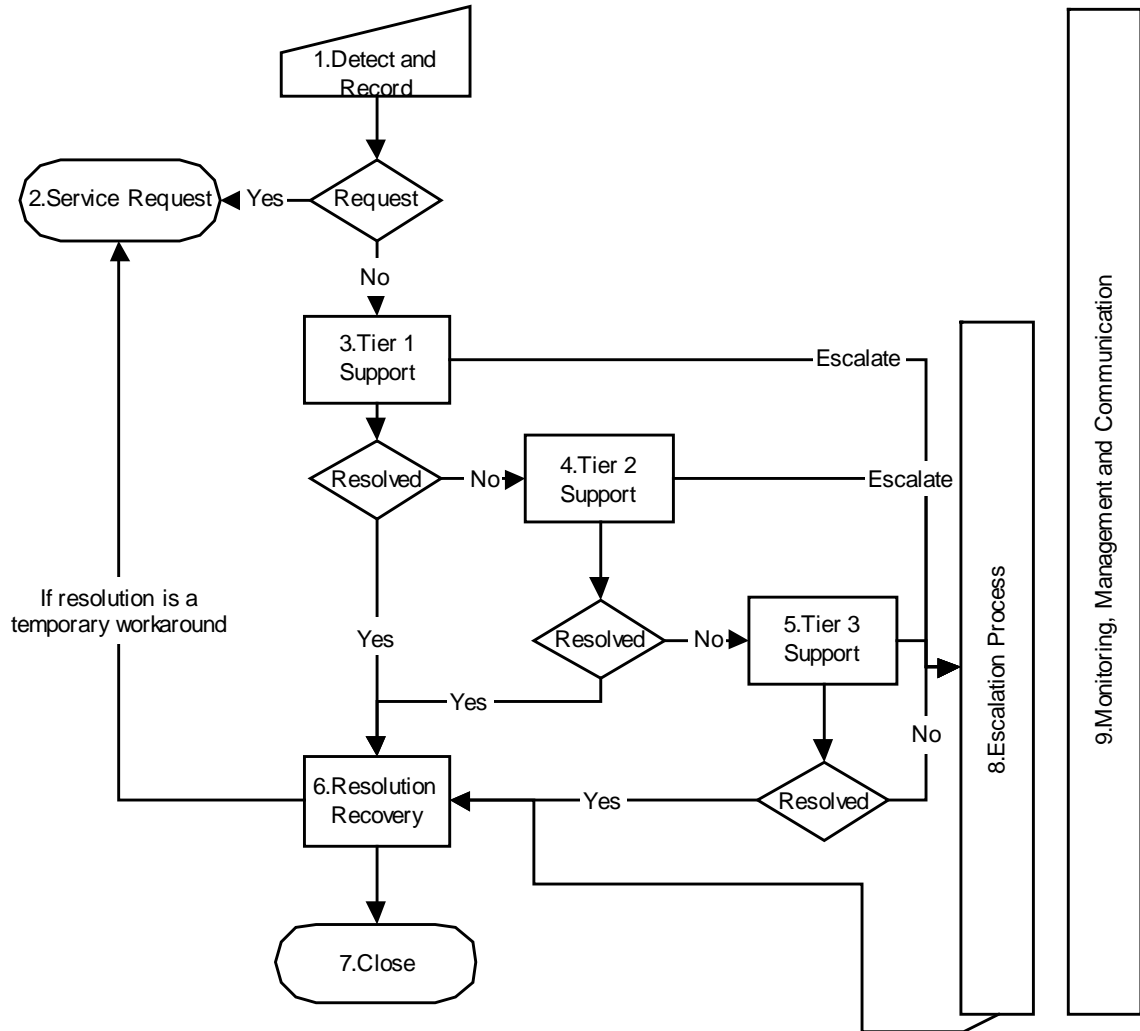
With regards to the Tier 1 Manager, it is suggested that the GeoNOVA Secretariat are assigned this responsibility. For Tier 1 Support Staff, it is unclear what organization should have this responsibility. There are several options that include:

- Community Services' Help Desk as they provide Incident Management services currently for many government departments and agencies, including Service Nova Scotia and Municipal Relations (SNSMR).
- A combination of SNSMR General Inquiry and Information Management Services as they currently take calls from the public and provide application support services to SNSMR.
- A new or existing Help Desk, similar to the one created for the Registry 2000 project.

Business Owners, Tier 2 and Tier 3 support are defined for each service as defined in the GeoNOVA Portal Service Catalogue found in Appendix A.

Process

The following process flow defines activities and their relationship for the proposed Incident Management process.



Activity	Responsible Role	Description
1. Detect and Record	Tier 1 Support Staff	<p>This activity involves recording basic details for the reported Incident. Incidents may be reported by clients or within the support organizations (using email, telephone, etc.) It is important to capture basic information regarding each Incident as this information may be used for general reporting, input into the Problem Management process and for statistical information.</p> <p>The basic information that needs to be recorded for each Incident includes the following:</p> <ul style="list-style-type: none"> • Unique reference number (typically generated by the Incident Management system) • Incident classification (e.g. new Incident, known error or Problem, Service Request, etc.) • Date and time recorded • Name of the person and/or group recording the Incident • Name/department/phone/location of user reporting the Incident • Call-back method (telephone, mail etc.) • Description of symptoms • Problem area (i.e. related service) • Impact/urgency/priority (e.g. emergency, high, medium, low) • Incident status (new, active, waiting, closed etc.) <ul style="list-style-type: none"> ○ Initially recorded as a new Incident • Support group/person to which the Incident is allocated <ul style="list-style-type: none"> ○ Initially assigned to Tier 1 support staff recording the Incident
2. Service Request	Tier 1 Support Staff	<p>Each reported Incident is initially evaluated to determine if it is a Problem with the current system functionality or if it is an enhancement or Service Request.</p> <p>If an enhancement or Service Request has been made, the request is handled in conformance with the Release Management process. This includes setting the Incident classification to Service Request, assigning the Service Request to the Release Management process owner and changing the status of the Incident to on-hold.</p> <p>The reporting person is informed that their Incident was classified as a Service Request and resolution to their request is assigned to this process.</p>

<p>3. Tier 1 Support</p>	<p>Tier 1 Support Staff</p>	<p>The Incident is assessed and, if possible, resolution is achieved for the Tier 1 support. Tier 1 support should search known Problems and resolutions to other similar reported Incidents and take the appropriate action to resolve the Incident.</p> <p>If the reported Incident matches similar reported Incidents, the Tier 1 support person would take appropriate actions. During the investigation, notes are added to the Incidents indicating what was done and the results of their investigation.</p> <p>If the Incident has not been resolved in a reasonable timeframe, the Tier 1 support person may deem it necessary to escalate the Incident.</p>
<p>4. Tier 2 Support</p>	<p>Tier 2 Support</p>	<p>If Tier 1 support cannot resolve the Incident, they may need to involve Tier 2 support. If this is the case, the Incident is reassigned to the appropriate Tier 2 support resource (as defined in the Service Catalogue).</p> <p>Tier 2 support investigates the Incident for possible resolution. During the investigation, notes are added to the Incidents indicating what was done and the results of their investigation.</p> <p>If the Incident is similar to other outstanding Problems and it does not appear that the Incident can be resolved in a timely manner, it is escalated for resolution.</p>
<p>5. Tier 3 Support</p>	<p>Tier 3 Support</p>	<p>If Tier 2 support cannot resolve the Incident and they believe it is related to an infrastructure Problem, they will need to involve Tier 3 support. If this is the case, the Incident is reassigned to the appropriate Tier 3 support resource (as defined in the Service Catalogue).</p> <p>Tier 3 support investigates the Incident for possible resolution. During the investigation, notes are added to the Incident indicating what was done and the results of their investigation.</p> <p>If the Incident cannot be resolved by Tier 3 support, the Incident is escalated for resolution.</p>

<p>6. Resolution Recovery</p>	<p>Tier 1/2/3 Support</p>	<p>If either of the Tier 1, 2 or 3 support organizations resolve the reported Incident, they would take appropriate action to correct the Problem. This may include emergency data or application fixes (i.e. Service Requests). This resolution may involve coordination with the Change Management and/or Release Management processes (if an emergency release is required).</p> <p>Once an Incident is resolved, the Incident is updated with the resolution information (including root cause), the status is set to resolved and the Incident is assigned back to the Tier 1 support person with recorded the Incident.</p> <p>If a workaround is developed for an Incident, the Incident category must be changed to a Service Request and assigned to the Service Request process to develop ultimate solution.</p>
<p>7. Close</p>	<p>Tier 1 Support</p>	<p>After an Incident has been resolved, it is the responsibility of the Tier 1 support person to communicate back to the reporting person that the Incident has been resolved and get verification that the indicted was resolved to their satisfaction.</p> <p>If the reporting person is in agreement, the Incident is closed by the Tier 1 support person.</p> <p>If the reporting person is not satisfied, the Incident may be reopened (with further Incident details) and flow through the process again or escalated for resolution.</p>
<p>8. Escalation Process</p>	<p>Tier 1 Manager Business Owners Process Owner</p>	<p>If an Incident cannot be resolved through the normal support resources (i.e. Tier 1/2/3 support) and/or an issue arises that prevents Incident resolution, the Incident is escalated.</p> <p>The Tier 1 Manager is responsible for and coordinates the escalation process. The Tier 1 support manager may involve the appropriate Business Owners to resolve escalated Incidents. Once an appropriate resolution has been determined, the Tier 1 Manager updates the Incident with the appropriate information and reassigns that Incident to the appropriate Tier support resource for resolution recovery.</p> <p>If the Tier 1 Manager and Business Owners cannot determine the appropriate course of action to resolve the Incident, the Process Owner is involved and a final resolution is determined.</p>

<p>9. Monitoring, Management and Communication</p>	<p>Tier 1 Support Staff Tier 1 Manager</p>	<p>Throughout the process, the Tier 1 support staff and Tier 1 manager monitor and manage the Incident Management process.</p> <p>Reports on outstanding Incidents are reviewed. If Incidents that have not been resolved within the established guidelines, the priority of Incidents may be elevated or escalated.</p> <p>Periodic communications with Tier 2/3 support may be necessary to check Incident status and progress.</p> <p>Periodic communications with persons reporting the Incidents is done to keep these people up to date on their outstanding Incidents.</p>
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In addition to updating the Incidents records with relevant information regarding the investigation and resolution of Incidents, it may be necessary to include time spent on Incidents. This information feeds into the Financial Management process.

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Incident Management process:

- Configuration Management Database (CMDB). This tool is required as access to this information provides relevant details for the Incident Management process. This is established and maintained within the Configuration Management process.
 - See the Configuration Management process for details.
- Known Problems/Error Database. A ‘knowledge base’ in the form of an up-to-date Problem/Error database should be developed to provide for resolutions and Work-Arounds. This will greatly speed up the process of resolving Incidents.
 - Initially it is proposed that this functionality be included as part of the Incident Management System. The results of previous resolved Incidents may be search for relevant information regarding Incident resolution.
 - It may become necessary to establish a separate “knowledge base” once the volume of Incidents become too numerous to search.
- Incident Management System. This tool is fundamental to the success of the Incident Management process.
 - The Government at one time used Remedy as an Incident management tool, however the use of this tool is no longer supported. Use of a corporate tool is highly recommended.
 - The proper tool should enable Incidents to be quickly recorded, assigned, tracked and may enable communication back to the person that reported the Incident (e.g. status changes, reassignments, resolution, etc.)

- It should also be noted that some Tier 2 and Tier 3 support resources might not be within the Nova Scotia Government. The Incident Management System may need to be extended to outside organizations or integrated with these organizations' tools.
- Service Catalogue. An up to date Service Catalogue is required.
 - To assist the Tier 1 support organization (and other organizations), this Service Catalogue is key to quickly identifying who is responsible for Tier 2/3 support of each server.
- Policies and Guidelines for Incident Management. As Incident Management involves many individuals, a clear and well-defined set of policies and guidelines is fundamental.
 - It is important that policies and guidelines for Incident Management be established and communicated to the various support groups.
 - The policies and guidelines are established by the Process Owner and are based on information defined in the GeoNOVA Exchange Agreements, Service Level Agreements and other contracts.
 - The policies and guidelines should include the following:

Policy/Guideline	Description	Example(s)
Priority Setting	Priority setting should describe how priorities are set for reported Incidents.	<ul style="list-style-type: none"> ● Emergency – an Incident is set as an emergency if ... <ul style="list-style-type: none"> ○ The Incident affects numerous clients and has a high business impact ○ Is in violation of established service levels ● High – an Incident is set as high if... <ul style="list-style-type: none"> ○ The Incident affects numerous clients and has a medium / high business impact ○ Has the potential to violate established service levels ● Medium – an Incident is set as medium if... <ul style="list-style-type: none"> ○ The Incident affects limited clients and has a medium / low business impact ○ Does not have the potential to violate established service levels ● Low – an Incident is set as low if... <ul style="list-style-type: none"> ○ The Incident affects limited clients and has a low business impact ○ Does not have the potential to violate established service levels

Priority Elevation	Priority elevation should describe how and when an Incident's priority is raised to the next level	<ul style="list-style-type: none"> • High – high Incidents are changed to emergency if ... <ul style="list-style-type: none"> ○ The Incident has not been resolved in 2 days. • Medium – medium Incidents are changed to high if ... <ul style="list-style-type: none"> ○ The Incident has not been resolved in 5 days. • Low – low Incidents are changed to medium if ... <ul style="list-style-type: none"> ○ The Incident has not been resolved in 10 days. <p>Once the Incident's priority has been elevated, it is treated as a new Incident in the evaluated priority.</p>
Escalation Guidelines	Escalation guidelines describe how and when an Incident should be escalated.	Incidents are escalated when an "emergency" Incident has not been resolved within a set timeframe or an issue has been identified that totally inhibits Incident resolution for emergency and high priority Incidents.

Illustrative Example

Because the Incident Management process is somewhat detailed and potentially involves the participation of multiple resources, an illustrative example is offered here to ensure clarity.

Assume the situation where the Generic Map Viewer is not working. When a client discovers the Problem and contacts Tier 1 Support (as advised by content provided on the GeoNOVA Portal), the process begins.

1. The Tier 1 Support resource records basic details of the Incident.
2. The Tier 1 Support resource evaluates the Incident and determines if it is a Problem with current system functionality or a Service Request.

If a Service Request is made, it is classified as such, assigned to the Release Management Process Owner for consideration and the client is informed that the Service Request process has commenced.

3. If the Incident is a Problem with current system functionality, the Incident is assessed by reviewing known Problems related to the Map Viewer Application that have occurred in the past. The Tier 1 Support resource provides a resolution and if possible.

If the Tier 1 Support resource can resolve the Incident, appropriate action is taken to resolve the Problem (e.g. providing client information regarding appropriate application use, emergency data or application fixes or developing Service Requests). Depending on the method for resolution, engagement of the Change Management and/or Release Management processes may be required. When an Incident is resolved, the Incident is

updated with resolution information and the Incident is assigned back to the Tier 1 Support resource with resolution information.

If the Tier 1 Support resource cannot resolve the issue and believes it requires application or data-specific expertise, the Incident is assigned to Tier 2 Support resources (in the case of the Map Viewer Application, the Application Support resource). This is done by reviewing the Service Catalogue to determine the individual providing Application Support and assigning or forwarding the Incident to them.

If the Tier 1 Support resource believes the Incident cannot be resolved within a reasonable amount of time, the Incident is escalated to the Tier 1 Support Manager, relevant Business Owners and the Incident Management Process Owner. The description of this escalation process is described below in step 7.

4. Once the Incident is assigned and contact is made to the Tier 2 Support resource (the Application Support resource), investigation of the Incident begins for possible resolution. During the investigation, the Tier 2 Support resource ensures notes are added to the Incident record indicating the results of the investigation.

If the Tier 2 Support resource can resolve the Incident, appropriate action is taken to resolve the Problem (e.g. providing client information regarding appropriate application use, emergency data or application fixes or developing Service Requests). Depending on the method for resolution, engagement of the Change Management and/or Release Management processes may be required. When an Incident is resolved, the Incident is updated with resolution information and the Incident is assigned back to the Tier 1 Support resource with resolution information.

If Tier 2 Support cannot resolve the Incident and they believe it is related to an Infrastructure issue, the Incident is assigned to Tier 3 Support resources (in the case of the Map Viewer Application, the IT Infrastructure Support resource). This is done by reviewing the Service Catalogue to determine the individual providing Infrastructure Support and assigning or forwarding the Incident to them.

If the Tier 2 Support resource believes the Incident cannot be resolved within a reasonable amount of time, the Incident is escalated to the Tier 1 Support Manager, relevant Business Owners and the Incident Management Process Owner. The description of this escalation process is described below in step 7.

5. Once the Incident is assigned and contact is made to the Tier 3 Support resource (in this case, the IT Infrastructure Support resource), investigation of the Incident begins for possible resolution. During the

investigation, the Tier 3 Support resource ensures notes are added to the Incident record indicating the results of the investigation.

If the Tier 3 Support resource can resolve the Incident, appropriate action is taken to resolve the Problem (e.g. providing client information regarding appropriate application use, emergency data or application fixes or developing Service Requests). Depending on the method for resolution, engagement of the Change Management and/or Release Management processes may be required. When an Incident is resolved, the Incident is updated with resolution information and the Incident is assigned back to the Tier 1 Support resource with resolution information.

If Tier 3 Support cannot resolve the Incident or they believe the Incident cannot be resolved within a reasonable amount of time, the Incident is escalated to the Tier 1 Support Manager, relevant Business Owners and the Incident Management Process Owner. The description of this escalation process is described below in step 7.

6. After an Incident has been resolved, and assigned back to the Tier 1 Support resource, this resource will contact the individual who originally logged the Incident to advise them that the Incident has been resolved and to ensure the resolution meets their expectations.

At this point the Incident is closed by the Tier 1 Support resource by changing the status of the Incident to “Closed” or “Resolved”.

7. If an Incident cannot be resolved through the normal support processes of the three tiers of support or an issue is identified that requires management attention, the Incident is escalated. The Tier 1 Support Manager is responsible for coordinating the escalation process and will engage relevant Business Owners and Process Owners to resolve the issue. Once this group has rationalized a course of action, the Tier 1 Support Manager will communicate the results by updating the Incident record and reassigning it to the appropriate support resource to continue with Incident resolution.
8. Through the process, the Tier 1 Support Manager and Tier 1 Support resources review and monitor outstanding Incidents. Incidents that have not been resolved in the desired timeframes may be escalated. Periodic communications will be required with Tier 2 and 3 resources to check on Incident resolution progress. For Incidents that require long resolution cycles, communications to the reporting clients should be performed to apprise them of progress.

3.6 Problem Management

Purpose

The goal of Problem Management is to minimize the adverse impact of Incidents and Problems on the business that are caused by errors within the IT infrastructure, and to prevent recurrence of Incidents related to these errors. In order to achieve this goal, Problem Management seeks to get to the root cause of Incidents and then initiate actions to improve or correct the situation.

The Problem Management process has both reactive and proactive aspects. The reactive aspect is concerned with solving Problems in response to one or more Incidents. Proactive Problem Management is concerned with identifying and solving Problems and known errors before Incidents occur in the first place.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

Problem Management and Incident Management go hand in hand. Good Problem Management relies on the accurate recording and reporting of Incidents and their resolution. As well, the goal of the Problem Management process is to reduce Incidents and thus provide better client service.

One of the underlying themes in the workshops conducted with GeoNOVA Portal stakeholders indicated there is a need for Problem Management. As Incidents are not centrally logged, it was not known what (if any) reoccurring Incidents may be related to specific problems that would improve the overall service level of the Portal.

The proposed strategy for Problem Management is to provide scheduled Incident reviews looking for Incidents with common symptoms or Incidents with significant impacts that warrant further investigation. The results of these investigations may necessitate changes to applications and data services and/or infrastructure configuration changes. The schedule for reviews may be as infrequent as once a week or daily, if the volume of Incidents is high.

Given the low volume of Incidents currently being reported for the Portal, implementing the Problem Management process may be delayed until the number of reported Incidents reaches a volume where Problem Management can be effective. This point may be hard to determine, but should be implemented if Incidents are causing significant impact or if there is a belief that there are several reoccurring Problems.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner - Problem Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Program Management process. Establishes policies and guidelines regarding Problem Management process. Provides general communications regarding the Problem Management process.
Senior Analyst / Architect	<ul style="list-style-type: none"> Performs scheduled reviews of reported Incidents. Investigates root causes of Incidents with common symptoms or high impacts. Creates results for application / data / configuration changes and enhancements. Provide documentation to the Incident Management process regarding known Problems and resolution procedures.
Tier 2 Support	<ul style="list-style-type: none"> Supports Senior Analyst / Architect with Problem investigation.
Tier 3 Support	<ul style="list-style-type: none"> Supports Senior Analyst / Architect with Problem investigation.

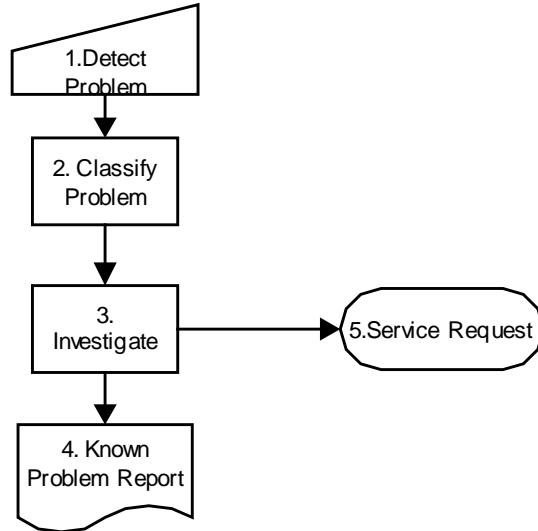
Regarding the Process Owner for the Problem Management, it is recommended that the same person responsible for the Incident Management process also be responsible for the Problem Management process. Therefore, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Problem Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

With regards to the Senior Analyst / Architect, is recommended that these responsibilities will be assigned to a Senior Tier 1 support resource, provided they have the technical skills to perform these functions. As an alternative, a member of the SNSMR IMS team may be assigned these responsibilities.

As for Tier 2 and Tier 3 support, these are defined for each service as defined in the GeoNOVA Portal Service Catalogue found in Appendix A.

Process

The following process flow defines activities and their relationship for the proposed Problem Management process.



Activity	Responsible Role	Description
1. Detect Problem	Senior Analyst / Architect	<p>This activity involves analyzing the Incident Management Database looking for multiple Incidents with similar symptoms or root causes, unresolved Incidents with workarounds and high impact Incidents.</p> <p>This investigation should also look at Incident trends that may indicate future Incidents for specific services or Configuration Items. Trend analysis provides a means to predict future Incidents and therefore the Problem Management process can proactively avoid future Incidents with appropriate Problem resolutions.</p> <p>A list of Problems is generated for classification and investigation.</p>
2. Classify Problem	Senior Analyst / Architect	<p>Identified Problems are classified with regards to their Problem area (e.g. hardware, network, software) and a relative priority is given to each Problem (e.g. high, medium, low)</p> <p>This classification is used to determine the priority of Problems to investigate and the associated support group to involve with the Problem investigation.</p>

3. Investigate	Senior Analyst / Architect Tier 2 Support Tier 3 Support	Identified Problems are investigated with the appropriate Tier 2 or 3 Support resources. During the investigation, the question must be asked as to how current configuration / applications / etc. can be enhanced to resolve the identified Problem so that it may be permanently resolved. Enhancement options are evaluated and the recommended solution is determined. The recommended solution will become either a Service Request or Configuration Request.
4. Known Problem Report	Senior Analyst / Architect	Once a Problem has been identified it must be written up as a Known Problem and reported to the Incident Management process. This information in the Known Problem Report will assist the Incident Management Team resolve future Incidents using the information in the Known Problem report.
5. Service Request	Senior Analyst / Architect	Once the Investigation activity has been completed and the appropriate resolution activity determined, this activity might become a Service Request. A Service Request is created using the Incident Management System. The Incident is recorded as a Service Request and details of the investigation are recorded for future reference. The Service Request is assigned to the Process Owner of the Release Management process. The request is handled in conformance with the Release Management Process.

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Problem Management process:

- An up-to-date Configuration Management Database (CMDB) is required as access to this information provides relevant details for the Problem Management process. This is established and maintained within the Configuration Management process.
 - See the Configuration Management process for details.
- A ‘knowledge base’ in the form of an up-to-date Problem/Error database should be developed to provide for resolutions and Work-Arounds.
 - See the Incident Management process for details.
- The Incident Management System is fundamental to the success of the Problem Management process as it provides the source information for this process.
 - See the Incident Management process for details.

3.7 Asset and Configuration Management

Purpose

Businesses require quality IT services, provided economically. To be efficient and effective, all organizations need to control their IT infrastructure and services. Asset and Configuration Management provides a logical model of the infrastructure or a service by identifying, controlling, maintaining and verifying the versions of Configuration Items (CI's) in existence.

The goals of Asset and Configuration Management are to:

- Account for all the IT assets and configurations within the organization and its services.
- Provide accurate information on configurations and their documentation to support all the other Service Management processes.
- Provide a sound basis for Incident Management, Problem Management, Change Management and Release Management.
- Verify the configuration records against the infrastructure and correct any exceptions.

Strategy

This process is to be utilized primarily to support the management of and support for IT infrastructure.

The GeoNOVA Portal contains many Configuration Items associated with the Portal including the following:

- Portal Application Software (e.g. SAP Portal software)
- Portal Hardware and Operating System
- Network
- Various Applications accessed by the Portal
- Various Data accessed by the Portal
- Various Hardware and Operating Systems supporting the applications and data accessed by the Portal
- Underlying networks supporting the applications and data accessed by the Portal

Given the above and the number of stakeholder groups that provide application, data and web services to the Portal, the task of managing the configuration of all items would be an extremely difficult task. It is recommended that the strategy for Asset and Configuration Management process address the detailed configuration directly related to the Portal (application, software, hardware, network) and only record Configuration Items for Portal services (applications, data and web services) that relate to how these services are accessed (i.e. System name, IP address and URL).

The various service providers would be responsible for their own Asset and Configuration Management. However, a process with the service providers needs to be established to communicate configuration changes (i.e. System name, IP address and URL) to the Portal Asset and Configuration Management process Owner. Communication processes should be defined in Service Level Agreements established with IT Infrastructure service providers.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Asset and Configuration Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Asset and Configuration Management process. Establishes policies and guidelines regarding Asset and Configuration Management process. Provides general communications regarding the Asset and Configuration Management process.
Configuration Manager	<ul style="list-style-type: none"> Maintains the Configuration Management Database
Tier 3 Support	<ul style="list-style-type: none"> Performs Portal software, hardware, operating system and network Configuration Requests. Communicates configuration changes to the Configuration Manager.

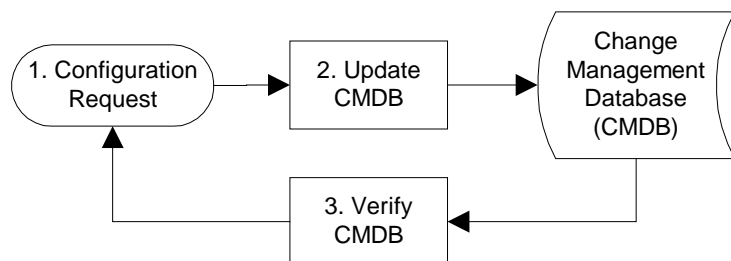
Regarding the Process Owner for Asset and Configuration Management, it is recommended that the same person responsible for the Release Management process also be responsible for the Asset and Configuration Management process. Therefore, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Asset and Configuration Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

With regards to the Configuration Manager and Tier 3 Support, currently CITO is providing Infrastructure support for the GeoNOVA Portal. Therefore this responsibility should fall within CITO for Portal related components; including Portal software, hardware, databases and networks. In addition, the NSGC is responsible for Infrastructure support of hardware, databases and network communications native within the centre.

Other Tier 3 support groups, associated with application and data services accessed by the Portal as defined in the Service Catalogue, it their responsibility to communicate configuration changes to the Process Owner – Asset and Configuration Management.

Process

The following process flow defines activities and their relationship for the proposed Asset and Configuration Management process.



Activity	Responsible Role	Description
1. Configuration Request	Tier 3 Support	Prior to Configuration Requests being implemented by various Tier 3 Support groups, these Configuration Requests are communicated to the Configuration Manager.
2. Update Configuration Management Database	Configuration Manager	The Configuration Manager notes the pending changes in the Configuration Management Database (CMDB) and checks the existing configuration to ensure that the pending Configuration Request will not produce adverse side affects.
3. Verify CMDB	Configuration Manager Process Owner – Asset and Configuration Management	Periodically, the Configuration Manager verifies information in the CMDB. Specifically after a Software Release or several Configuration Requests have been completed, the Configuration Manager validates that the proposed Configuration Requests were completed successfully and notes discrepancies in the CMDB. If discrepancies are found, the Configuration Manager checks for missing or uncompleted Configuration Requests and with Tier 3 support to determine why specific changes to configurations were made. Any issues discovered are raised to the Process Owner – Asset and Configuration Management for resolution.

Tools/Techniques/Automation

There are multiple tools and techniques required to support Asset and Configuration Management:

- Configuration Management Database (CMDB). This tool is required to store information and relevant details for the Asset and Configuration Management process. The CMDB may be a simple spreadsheet that contains relevant information regarding the Configuration Items, including software versions and patch levels, make / model and detailed information regarding the configuration of hardware and detailed network information including IP addresses, bandwidth and router configuration information.

- If a CMDB is not available, information about Configuration Items (CI's) related to Incidents should be obtained manually, and determining impact and urgency will be much more difficult and time-consuming.
- A central CMDB for the Portal should be established to manage the configuration items of the Portal. Each organization providing services to the Portal may need their own CMDB but would be their responsibility to implement and manage.
- The Service Level Agreements should contain requirements for communications of configuration changes to be made to the GeoNOVA Program when they are made.

3.8 Change Management

Purpose

Changes arise as a result of Problems, but many changes can come from proactively seeking business benefits such as reducing costs or improving services. The goal of the Change Management process is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of change-related Incidents upon service quality, and consequently to improve the day-to-day operations of the organization.

To make an appropriate response to a Change Request entails a considered approach to assessment of risk and business continuity, change impact, resource requirements and changes approval. This considered approach is essential to maintain a proper balance between the need for changes against the impact of the changes.

It is particularly important that the Change Management process has high visibility and open channels of communication in order to promote smooth transitions when changes take place.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

The Change Management process is key to the success of the GeoNOVA Portal. Properly managing Service Requests (i.e. non Incident based support requests) helps ensure that the Portal enhancements are properly categorized and implemented to meet the needs of the clients.

Similar to Incident Management, no formal process for Change Management is in place today. This Change Management process is focused on the Portal Application and its associated infrastructure, as the GeoNOVA Program will not directly manage the changes for the applications and data accessed by the Portal. However, changes made by application and data providers should be communicated to the GeoNOVA Program when they are made.

The proposed strategy for Change Management is to manage Service Requests and with the involvement of key stakeholders, prioritize Service Requests for implementation through a Change Management Advisory Committee. The Change Management process should also include a means to implement emergency Service Requests to ensure continuity of service.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Change Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Change Management process. Establishes policies and guidelines regarding Change Management process. Provides general communications regarding the Change Management process. Heads the Change Management Advisory Committee. Approves Service Requests and their implementation.
Change Management Advisory Committee	<ul style="list-style-type: none"> Reviews and prioritizes Service Requests. To be addressed by the individuals and groups within the existing GeoNOVA Portal governance.
Change Manager	<ul style="list-style-type: none"> Performs impact analysis and manages Service Requests Coordinates and communicates the implementation of emergency Service Requests.
Tier 2 Support	<ul style="list-style-type: none"> Assists with the impact assessment of Service Requests Implement emergency Service Requests.
Tier 3 Support	<ul style="list-style-type: none"> Assists with the impact assessment of Service Requests Implement emergency Service Requests.

Regarding the Process Owner for the Change Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This is not a full time role but it is important to be assigned to a dedicated resource. This role must be accountable to the GeoNOVA Program for the overall Change Management process. It is recommended that the same person responsible for the Release Management process also be responsible for the Change Management process.

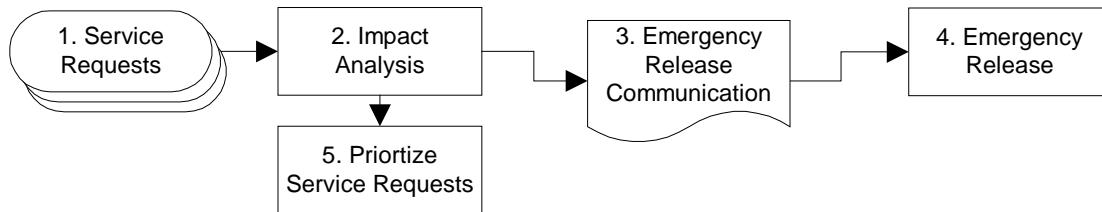
The Change Management Advisory Committee is involved in review and priority setting of Service Requests. It is suggested that the GeoNOVA Secretariat rationalize the membership of this group and validate this with the GeoNOVA Steering Committee.

It is suggested that the Change Manager role be assigned to a member of the GeoNOVA Secretariat. This is not a full time role but it is important to be assigned to a dedicated resource.

In accordance with defined Service Level Agreements, Tier 2 and Tier 3 support groups are the individuals associated with application and data services accessed by or support various components of the Portal, as defined in the Service Catalogue. It is their responsibility to implement emergency Service Requests as the Change Manager identifies them.

Process

The following process flow defines activities and their relationship for the proposed Change Management process.



Activity	Responsible Role	Description
1. Service Requests	Change Manager	As Service Requests are created, it is the Change Manager's responsibility to manage these requests. If a Service Request is security related, it is forwarded directly to the Security Management process.
2. Impact Analysis	Change Manager Tier 2/3 Support	This activity involves performing an impact analysis on each Service Request. The Change Manager, supported by Tier 2 and Tier 3 support, evaluate the impact of the Service Request. The impact involves assessing the feasibility of the Service Request and the time, effort and configuration changes required to implement the Service Request. The Change Manager updates the Service Requests with the appropriate impact information. Once assessed, the Change Manager has the authority to deem the Service Request an emergency (i.e. it has a high priority and implementing the Service Request can not wait until the next scheduled release),
3. Emergency Release Communication	Change Manager	If it is necessary to implement a Service Request as an emergency, the Change Manager communicates to the stakeholders the nature of the emergency and the time period when the emergency Service Request will be implemented.

4. Emergency Release	Change Manager Tier 2/3 Support	<p>The Change Manager coordinates the implementation of an emergency release. The necessary Tier 2 and Tier 3 support groups implement the emergency release.</p> <p>Emergency releases are typically small and infrequent, but have a major impact to the system. The Change Manager involves the necessary individuals to test an emergency release; however the testing cycle is (as is the development cycle) of short duration.</p>
5. Prioritize Service Requests	<p>Process Owner – Change Management</p> <p>Change Management Advisory Committee</p> <p>Change Manager</p>	<p>All Service Requests not deemed an emergency are prioritized. Given the diverse clients of the GeoNOVA Portal it is recommended that an Advisory Committee be established to review and prioritize Service Requests.</p> <p>This activity involves reviewing new Service Requests (and their associated impact) and prioritizing these to be included in upcoming Portal releases.</p> <p>The Change Manager updates the Service Requests based on the result of this activity.</p> <p>If a Service Request is assigned currently to a release currently underdevelopment, the Change Manager informs the Release Manager to include the associated Service Request in the release.</p>

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Change Management process:

- The Incident Management System. The Incident Management System is used to store and record information regarding Service Requests.
 - See the Incident Management process for details.
- Ad hoc Communications. As service providers require changes, a communication should be made to the GeoNOVA Secretariat advising them of the upcoming changes and potential impacts.

3.9 Release Management

Purpose

Many service providers may be involved in the Release of hardware and software in a distributed environment. Good resource planning and management are essential to package and distribute a Release successfully to the client. Release Management takes a holistic view of a change to an IT service and should ensure that all aspects of a Release, both technical and non-technical, are considered together.

The goals of Release Management are:

- To plan and oversee the successful rollout of application software, data, web services and related hardware.
- To design and implement efficient procedures for the distribution and installation of changes to IT systems.
- To ensure that hardware and software being changed is traceable, secure and that only correct, authorized and tested versions are installed.
- To communicate and manage expectations of the client during the planning and rollout of new Releases.
- To agree upon the exact content and rollout plan for the Release, through liaison with Change Management.
- To implement new software Releases or hardware into the operational environment using the control processes of Configuration Management and Change Management. A Release should be under Change Management and may consist of any combination of hardware, software, firmware and document CI's.
- To ensure that master copies of all software are secured in a software library and that the configuration management database (CMDB) is updated.
- To ensure that all hardware being rolled out or changed is secure and traceable, using the services of Configuration Management.

The focus of Release Management is the protection of the live environment and its services through the use of formal procedures and checks.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

Currently, there has been one release to the GeoNOVA Portal and this release was managed within the program management of the initial Portal project. It is understood that future releases will also be managed using a similar project approach.

Given the above, the proposed strategy for Release Management is to continue to use the proven program management process for the release development. The focus of this section of the document is to define the communication requirements and dependencies with the other support processes with regards to the People, Process and Tools/Techniques/Automation for Release Management.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Release Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Release Management process. Establishes policies and guidelines regarding Release Management process. Provides general communications regarding the Release Management process. Has accountability for the management and delivery of releases.
Release Project Manager	<ul style="list-style-type: none"> Is responsible for the delivery of the project release to the Release Management Process Owner. Is responsible for all aspects of the Release Project.
Business Owner(s) – Portal Services	<ul style="list-style-type: none"> Receives Portal release communications. Sends communications regarding the release of Portal services.

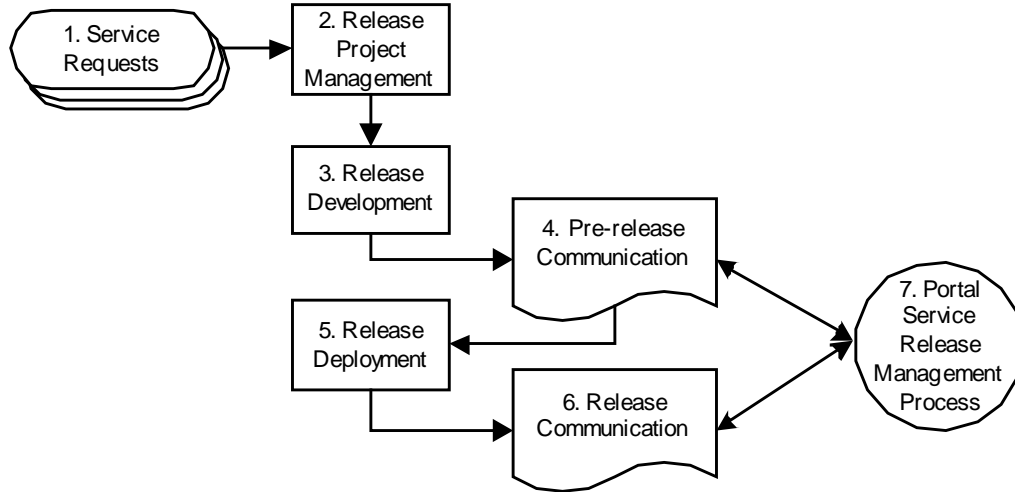
Regarding the Process Owner for the Release Management, the GeoNOVA Secretariat is currently and should continue to be responsible for this process. This role must be accountable to the GeoNOVA Program for the overall Release Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

To date, the GeoNOVA Secretariat and identified subject matter experts relevant to individual applications, data and web services has taken responsibility for Release Management. In the future it is recommended that relevant Business Owners take on the responsibility for Release Management.

The Business Owners for Portal Services are the service owners defined for each service in the Service Catalogue found in Appendix A.

Process

The following process flow defines activities and their relationship for the proposed Release Management process.



Activity	Responsible Role	Description
1. Service Requests	Process Owner – Release Management	<p>Service Requests are the source documents that define the new/enhanced functionality to be implemented for the release. Service Requests are classified for releases by the Change Management process.</p> <p>Service Requests are created as a result of the other support processes including enhancement requests from the Incident Management process, requests from the Problem Management, Availability and Contingency Management and Capacity Management processes.</p>
2. Release Project Management	Release Project Manager Process Owner – Release Management	<p>The Release Project Management activity involves defining the scope of the release, based on the Service Requests.</p> <p>Release Project Management also involves the budgeting, planning, staffing and management of the release.</p>
3. Release Development	Release Project Manager	Release development involves the actual development of the release including the design, development and testing of the release.

4. Pre-release Communication	Process Owner – Release Management	<p>Prior to Release deployment, typically several weeks in advance, a pre-release communication is sent to all stakeholders informing them of the upcoming release.</p> <p>The Pre-release communication includes a list of the new/enhanced functionality for the release, the planned deployment date and any identified risks or impact to stakeholders that may result from the release.</p> <p>The timing of this release is critical as it permits the stakeholders to properly plan for the release and any impacts that it may have to their organization. The timing of this communication should be determined based on the size of the release and its perceived impact.</p> <p>Several Pre-Release communications may need to be sent if the status of the release changes including the release functionality and the release dates.</p>
5. Release Deployment	Release Project Manager	Release deployment is the activity of implementing the release to production.
6. Release Communication	Process Owner – Release Management	Immediately following the successful deployment of a release, the release communication is sent. The release communication includes information regarding the Release deployment. It confirms that Release was implemented and identifies any changes to the release since the last Pre-release communication.
7. Service Providers Release Management Process	Business Owner(s) – Portal Services	<p>It is important to note that the Release Management process is tightly tied to the similar processes of the various service providers to the Portal.</p> <p>As the service providers receive Pre-release and Release communications regarding Portal release, the GeoNOVA Program must also receive these communications from the various service providers. These communications enable better understanding between the organizations and enhance the planning process.</p>

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Release Management process:

- The Incident Management System is used by the Release Management process as it contains the Service Requests for the releases.
 - See the Incident Management process for details.
- Ad hoc Communications. As service providers plan and schedule releases, a communication should be made to the GeoNOVA Secretariat advising them of the upcoming release and potential impacts.

3.10 Availability and Contingency Management

Purpose

The goal of the Availability and Contingency Management process is to optimize the capability of the IT Infrastructure, other delivered services and the supporting organization to deliver a cost effective and sustained level of Availability that enables the business to satisfy its business objectives.

This is achieved by determining the availability requirements of the business and matching these to the capability of the IT infrastructure and supporting organization. Where there is a mismatch between the requirement and capability, Availability and Contingency Management ensures the business is provided with available alternatives and associated cost options.

Availability and Contingency Management should ensure the required level of availability is provided. The measurement and monitoring of IT availability is a key activity to ensure availability levels are being met consistently. Availability and Contingency Management should look continuously to optimize the availability of the IT Infrastructure, services and supporting organization, in order to provide cost effective availability improvements that can deliver measurable business and user benefits.

Strategy

This process is to be utilized primarily to support the management of and support for IT infrastructure.

The GeoNOVA Portal currently runs on the shared Government Web Server and will move to the shared Government SAP Portal. CITO directly supports these services today and makes provisions for Availability and Contingency Management. Due to this, it would be redundant to add an additional process.

The proposed strategy for Availability and Contingency Management for the GeoNOVA Portal is to include these activities in a Service Level Agreement with CITO, NSGC and any other applicable infrastructure service provider. As these organizations will be recipients of pre-release communications and are directly involved in the Incident Management process, these activities will ensure that these service providers get appropriate notification of upcoming changes to include in their Availability and Contingency Management process.

It is assumed that the Business Owners of applications, data and web services accessed by the GeoNOVA Portal have similar processes in place to manage their availability and contingency. This should be addressed as part of the GeoNOVA Exchange Agreements and Service Level Agreements established with each stakeholder group.

People

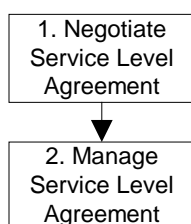
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Availability and Continuity Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Availability and Continuity Management process. Establishes policies and guidelines regarding the Service Provider Management process. Negotiates service provider GeoNOVA Exchange Agreements and Service Level Agreements including terms for Availability and Continuity Management. Manages service provider GeoNOVA Exchange Agreements and Service Level Agreements including terms for Availability and Continuity Management.

Regarding the Process Owner for the Availability and Continuity Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat that is also responsible for Service Provider Management. Because the GeoNOVA Secretariat will not be directly responsible for managing availability and continuity of IT infrastructure, the responsibilities of this individual will revolve around establishing and monitoring the IT infrastructure provider's ability to deliver to the defined Service Level Agreement. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Availability and Continuity Management process.



Activity	Responsible Role	Description
1. Negotiate Service Level Agreement	Process Owner – Service Provider Management	This activity involves the negotiation of the initial Service Level Agreement with the service provider. Using the template as a starting point, the terms and conditions (including those governing availability and continuity of IT infrastructure) are reviewed and modified appropriately with the service provider.

2. Manage Service Level Agreement	Process Owner – Service Provider Management	This activity involves that management of Service Level Agreements. As existing agreements expire or new conditions / services are added to the Portal that requires changes to the Service Level Agreements, this activity renews and/or renegotiates that terms of the agreements (including those governing availability and continuity of IT infrastructure) with the Service Provider.
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Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Availability and Contingency Management process:

- Service Catalogue. The Service Catalogue will contain the responsible parties and individuals for IT infrastructure support. These individuals would be contacted should issues related to IT infrastructure availability and continuity occur.
- Service Level Agreements. The terms and conditions related to service levels associated with IT infrastructure availability and continuity will be stated as part of the Service Level Agreement.

3.11 Security Management

Purpose

The Security Management function interfaces with IT Service Management processes where security issues are involved. Such issues relate to the confidentiality, integrity and availability of applications, data and web services as well as the security of hardware and software components, documentation and procedures. For example, Security Management interfaces with Service Management to assess the impact of proposed changes on security, to raise Service Requests in response to security Problems to ensure confidentiality and integrity of security data and to maintain the security when software is released into the live environment.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

There are three aspects to the security of the GeoNOVA Portal.

- There is the security of the SAP Portal Server and it's associated infrastructure (e.g. application server, firewall, etc.)
- There is the security of the applications, data and web services accessed by the Portal.
- There is the setup and maintenance of the Portal users (e.g. users, rights, privileges).

At this time, it appears that CITO will directly support the SAP Portal server and will make provisions for its Security Management. It is assumed that the Business Owners of the applications and data accessed by the Portal (including the NSGC) have provisions in place for Security Management. Therefore, only the setup and maintenance of the Portal users will be the responsibility of the GeoNOVA Program.

Based on the above, the proposed strategy for Security Management is to include these activities in a Service Level Agreement with CITO and similarly in the GeoNOVA Exchange Agreements with the Business Owners of applications, data and web services. The setup and maintenance of GeoNOVA Portal users will be handled by the GeoNOVA Program.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

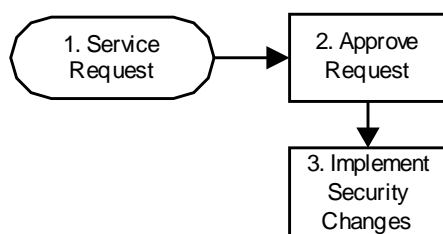
Role	Responsibilities
Process Owner – Security Management	<ul style="list-style-type: none"> Accountable to the GeoNOVA Program and has overall responsibility for the Security Management process. Establishes policies and guidelines regarding Security Management process. Provides general communications regarding the Security Management process. Manages and approves security related Service Requests.
Tier 3 Support	<ul style="list-style-type: none"> Implements security related Service Requests.

Regarding the Process Owner for the Service Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Security Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

Tier 3 Support for security related Service Requests related to the SAP Portal application software and infrastructure be handled by CITO.

Process

The following process flow defines activities and their relationship for the proposed Asset and Configuration Management process.



Activity	Responsible Role	Description
1. Service Request	Process Owner – Security Management	This activity involves that management of security related Service Requests. The process owner of the Security Management process has the responsibility to manage these requests.
2. Approve Request	Process Owner – Security Management	The Process Owner of the Security Management is responsible for approving security requests prior to their implementation.

3. Implement Security Changes	Tier 3 Support	Once security requests are approved, they are forwarded to the appropriate Tier 3 support group for implementation. The Tier 3 support group implements the security related Service Requests and informs the Process Owner when they are complete.
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Tools/Techniques/Automation

There are multiple tools and techniques that are required by the Security Management process:

- The Incident Management System. This system is used as a source for Service Requests.
 - See the Incident Management process for details.
- Service Level Agreements. Security concerns related to infrastructure and content are to be addressed as part of the content of a typical Service Level Agreement.

3.12 Capacity Management

Purpose

Capacity Management is responsible for ensuring that the Capacity of the IT infrastructure matches the evolving demands of the business in the most cost-effective and timely manner. The process encompasses:

- The monitoring of performance and throughput of IT services and the supporting Infrastructure components.
- Undertaking tuning activities to make the most efficient use of existing resources.
- Understanding the demands currently being made for IT resources and producing forecasts for future requirements.
- Influencing the demand for resource, perhaps in conjunction with Financial Management.
- The production of a Capacity Plan that enables the IT service provider to provide services to the defined levels of quality.

Strategy

This process is to be utilized to support the management of and support for IT infrastructure.

The GeoNOVA Portal currently runs on the shared Government Web Server and will move to the shared Government SAP Portal. CITO directly supports these services today and makes provisions for Capacity Management. Due to this, it would be redundant to add an additional process.

Currently, the number of monthly visits to the Portal is approximately 6000 and performance has not been an issue. As CITO is managing the Government web server, it is expected that they are and will continue to perform this function.

In the future, the GeoNOVA Program would like to have tools available to them to not only understand how many users visit the site, but also would like the ability to see how well the Portal is performing.

The proposed strategy for Capacity Management for the GeoNOVA Portal is to include these activities in a Service Level Agreement with CITO, NSGC and other service providers. As CITO and NSGC should be one of the recipients of the pre-release communications and are directly involved in the Incident Management process, these activities will ensure that CITO and NSGC get appropriate notification of upcoming changes to include these in their Capacity Management process.

It is assumed that the Business Owners of applications, data and web services accessed by the GeoNOVA Portal have similar processes in place to manage their capacity.

People

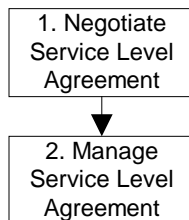
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Capacity Management	<ul style="list-style-type: none"> • Accountable to the GeoNOVA Program and has overall responsibility for the Capacity Management process. • Establishes policies and guidelines regarding the Capacity Management process. • Negotiates service provider GeoNOVA Exchange Agreements and Service Level Agreements including terms for Capacity Management. • Manages service provider GeoNOVA Exchange Agreements and Service Level Agreements including terms for Capacity Management.

Regarding the Process Owner for the Capacity Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat that is also responsible for Service Provider Management. Because the GeoNOVA Secretariat will not be directly responsible for managing the capacity of IT infrastructure, the responsibilities of this individual will revolve around establishing and monitoring the IT infrastructure provider’s ability to deliver to the defined Service Level Agreement. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Capacity Management process.



Activity	Responsible Role	Description
1. Negotiate Service Level Agreement	Process Owner – Capacity Management	This activity involves the negotiation of the initial Service Level Agreement with the service provider. Using the template as a starting point, the terms and conditions (including those governing capacity of IT infrastructure) are reviewed and modified appropriately with the service provider.
2. Manage Service Level Agreement	Process Owner – Capacity Management	This activity involves that management of Service Level Agreements. As existing agreements expire or new conditions / services are added to the Portal that requires changes to the Service Level Agreements, this activity renews and/or renegotiates that terms of the agreements (including those governing capacity of IT infrastructure) with the Service Provider.

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Capacity Management process:

- Service Catalogue. The Service Catalogue will contain the responsible parties and individuals for IT infrastructure support. These individuals would be contacted should issues related to IT infrastructure capacity occur.
- Service Level Agreements. The terms and conditions related to service levels associated with IT infrastructure capacity will be stated as part of the Service Level Agreement.
- GeoNOVA Exchange Agreement. The terms and conditions related to service levels associated with the capacity of IT infrastructure supporting data, applications and web services may be stated as part of GeoNOVA Exchange Agreements.

3.13 Financial Management

Purpose

The scope of IT Financial Management includes budgeting, IT accounting and charging, although the responsibility for the processes and tasks may lie with the Finance department. In many organizations the budget rules are set for all parts of the organization and the monitoring and reporting of budgets is performed by staff who report to the Finance department rather than to the IT organization.

For an in-house organization, the goal should be:

- To provide cost-effective stewardship of the IT assets and resources used in providing IT Services.

Strategy

Within the Provincial Government there are standard processes used for Financial Management including the Tangible Capital Asset (TCA) process for the capital acquisition of new hardware and applications as well as the general management of annual budgets. The GeoNOVA Program is not currently performing any Financial Management functions beyond these and based on the workshops conducted with GeoNOVA stakeholders, the priority to implement additional financial management processes was very low.

Given the low priority of this process and the existing financial controls, the primary concern regarding Financial Management is the building of partnerships and utilization of resources.

Based on the above, the proposed strategy for Financial Management is to utilize the Incident Management system to monitor the utilization of support resources.

People

This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Financial Management	<ul style="list-style-type: none"> • Accountable to the GeoNOVA Program and has overall responsibility for the Financial Management process. • Establishes policies and guidelines regarding Financial Management process. • Monitors resource utilization.

Regarding the Process Owner for Financial Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Financial Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

There is only one activity involved with the Financial Management process.

Activity	Responsible Role	Description
1. Monitor Resource Utilization	Process Owner – Financial Management	This activity involves reviewing resource utilization for the various support activities. The Incident Management System tracks the estimated and actual time used to record, investigate and resolve support issues and development time for enhancements. Reports run from the Incident Management System provide details regarding the various support resources and organizations involved in the support process.

Tools/Techniques/Automation

There is one automated tool that is required by the Financial Management process:

- The Financial Management process uses the Incident Management System as it provides the source information for this process.
 - See the Incident Management process for details.

3.14 Service Provider Management

Purpose

Service Provider Management establishes and manages the contractual relationships between the organization and any internal or external organizations that are involved in service delivery or service support.

Strategy

This process is to be utilized to support the management of and support for applications, data, web services and IT infrastructure.

CITO is one of the main infrastructure service providers for the GeoNOVA Portal. The eServices Group of SNSMR is another main service provider as they perform web development functions for the Portal. The NSGC provides application, data and IT infrastructure services to the GeoNOVA Program. Depending on the direction set for SAP Portal development, eServices may or may not provide this development support. Regardless, management of these service providers is an activity that needs to be performed by the GeoNOVA Program.

The proposed strategy for Service Provider Management is to use GeoNOVA Exchange Agreements (for applications, data and web services) and Service Level Agreements (for IT infrastructure support and Tier 1 Support) with service providers to define the terms and conditions of the service.

People

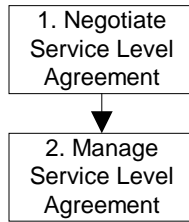
This section describes the roles and responsibilities to be fulfilled by resources dedicated to these processes.

Role	Responsibilities
Process Owner – Service Provider Management	<ul style="list-style-type: none"> • Accountable to the GeoNOVA Program and has overall responsibility for the Service Provider Management process. • Establishes policies and guidelines regarding the Service Provider Management process. • Negotiates service provider GeoNOVA Exchange Agreements and Service Level Agreements. • Manages service provider GeoNOVA Exchange Agreements and Service Level Agreements.

Regarding the Process Owner for the Service Provider Management, it is suggested that these responsibilities be assigned to a member of the GeoNOVA Secretariat. This role must be accountable to the GeoNOVA Program for the overall Service Provider Management process. This is not a full time role but it is important to be assigned to a dedicated resource.

Process

The following process flow defines activities and their relationship for the proposed Service Provider Management process.



Activity	Responsible Role	Description
1. Negotiate Service Level Agreement	Process Owner – Service Provider Management	This activity involves the negotiation of the initial Service Level Agreement with the service provider. Using the template as a starting point, the terms and conditions are reviewed and modified appropriately with the service provider.
2. Manage Service Level Agreement	Process Owner – Service Provider Management	This activity involves that management of Service Level Agreements. As existing agreements expire or new conditions / services are added to the Portal that requires changes to the Service Level Agreements, this activity renews and/or renegotiates that terms of the agreements with the Service Provider.

Tools/Techniques/Automation

There are multiple tools and techniques required to implement the Service Provider Management process:

- The Service Level Agreement Template. This template provides a standard through which service levels expectations of the GeoNOVA Program are defined for service providers responsible for delivering services (application, web service, IT infrastructure).

3.15 Implementation Recommendations

In order to ensure the quality of service delivery and support of the GeoNOVA Portal, the GeoNOVA Program has a desire to implement service support processes and procedures in the short term. Presently, the current number of users and volume of data sets being exchanged is relatively small. Both the number of users and the participating stakeholders are expected to grow in the coming months and years but currently are not sufficiently large enough to pose a crippling impact on operations.

Therefore, it is recommended that a controlled and incremental approach to implementing the support processes and procedures documented here be adopted. Based on feedback gathered during the aforementioned stakeholder workshops, some specific support processes were considered to be more important to address in the short term than others. These identified processes were as follows (in order of importance of addressing in the short term):

1. Customer Relationship Management
2. Service Provider Management
3. Security Management
4. Service Level Management and Reporting
5. Incident Management

As the implementation of service support processes and procedures begins, it is recommended that these processes be implemented first, followed by the other processes on an incremental basis.

The following sections describe the recommended implementation steps for each of the support processes and procedures described above.

Customer Relationship Management

1. Begin utilizing the GeoNOVA Exchange Agreement Template as new agreements are established or existing ones are renewed. As the primary vehicle for defining the relationship, roles and responsibilities of the GeoNOVA Program and the client, the agreement is vital to establishing and managing the expectations of the client.
2. Consider the implementation of a Customer Relationship Management (CRM) System. A basic CRM system would be helpful in scheduling opportunities for interaction with clients and with tracking past interactions such as prior contacts, conversations and negotiated agreements. Basic CRM information to be gathered includes the contact name of the client, a history of past interactions and a reminder system for future contacts. The system would be used by all resources within the GeoNOVA Secretariat in support of their interactions with clients.
3. Continue to utilize Client Engagement Meetings and informal one-on-one Reviews. These sessions can be used to solicit feedback from clients

- regarding their satisfaction with the Portal and to ultimately manage the expectations of clients.
4. Continue to utilize various communication techniques to apprise clients of any changes or upcoming items of interest. Through these communications, opportunities are created to assess and manage client expectations. Communication techniques include one-on-one sessions, notice boards, newsletters, etc.
 5. Continue to utilize customer feedback forms. The GeoNOVA Portal provides clients the opportunity to provide feedback to the GeoNOVA Program through Customer Feedback Forms. By using this feedback to gauge customer satisfaction with the Portal, the management of relationships with clients is aided.

Service Provider Management

1. Begin utilizing the Service Level Agreement Template as new agreements with service providers are established or existing ones are renewed. This template provides a standard through which service levels expectations of the GeoNOVA Program and specific roles and responsibilities are defined for service providers. As SNSMR is currently negotiating a comprehensive SLA with CITO on behalf of the entire department, it is further recommended that the GeoNOVA Program ensure that all relevant service level expectations related to the Portal are reflected in the department-level SLA.

Security Management

1. Ensure considerations regarding security of Portal IT infrastructure are included in the aforementioned SLA being established with CITO.
2. Begin planning for the GeoNOVA Program to take on user access security when the SAP Portal application software is installed and the GeoNOVA Portal is redeployed on this platform. It is suggested that this responsibility be assigned to the Tier 1 Support staff.

Service Level Management and Reporting

1. Begin utilizing the GeoNOVA Exchange Agreement Template as new agreements are established or existing ones are renewed. As the primary vehicle for defining the relationship, roles and responsibilities of the GeoNOVA Program and the client, the agreement is vital to establishing and managing the expectations of the client.
2. Begin utilizing the GeoNOVA Exchange Agreement Template as new agreements are established or existing ones are renewed. The GeoNOVA Exchange Agreement Template incorporates elements that allow service level expectations of the parties to the agreement to be documented. By formally documenting service level expectations, service levels can then be measured and performance can be assessed.
3. Develop and implement a GeoNOVA Exchange Agreement Log. The log tracks the status of all GeoNOVA Exchange Agreements in place including their effective dates.

4. Continue to conduct Client Engagement Meetings. These sessions can be used to establish and maintain the GeoNOVA Exchange Agreements and therefore, the terms defining the service levels.
5. Implement an Incident Management System. The Incident Management System is used to manage Incidents and Service Requests. This system can be used to generate reports to support the Service Reporting process. See the Incident Management recommendations below for details of the Incident Management System.
6. Continue to utilize and potentially expand web portal activity reporting. These activity reports should continue to be used as a management tool in order to gather additional information necessary to accurately assess the activities of clients on the Portal.

Incident Management

1. Implement an Incident Management System. This tool is fundamental to the success of the Incident Management process and facilitates other support processes. The Nova Scotia government at one time used Remedy as an Incident Management standard, however the use of this tool is no longer supported. The use of a corporate tool is recommended however if a new standard has not been rationalized, alternative systems should be considered. Other Incident Management systems in use at SNSMR should be considered such as Request Tracker, which is used by the Registry 2000 Project Helpdesk.

The system should enable Incidents to be quickly recorded, assigned, tracked and should enable communication back to the person that reported the Incident (e.g. status changes, reassignments, resolution, etc.). As well, the system should allow for direct entry of Problems by the client.

To meet the unique requirements of support of the GeoNOVA Portal, the system should be web-enabled to work in a distributed environment. This is due to the fact that some Tier 2 and Tier 3 support resources might not be within the Nova Scotia Government environment. The Incident Management System may need to be extended to outside organizations or integrated with these organizations' tools.

2. Utilize the existing process of email as the intake mechanism for Incidents. Expanding the email addresses to be used by clients to report Incidents would further streamline the process (e.g. email address for incidents relating to services, another for metadata, etc.) Responsibility for monitoring email that report Incidents should be assigned to individuals already working in the context of the GeoNOVA Program. As well the role of Tier 1 Manager should be assigned to an individual currently working as part of the GeoNOVA Program or Secretariat.

The effectiveness of this model should be reviewed on a frequent basis in light of increased utilization and additional services being offered. When the

- limit has been reached in terms of Incident Management effectiveness under this model, an alternative approach should be adopted. As much as possible, existing Tier 1 Support organizations such as the Provincial Call Centre and the Registry 2000 Helpdesk, should be leveraged at this point. Please see the Incident Management process for possible alternatives to be considered.
3. Implement policies and guidelines for Incident Management. As Incident Management involves many individuals, a clear and well-defined set of policies and guidelines is fundamental. It is important that policies and guidelines for Incident Management be established and communicated to the various support groups. The policies and guidelines are established by the Incident Management Process Owner and are based on information defined in the GeoNOVA Exchange Agreements, Service Level Agreements and other contracts. Please see the Incident Management process for details on suggested policies and guidelines to be adopted.
 4. Implement a Known Problems/Error Database. A 'knowledge base' in the form of an up-to-date Problem/Error database should be developed to provide for resolutions and Work-Arounds. This will greatly speed up the process of resolving Incidents. Initially it is proposed that this functionality be included as part of the Incident Management System. The results of previous resolved Incidents may be searched for relevant information regarding Incident resolution.
 5. Implement and keep up to date a Service Catalogue and incorporate it into the Nova Scotia Data Discovery Service. To assist the Tier 1 support organization (and other organizations), the Service Catalogue is key to quickly identifying who is responsible for Tier 2/3 support of applications, data, web services and IT infrastructure.
 6. Implement a Configuration Management Database (CMDB) for the GeoNOVA Portal. This tool is required as access to this information provides relevant details to the Incident Management process. Since this database is core to the Configuration Management process, it may be a candidate for later implementation. Please see the Configuration Management process for details.

Resourcing Recommendation

Because the implementation of the support processes and procedures is recommended to be incremental in nature, the following resourcing estimates are based on the assumed level of effort required to support the GeoNOVA Portal at its current level of functionality, usage and number of services offered. Please note that although the previous recommendation suggests implementation of a subset of the total number of processes, estimates are provided for all support processes for informational purposes.

Support Process	Role	Required FTEs
Service Level Management	Process Owner	0.33 FTE (Assumed to be GeoNOVA Secretariat resource A)

Service Reporting	Process Owner	0.33 FTE (Assumed to be GeoNOVA Secretariat resource A)
Customer Relationship Management	Process Owner	0.33 FTE (Assumed to be GeoNOVA Secretariat resource A)
Incident Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B)
	Tier 1 Manager	0.1 FTE (Assumed to be GeoNOVA Secretariat resource B)
	Tier 1 Staff	0.1 FTE
	Tier 2 Staff	Dependant on number of services and volume of incidents
	Tier 3 Staff	Dependant on number of services and volume of incidents
Problem Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B)
	Senior Analyst	0.1 FTE (Assumed to be Tier 1 Manager)
	Tier 2 Staff	Dependant on number of services and volume of incidents
	Tier 3 Staff	Dependant on number of services and volume of incidents
Asset and Configuration Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B)
	Configuration Manager	1 FTE for 1 week for set up 0.1 FTE for ongoing management (Assumed to be GeoNOVA Secretariat resource B)
	Tier 3 Staff	Dependant on number of services
Change Management	Process Owner	0.05 (Assumed to be GeoNOVA Secretariat resource B)
	Change Management Advisory Committee	0.5 days / quarter x number of members
	Change Manager	0.2 FTE (Assumed to be GeoNOVA Secretariat resource B)

Release Management	Process Owner Release Manager	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B) Responsibility of individual Project Managers and depends on scale of project
Availability and Continuity Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B)
Security Management	Process Owner	0.1 FTE (Assumed to be Tier 1 Staff)
Capacity Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource B)
Financial Management	Process Owner	0.05 FTE (Assumed to be GeoNOVA Secretariat resource C)
Service Provider Management	Process Owner	1 FTE for 2 weeks for set up 0.05 FTE for ongoing management (Assumed to be GeoNOVA Secretariat resource B)

Below is a summarization of the estimated resource requirement based on the table above:

Resource	Requirement
Secretariat Resource A	1 FTE
Secretariat Resource B	0.9 FTE
Secretariat Resource C	0.05 FTE
Tier 1 Staff	0.2 FTE

Based on the above estimates, it is recommended that consideration be given to adding an FTE to the GeoNOVA Secretariat and that resource be given the responsibility for the aspects identified under Secretariat Resource B. This resource would focus on the operational support of the GeoNOVA Portal and evolve and expand the operational support processes and capabilities of the GeoNOVA Program as the Portal matures and grows. This resource may not be necessary in the short-term if only the recommended support processes are implemented. However, when all processes are implemented, an additional resource may be needed to allow other secretariat members to stay focused on their original scope of responsibilities.

Appendix A – Service Catalogue

Item	Type	Description	Customers/ Consumers	Business Owner	Application Support	Data Provider/ Support	IT Infrastructure Support
Nova Scotia Property Records Database (NSPRD)	Database	The provincial property mapping system estimates the size, shape, and location of the more than 540,000 parcels of land in the province. This digital property mapping system was developed to create an electronic index for each parcel of land in the province through a unique parcel identifier number (PID). The PID links land ownership facts, municipal tax and land use information, and other land-related data to the graphical image of the parcel to create a comprehensive file on each parcel of land.	Municipalities, Provincial Government, Federal Government	Peter Kittilsen	Ken Pierre	Land Information Centres Registry of Deeds Other	CITO
Property Online	Application	Property Online is an Internet browser application that provides online access to land-ownership and related information collected through the province's Land Registration Offices, Registries of Deeds and other sources. The Property Online database contains ownership information, including property maps, for more than 540,000 properties in Nova Scotia, and is available to subscribers. Property maps and property information reports can be accessed and printed via computer	Municipalities, Public, Provincial Government, Real Estate, Lawyers,	Peter Kittilsen / Mark Coffin	CARIS	Land Information Centres Registry of Deeds Other	Registry 2000 Project (Property Online) CITO
NSPRD GML Application Schema	Data Model	An XML/GML application schema based on the NSPRD database	Municipalities, Provincial Government,	Bernie Gunning	NSGC Application Support Team	NSPRD	James Parks
NSPRD Web Map Service	Web Service	A Web Map Service based on the NSPRD database	Municipalities, Private Sector, Federal Government, Academia	Bernie Gunning	NSGC Application Support Team	NSPRD	James Parks
NSPRD Web Feature Service	Web Service	A Web Feature Service that allows the extraction of GML data from the NSPRD	Municipalities, Provincial Government,	Bernie Gunning	NSGC Application Support Team	NSPRD	James Parks
NS Topographic Database (NSTDB)	Database	The NSTDB is a database created from aerial photography flown to established "mapping quality" standards for the purpose of creating this specialized database. The database shows the correct horizontal and vertical positions of physical and cultural features such as roads, structures, water courses and contours (depicting the elevation of land features relative to sea level) at several resolutions. Numerous products, at a variety of scales, are generated from this database (base maps, topographic maps, digital elevation models, etc.). These products are used constantly for a wide range of purposes, by a multitude of users; in areas such as engineering, surveying, planning, development, resource management, and others.	Municipalities, Public, Private Sector, Federal Government, Academia	Bert Seely	Bob Caldwell	NSGC	James Parks
NSTDB WMS / SLD Web Service 1:1,000	Web Service	A series of Web Map Service based on the NSTDB database	Municipalities, Public, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB WMS / SLD Web Service 1:2,000	Web Service	A series of Web Map Service based on the NSTDB database	Municipalities, Public, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB WMS / SLD Web Service 1:5,000	Web Service	A series of Web Map Service based on the NSTDB database	Municipalities, Public, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB WMS / SLD Web Service 1:10,000	Web Service	A series of Web Map Service based on the NSTDB database	Municipalities, Public, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB WMS / SLD Web Service 1:500,000	Web Service	A series of Web Map Service based on the NSTDB database	Municipalities, Public, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB GML Application Schemas	Data Model	An XML/GML application schema based on the NSTDB database	Municipalities, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
NSTDB Web Feature Service	Web Service	A Web Feature Service that allows the extraction of GML data from the NSTDB	Municipalities, Private Sector, Federal Government, Academia	Bob Caldwell	John Corning, John Power	NSGC	John Corning / James Parks
Municipal Services Application WMS	Web Service	TBD	TBD	TBD	TBD	TBD	TBD

<i>Item</i>	<i>Type</i>	<i>Description</i>	<i>Customers/ Consumers</i>	<i>Business Owner</i>	<i>Application Support</i>	<i>Data Provider/ Support</i>	<i>IT Infrastructure Support</i>
NS Assessment Database	Database	Nova Scotia Assessment Database contains Assessment Roll information for all assessable properties in Nova Scotia (500,000+ accounts). Includes addressed owner, address, property location, description, value and classification of land and structures, ownership codes, special tax agreement codes, firms commencing business, firms terminating business, map reference number, property identification number, properties by ward, district and school section number, identifiers for joint ownership, and land, building and improvement characteristics. Records all information for assessable properties as required by the N.S. Assessment Act. There is no direct spatial component within the database. The spatial component is derived from the Nova Scotia Assessment Database.	Provincial	John MacKay	Rick MacLeod	NSPRD Municipalities Assessment Services	CITO
NS Assessment Online	Application	Nova Scotia Assessment Online is an application that provides access to NS assessment data There are three levels of online access to this information: 1. Internal - http://internal.nsassessmentonline.ca/ 2. Municipal unit 3. General Public - http://www.nsassessmentonline.ca/ 4. Pin login for each property owner.	Provincial Gov't Departments Municipalities General Public Property Owners	Kathy Gillis	Rick MacLeod Akanda	NSPRD Municipalities Assessment Services	Registry 2000 Project Akanda
Thematic Atlas Web Client (Application)	Application	This application delivers a collection of maps portraying the essential facts about Nova Scotia, its people and its resources. These themes are a valuable tool for educators, investors, and the general public encouraging all to investigate the provinces history, natural resources and investment potential. Nova Scotia has a comprehensive and progressive provincial mapping program which encourages data to be shared amongst all users within the Province.	Provincial Gov't Departments Municipalities General Public	Mary Adshade Ed Light	NSGC Application Support Team	NSGC (configuration information)	James Parks
Thematic Atlas WMS/SLD (Web Service - short - term product)	Web Service	The 'data' that supports the Thematic Atlas Web Client. This Web Map Service is a temporary / short term WMS. Its purpose is to make a web-based data source immediately available for the Thematic Atlas Web Client. The long term method for data support with the Thematic Atlas Web Client is for it to 'point' to several different WMS' (i.e. each owner will publish their own WMS)	Provincial Gov't Departments Municipalities General Public	Colin MacDonald	Many GeoNOVA Stakeholders	Various Provincial Departments	Perry Hamilton James Parks
NS Coordinate Referencing System (NSCRS)	Database	The Nova Scotia Coordinate Referencing System (NSCRS) database is the primary source for all land-related measurements and the location of geographic information in the province, providing the framework for all provincial topographic, property, and thematic mapping programs in Nova Scotia. The Province of Nova Scotia continues to improve the NSCRS, both in the development of the Nova Scotia High Precision Network (NSHPN) as well as in the maintenance of the existing Nova Scotia Coordinate Control System (NSCCS). The NSHPN provides a degree of accuracy that is compatible with similar standards being adopted elsewhere across the continent.	Provincial, Federal, Private, Municipal	Bert Seely	Allen Flemming / John Coming	NSGC	James Parks
NSCRS WMS	Web Service	Web Map Service including data from the NSCRS	Private (Surveyors), Provincial, Federal, Municipalities	Allen Flemming	Allen Flemming / John Coming	Allen Flemming	James Parks
NSCRS CT Web Client	Application	A .NET Web application that consumes the NSCRS CT Web Service to deliver coordinate transformations services	Public, Provincial, Municipal, Federal, Academia	Allen Flemming	Allen Flemming / John Coming	N/A	James Parks
NSCRS CT Web Service	Web Service	A SOAP based XML Web Service that provides coordinate transformations.	Public, Provincial, Municipal, Federal, Academia	Allen Flemming	Allen Flemming / John Coming	N/A	James Parks
Nova Scotia Civic Address File	Database	The NSCAF is a corporate provincial digital database which is derived from the NSTDB, NSPRD, TPW and other databases. The NSCAF is comprised of both graphic and attribute data. It's primary components are; the geographic location of road centrelines and civic addressable points, combined with civic address numbers, property identifier (PID) and other attributes. It is also a part of a process which will ensure civic addressing is delivered to Nova Scotians in a timely and effective manner.	Stakeholders, Provincial, Federal, Academia	Bert Seely	Bob Caldwell	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks

<i>Item</i>	<i>Type</i>	<i>Description</i>	<i>Customers/ Consumers</i>	<i>Business Owner</i>	<i>Application Support</i>	<i>Data Provider/ Support</i>	<i>IT Infrastructure Support</i>
NSCAF Maintenance Web Application	Application	The Nova Scotia Civic Address Maintenance Application is an innovative approach to the maintenance of civic address information for the Province of Nova Scotia. The Nova Scotia Civic Address Project, Department of Service Nova Scotia and Municipal Relations, with the assistance of its municipal stakeholders will be able to keep an accurate and up to date list of the all civic addresses in the province using Internet based mapping technology. This service includes a maintenance and a viewer application.	Stakeholders, Provincial	Bob Caldwell	Perry Hamilton, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF Data Viewer	Application	The NSCAF Data Viewer is a 'lightweight' application compared to the Maintenance tool but has roughly the same audience. The application allows NSCAF stakeholders (and key clients) unlimited viewing of NSCAF holdings	Stakeholders, Provincial	Bob Caldwell	Perry Hamilton, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF Civic Address Finder	Application	A publicly available tool available for searching addresses in Nova Scotia. The application allows searches through drop down menus or via direct query. The result is displayed using the NSCAF Data Viewer. Uses the NSCAF XML Web Service.	Public, Provincial, Federal, Academia, Stakeholders	Bob Caldwell	Perry Hamilton, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF Municipal Toolkit	Application	This application is a municipality-version of the NSCAF Civic Address Finder. While this version will not be found in the GeoNOVA Portal itself, it is important to recognise it. Each municipality in the province could install this and have it available on their municipal website.	Public, Provincial, Federal, Academia, Stakeholders	Individual Municipality / Bob Caldwell	Perry Hamilton, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF Web Map Service	Web Service	Web Map Service based on the NSCAF database. It includes centrelines, civic addressable points, and GSA (Community) boundaries.	Provincial, Stakeholders, Federal, Academia, Private, Public	Bob Caldwell	John Corning, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF GML Application Schema	Data Model	AN XML / GML schema for the NSCAF database	Provincial, Stakeholders, Federal, Academia, Private	Bob Caldwell	John Corning, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF Web Feature Service	Web Service	A WFS that streams live 'GML data across the Internet	Provincial, Stakeholders, Federal, Academia, Private	Bob Caldwell	John Corning, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
NSCAF XML Web Service	Web Service	A SOAP based XML Web Service that provides a variety of civic-related functionality includes civic lists and geometry and the shortest path between two points	Developers (Provincial, Federal, Academia, Stakeholders, Private)	Bob Caldwell	John Corning, Dave Smith	EMO, Transportation and Public Works, Municipalities, First Nations, NS Elections Office, DND, Aliant, NSGC	James Parks
GeoNOVA Map Viewer Application	Application	The GeoNOVA Map Viewer allows geographic information from around the world to be viewed. It is an OGC / CGDI compliant mapping tool that allows you to add WMS services to your map, including Service Nova Scotia's 1:10,000 topographic data	Public, Provincial, Municipal, Federal, Academia	Ed Light	John Corning	Various WMS's may be registered	James Parks

<i>Item</i>	<i>Type</i>	<i>Description</i>	<i>Customers/ Consumers</i>	<i>Business Owner</i>	<i>Application Support</i>	<i>Data Provider/ Support</i>	<i>IT Infrastructure Support</i>
Data Direct (Federal & Provincial)	Application	DataDirect allows direct access to geographical data for the Province of Nova Scotia by Federal Government employees and NS Provincial Government employees by subscription.	Provincial Gov't Departments Federal Gov't Departments TBD	Mary Adshade	Perry Hamilton	NSGC	James Parks
Data Locator	Application	The Data Locator application is your opportunity to find digital data in Nova Scotia. This intuitive, easy to use map-based software allows you to browse the province and find digital data products by existing mapsheets. You can search for data using many available indexes, including 1:10,000, 1:50,000, 1:250,000 mapsheets, and more.	Public, Provincial, Municipal, Federal, Academia	Mary Adshade	Perry Hamilton	NSGC	James Parks
Aquaculture Site Finder	Application	This site is the result of a recent Research and Development project between the Aquaculture Division of the Department of Agriculture and Fisheries and The Nova Scotia Geomatics Centre of Service Nova Scotia and Municipal Relations.	Public, Provincial, Municipal, Federal, Academia	Geordie MacLachlan	John Corning	Agriculture and Fisheries (Aquaculture Division)	James Parks
Gas Stations Finder	Application	Service Nova Scotia and Municipal Relations has developed an on-line tool that will help you to locate a service station in any area of the province, by brand name and by the type of service offered - full-service, self-serve, or a combination of the two.	General Public	David Cody	John Corning	NSDEL	James Parks
Hurricane Juan Preliminary Assessment Map Service	Application	The Nova Scotia Department of Natural Resources has developed the Hurricane Juan Preliminary Assessment Map Service. This easy to use web mapping program allows the user to assess the damage from the Hurricane first hand.	Public, Provincial, Municipal, Federal, Academia	DNR	Jeff Poole	TBD	DNR
Map Store	Application	Welcome to the Nova Scotia Geomatics Centre online store where you can purchase a range of map products.	Public, Provincial, Municipal, Federal, Academia	Mary Adshade	Marsha Jones	NSGC	James Parks
NS Geographic Names Database	Database	Place names are compiled in what is referred to as a Gazetteer. The Nova Scotia Gazetteer contains almost 28 000 officially recorded names, 2800 of which are community names and the remainder are feature names such as lakes, bays, brooks, and mountains.	Provincial, Municipal, Federal, Academia	Danny Gray	David Cody / John Corning	Various	NSGC
NS Geographic Names Web Application	Application	A web application that uses the Geographic Names database	Public, Provincial, Municipal, Federal, Academia	David Cody	John Corning	David Cody	James Parks
NS Geographic Names WMS	Web Service	A Web Map Service available to the public based on the Geographic Names database	Public, Provincial, Municipal, Federal, Academia	David Cody	John Corning	David Cody	James Parks
NS Geographic Names WFS	Web Service	A Web Feature Service that allows GML documents to be streamed across the Internet	Public, Provincial, Municipal, Federal, Academia	David Cody	John Corning	David Cody	James Parks
NS Geographic Names GML Application Schema	Data Model	An XML / GML schema for the Geographic Names database	Public, Provincial, Municipal, Federal, Academia	David Cody	John Corning	David Cody	James Parks
Target Nova Scotia	Application	Assemble up-to-date and accurate information on any community or county in the province. Construct your own community profile and let the interactive map take you there.	Public	Everett Backman	Office of Economic Development / Private	RDA's, Municipal, Federal, Provincial	James Parks
Significant Species and Habitat Database	Application	The maps and database only include sites known to staff of the Department of Natural Resources or sites that have been supplied by knowledgeable naturalists, museums, universities, the Nova Scotia Museum of Natural History, the Atlantic Canada Conservation Data Centre and other government departments. The maps and database are not the results of a thorough survey and should not be considered a list of all the significant habitats in Nova Scotia.	Public, Provincial, Municipal, Federal, Academia	TBD	Jeff Poole	TBD	DNR
Ecological Land Classification Map and Database	Application	The maps and database only include sites known to staff of the Department of Natural Resources or sites that have been supplied by knowledgeable naturalists, museums, universities, the Nova Scotia Museum of Natural History, the Atlantic Canada Conservation Data Centre and other government departments. The maps and database are not the results of a thorough survey and should not be considered a list of all the significant habitats in Nova Scotia.	Public, Provincial, Municipal, Federal, Academia	TBD	Jeff Poole	TBD	DNR
Municipal Polling Districts Mapping	Application	A web application that delivers municipal electoral district information to the public.	General Public	Mark Poirior, Municipal Services	David Cody	SNSMR Municipalities	James Parks
National Forestry Information System	Application		Public, Provincial, Municipal, Federal, Academia, Private	Jeff Dechka, Acting Director	Brian Low, Technical Lead	Brian Low, Technical Lead	George Heppner, System and Network Specialist
GeoNOVA Portal	Application	The Site	Public, Provincial, Municipal, Federal, Academia, Private	Ed Light	Colin MacDonald, Marsha Jones, SNSMR eServices	GeoNOVA Stakeholders	CITO
GeoNOVA Spatial Data Warehouse	Database	The Database	Provincial, Municipal	Ed Light, Bert Seely	John Corning, Colin MacDonald	Various GeoNOVA Stakeholders	James Parks, John Corning
Environment WMS	Web Service	A Web Map Service exposing NS Department of Environment and Labour data	Public, Provincial, Municipal, Federal, Academia, Private	Chuck Sangster	John Corning	Chuck Sangster	James Parks
Elections WMS	Web Service	A Web Map Service exposing NS Elections data	Public, Provincial, Municipal, Federal, Academia, Private	Tony Matthews	John Corning	Tony Matthews	James Parks
Education WMS	Web Service	A Web Map Service exposing NS Department of Education data	Public, Provincial, Municipal, Federal, Academia, Private	James Coe	John Corning	James Coe	James Parks