

Belize National  
Spatial Data Infrastructure

*Supporting Sustainable and Resilient  
National Development*

**Guidance Note On  
Data Collection**

**Final Draft V1**

**26 February, 2018**





**Belize National Spatial Data Infrastructure**

**GUIDANCE NOTE  
ON DATA COLLECTION**

FINAL

Version 1  
26 February, 2018

(Consultancy Services for Climate Resilient Infrastructure Project  
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Prepared for

**Government of Belize  
Social Investment Fund (SIF)**

Prepared by

**Geographic Planning Collaborative, Inc. (GPC)**  
California, USA

## Introduction

This Guidance Note outlines the charter, purpose and structure of the Belize National Map Programme (BNMP) and the Working Group and various sub-groups responsible for shaping it. The BNMP is to provide a comprehensive, complete and standardized series of base map GIS layers at multiple scales that will provide a solid foundation for the rest of the Belize National Spatial Data Infrastructure (BNSDI).

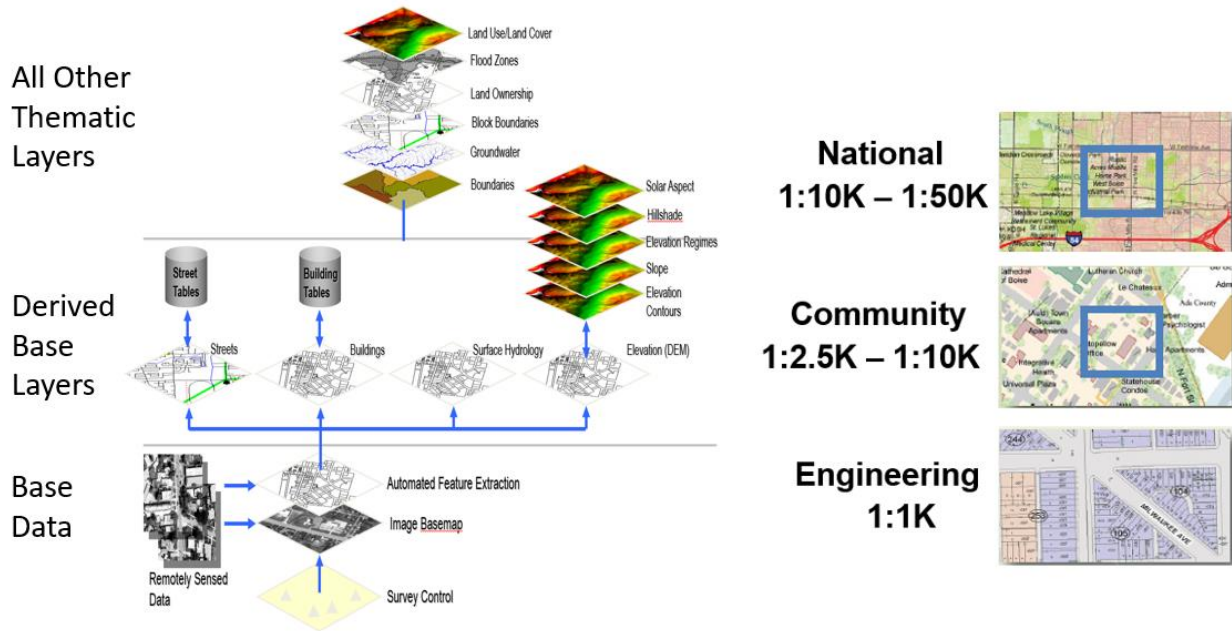
The Government of Belize is undertaking the development of a National Spatial Data Infrastructure (BNSDI) as a framework for the coordinated development and sharing of geospatial data and its application to sustainable and climate resilient national development and investment. An essential component of the BNSDI is the development of standards for data that are needed in common by many stakeholders. A data projects alignment analysis was conducted with international consultant support during December, 2017. Based on that analysis it was determined that there is a need to develop certain base map layers as an essential foundation that will provide a comprehensive, multi-scaled, current and accurate foundation of common reference information for the BNSDI. Layers that are considered part of this foundation include the following:

- **Survey Control.** Provides the survey control frame of reference for all other geographic information in the country;
- **Imagery.** Aerial orthophotos or high-resolution satellite imagery depict features on the ground that are visible from above;
- **Elevation.** Topographic (land) and bathymetric (underwater) surface elevation, normally expressed as an elevation value above or below mean sea level.
- **Place Names.** Common recognized names for communities, landmarks, urban points of interest, etc.
- **Transportation Network.** Network of highways, streets, tracks and associated tabular information such as street name, class of street, etc.
- **Surface Hydrology.** Rivers, streams, lakes, wetlands, springs and any other features of the surface hydrology system;
- **Buildings.** Structures that may house people or businesses. This also needs to include tabular information providing a unique identifier and basic information for each structure.

Much of this information exists in some form in Belize today, but generally it has not been standardized, covers only parts of the country and is not up-to-date. A Belize National Map Programme has been conceived to compile and update this information to a form that meets a wide range of stakeholder needs at national, regional and local levels and can serve as the foundation for all other BNSDI data nationally. As illustrated in Figure 1 below, there are interdependencies and sequencing among these layers that need to be considered in the compilation process. In addition to the content of each layer it will also be important to consider the scale and accuracy at which this information is created to ensure that it meets the needs of the BNSDI stakeholder community.



**Figure 1 - Conceptual Structure for Belize National Map Programme**



The development of the initial Belize National Map Programme is conceived as a single, comprehensive, integrated effort covering the entire country at multiple scales. Once these layers have been created, they will provide the common reference for all other geographic data across all sectors, and the individual layers can then be turned over to the appropriate custodian organizations for ongoing updating.

A Belize National Map Programme (BNMP) Working Group has been initiated to engage all the key stakeholders in the development of standards and specifications for each layer to ensure that the resulting data products are responsive to community needs. The Group is further subdivided into Sub-Groups, each addressing one or more of the individual base data layers. This Group/Sub-Group structure is important to ensure that the initial development of these interrelated layers is carried out in an efficient, coordinated and integrated way. The Working Group and sub-groups will address both the specifications required for the near-term BNMP as well as the data security classification, custodianship, and other terms and conditions that will be required to ensure that each layer is properly shared, maintained and managed into the future.

The following provides an overall Charter for the NMP Working Group, describing the overall common form and functions of the Working Group, followed by sub-charters that outline those factors that may be specific and unique to any sub-group.

### **Membership and Governance**

Membership and voting rights in the overall Working Group is limited to members of the BNSDI Technical Committee, and only one vote per member organisation is allowed. However, participation

in the sub-groups of this Working Group is open to all interested governmental, academic and private sector entities and will be actively encouraged.

The formation of each sub-group will include the designation of an official Coordinator who is a member of the BNSDI Technical Committee and one alternate. Each Coordinator will represent the sub-group in the overall Working Group, which will be Chaired by the Head of the Spatial Planning Division of the Ministry of Natural Resources, or their designated representative. Figure 2 below illustrates the basic organization structure for this Working Group.

**Figure 2 - Belize National Map Programme Working Group Organization Structure**

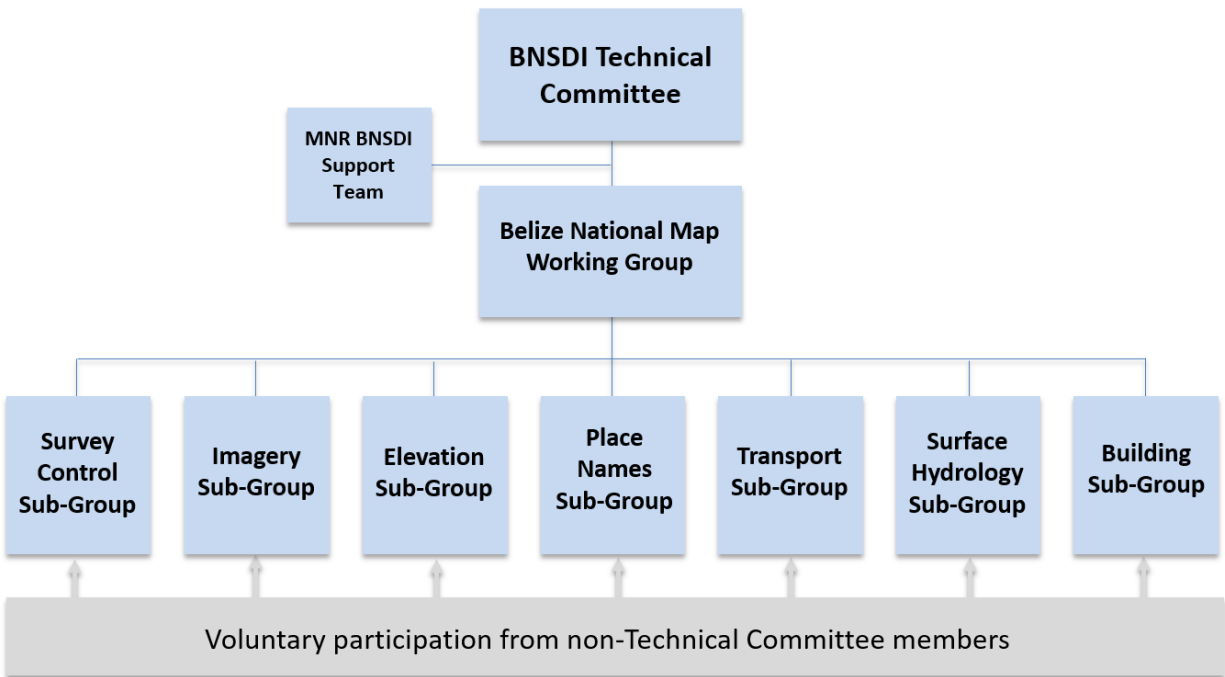


Table 1 below lists the current members of the Working Group, which sub-groups each member is participating in and which individuals are assigned a coordinator role.

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group and each sub-group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to each subject. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved. The Working Group Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time.

**Table 1 - Belize National Map Programme  
Working Group Membership and Sub-Group Participation**

WORKING GROUP MEMBERS		Sub-Groups					
		Survey Control	Imagery	Elevation	Place Names	Transport	Surface Hydrology
Ms. Maritza Canto	Statistical Institute of Belize						
Mr. Ellington Cayetano	Hydrology Department						
Mr. Jose Chulin	Land and Survery Department - Mapping Department						
Mr. Edgar EK	Department of Environment						
Mr. Albert Gilharry*	CCCCC						
Mr. Francisco Gonzalez	Board of Water Supply						
Mr. Arnaldo Hernandez	CBA-Ministry of Housing and Urban Development						
Mr. Garson Ramnanrace	Ministry of Works						
Mr. Elam Torres	Ministry of Natural Resources						
* Invited Member							
	Member of sub-group						
	Coordinator of sub-group						

The Chair(s) of the sub-groups will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations
- Ensure that meeting minutes are accurate and publicly available

A minimum of 3 meetings shall be convened within the 16 weeks planned for this Working Group. Additional meetings may be called at the discretion of the Chair. The meetings for each Sub-Group are called out in the individual charters.

## Scope of Work

This Working Group and its sub-groups are to carry out the following basic activities as described below and illustrated in Figure 3. These activities may be refined by each group as needed to effectively plan and coordinate their activities:

### **Track 1 – Working Group Activities.**

**Activity 1 – Conduct working group inception meeting.** An initial inception meeting was held during December, 2017 to explain the purpose of the data project alignment analysis and the conclusion that a Belize National Map programme is required as a foundation for the BNSDI. This meeting was also used to determine initial interest for participation in the various sub-groups.

**Activity 2 – Develop working group and sub-group charters.** This activity involves the development of draft charters for the working group and its various sub-groups. This should include only that information that is critical to ensure that the activities and deliverables from each group is clear and aligned such that the results can be integrated to a final content standard and specification to be used to solicit funding and technical support for the Belize National Map Programme. Each group will also be responsible for identifying the likely candidate for permanent custodianship for each data layer, and the general parameters for data security and the future maintenance and updating of the information in the future.

**Activity 3 – Facilitate and support sub-group activities.** The Working Group is to meet on a bi-weekly basis to review progress and ensure continued alignment among the sub-groups. The minutes from these meetings will serve as a status report for submittal to the BNSDI Executive Committee Chair within two days of each meeting.

**Activity 4 – Compile and integrate sub-group outputs.** In this activity the outputs of the sub-groups will be compiled and integrated into a single Belize National Map General Specification document. This document will have sufficient detail to be used to solicit Expressions of Interest (EOI) from qualified contractors and institutions that wish to be included in a short-list for a subsequent international competitive tender to support the implementation of the Belize National Map Programme. It will also include information regarding any data security considerations or data custodian recommendations that will have arisen through the sub-group work.

**Activity 5 – Issue expression of interest (EOI) solicitation.** The compiled Belize National Map General Specification will be used to solicit EOI's from qualified contractors and institutions in Belize and internationally. The purpose of the EOI is to gain more clarity about the range of potential data capture technologies and techniques that may be possible, the organizations that can reliably perform this service, and the timeframe and costs that will be involved with each approach.



**Activity 6 – Produce programme documents.** The information gathered in the previous activity will be reviewed with the National Map Working Group and used to compile a programme document to be used to solicit executive support and ultimately funding for the implementation of the programme. This document will be presented to and refined in consultation with the BNSDI Executive Committee.

**Activity 7 – Secure programme funding.** The final programme documents will be submitted through the proper government channels for approval and funding. Following this the project will go through normal channels for international tendering.

### **Track 2 – Sub-Group Activities.**

**Activity 1 – Confirm business requirements and current situation.** The 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports have identified a broad range of potential business requirements for each fundamental data topic and the existing data sources in Belize that may fulfil part or all of these requirements. This information is contained in both textual reports as well as spreadsheet tables that can be manipulated and further analysed. In the first activity, each sub-group will review those findings and either confirm or refine them to ensure the base information and assumptions being used are accurate and current. Any additions or refinement will be added to updated versions of the reports for common future reference.

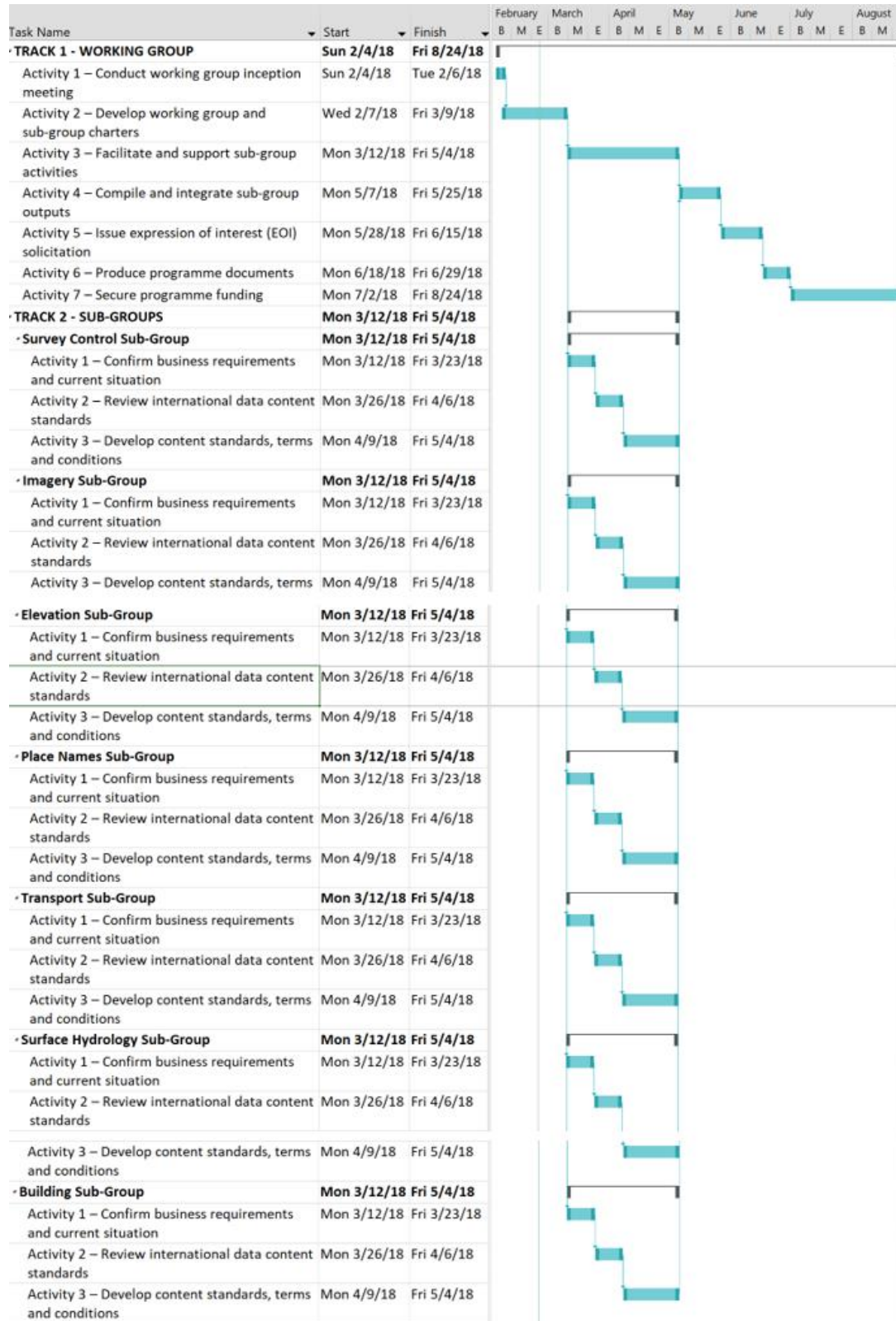
**Activity 2 – Review international data content standards.** In many cases there exist content standards and specifications for specific geospatial data topics that can be used as a starting point for the development of content standards and specifications that are customized to fit the Belize situation. Each sub-group will identify and review any such standards, compared these to the business requirements identified previously and customize or develop original standards accordingly. Where needed, additional input from subject matter experts may be solicited to support or confirm the sub-group assumptions, findings and conclusions.

**Activity 3 – Develop content standards, terms and conditions.** This activity will involve the development of draft content standards and related terms and conditions for each fundamental geospatial data layer to be included in the National Map Programme. The content standard will include mapping scale, levels of accuracy and information content to be included. The sub-group will also determine any data security considerations relative to each layer by applying a standard process and criteria for this process that will be supplied by the MNR Spatial Data Department. It will also identify the candidate organization that is the most logical custodian of each layer in the future and frequency of updating and other factors that will be required to meet the business needs of the stakeholders into the future. The information from each sub-group will be compiled to a standard format that will have been provided by the Working Group.

## **Schedule**

Figure 3 below illustrates the time schedule and interdependencies among the two tracks and various activities to be carried out by the Working Group and sub-groups.

*Figure 3 - Belize National Map Working Group Schedule*



## Survey Control – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name** Survey Control Sub- Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Group

Representative Name	Department/Institution
Ms. Maritza Canto	Statistical Institute of Belize
Mr. Francisco Gonzalez	BWS
Mr. Garson Ramnanrace	Ministry of Works
Mr. Arnaldo Hernandez	CBA-Ministry of Housing and Urban Development
Mr. Elam Torres	Ministry of Natural Resources
Mr. Jose Chulin	Land and Surveying Department
-	Mapping Department
Mr. Ellington Cayetano	Hydrology Department
Mr. Elam Torres	Ministry of Natural Resources
Mr. Edgar EK	Department of Environment
*Invited Guest	Mr. Albert Gilharry
	CCCCC

*\*Working group members subject to change*

### 3. Sub-Group Vision

Geodetic control, definition of reference frames, and their associated physical infrastructure underlay all geospatial activities in Belize and form the foundation for temporal and spatial consistency across the BNSDI's Framework Datasets (Elevation, Imagery, Hydrography, Transportation, Administrative Boundaries and Parcels/Cadastral, etc.). Surveying, mapping, remote sensing and geospatial science all rely on a sound geodetic framework for success.

Geodetic control allows accurate horizontal and vertical positioning of overlaying datasets, including elevation. Geodetic control provides the framework for all positioning and mapping activities in Belize, including the accurate horizontal and vertical positioning of geospatial datasets. The foundational elements of geodetic control are latitude, longitude, elevation, and their changes over time. Geodetic positions may be accessed via passive control (survey monuments) or via active GNSS/GPS-based control (in the form of Continuously Operating Reference Stations, or CORS) combined with an accurate model of the earth's gravity potential (provided by the GRAV-D project). Sound geodetic control contributes to informed decision-making and impacts a

wide range of important activities including mapping and charting, navigation, flood risk determination, transportation, land use and ecosystem management.

Geodetic Control both passive (physical monuments) and active (continuous GNSS stations) have been challenging and costly to establish and maintain due to limited staff, limited public resources reservations/commitments, disappearance of historically established monuments. The rapid development and reconstruction along roads where old network was established has caused major parts of Networks to be destroyed. Tidal gauge networks is reduced as a result of Hurricanes.

National geodetic transformation tools, products and services have historically underserved Belize users and not all users are consistently employing standard geodetic practices to modern survey and mapping that will allow for 3d and 4D mapping of land and sea surface.

#### **4. Purpose**

The establishment of the Belize National Map will require refinement, modernization and standardization of the national survey control system. The purpose of this component of the programme is to unify the geodetic priorities of diverse stakeholders within Belize; to preserve, densify and enhance geodetic control networks for the maximum benefits of a broad user base and to support national precise positioning and mapping activities at a degree of accuracy necessary through the identification and recommendation of consistent practices appropriate for different application, geodetic product/tool development and educational outreach.

#### **5. Goals**

To define, maintain and provide access to the National Spatial Reference System where determination of "height" specially ellipsoid height and orthometric height and any dynamic height are highly accurate for analysis and mapping activities; fits the needs to Support of International Spatial Reference System and National Reference System

#### **6. Objectives**

- Identify and advise Executive Committee on issues related to passive, active and real time geodetic control
- Coordinate, develop and make recommendations for goals and/or strategies to improve geodetic framework
- Provide guidance on reference frame, datum's, metadata and transformations tools to maximise new and legacy geospatial data integrity within Belize
- Provide guidance for Standards and best practices for delivery and utilization by geospatial community

#### **7. Milestones**

Working Group will:

- Formalize and finalize the sub-group charter
- Draft a workplan that is accepted by the Working Group.



- Recommendations are developed that identify standards, stewardship and funding for the implementation and maintenance of a National Geodetic Control Network
- Guidance and technical documents for utilization and an alignment with GC themes and other themes.

Specific milestones include the delivery of:

- a) comprehensive business plan,
- b) Geodetic control network data contents standard:

## **8. Decision Making**

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to Geodetic Control and National Reference System. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

## **9. Leadership**

The Chair(s) will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

## **10. Meetings**

Ensure that meeting minutes are accurate and publicly available.

A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.

## **11. Communication**

Written communication will take place via email. A workgroup page will be maintained on the BNSDI Website maintained by the Spatial Data Department.

Website postings will include:

- Charter
- Workplan
- Data Standard
- Meeting Minutes

## **12. Dissolution**

The sub-group will be dissolved upon completion of the identified deliverables.



## Elevation Sub-Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name:** Elevation Sub-Group

**Date:** January 31st, 2018

**1. Membership** Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

<b>2. Project Working Group</b>	Representative Name	Department/Institution
	Ms. Maritza Canto	Statistical Institute of Belize
	Mr. Francisco Gonzalez	BWS
	Mr. Garson Ramnanrace	Ministry of Works
	Mr. Arnaldo Hernandez	CBA-Ministry of Housing and Urban Development
	Mr. Elam Torres	Ministry of Natural Resources
	Mr. Jose Chulin	Land and Survery Department
	-	Mapping Department
	Mr. Ellington Cayetano	Hydrology Department
	Mr. Elam Torres	Ministry of Natural Resources
	Mr. Edgar EK	Department of Environment
<b>*Invited Guest</b>	Mr. Albert Gilharry	CCCCC

*\*Working group members subject to change*

**3. Project Vision** Surface elevation databases are a critically important geospatial database for a wide range of GIS applications and as such have been determined to be a priority database for development by the NITC GIS Council. LiDAR (Light Detection and Ranging) and other proven remote sensing technologies enable the efficient collection of accurate surface elevation data for large geographic areas.

There is a broad and growing need among public agencies for reliable, convenient access to accurate digital elevation data. This need spans a broad cross-section of application types for both public agencies and the private sector, including planning, investment and management in: natural resources, infrastructure, transportation, environment, agriculture, and economic development.

The current elevation data available in Belize requires refinement as the resolution is low and is not sufficient for conducting certain planning

analyses and for engineering studies. Hence it is deemed essential for the BNSDI to develop and maintain a comprehensive, multipurpose, elevation nationwide dataset.

Significant public resources are being invested by organizations where these pieces may involve only certain areas of the statewide geography or they may involve only certain attributes of what might be included for their customized needs. Yet while this data is widely needed, there is currently no single entity which has the clear responsibility to ensure that this critical data is maintained, collected, integrated and reliably provided in a means that is convenient and useful to the wide range of users.

Elevation databases have been determined by the BNSDI to be a Fundamental Dataset because their use by a wide cross-section of geospatial data users. The project participants envision an enterprise-level project, which upon completion, will enable and support the on-going collection from multiple sources, integration, and distribution of a “best available” statewide elevation dataset. Distribution of this “best available” elevation database will include the ability of public agencies to maintain easy online access, without charge, to the most current version of the database.

- 4. Purpose** The purpose of this component of the Belize National Map Programme is to provide a comprehensive national elevation data set at levels of accuracy and resolution that are required to support the majority of stakeholder business functions.
- 5. Goals** To facilitate the acquisition, maintenance, and distribution of a high quality national elevation dataset to replace the relatively coarse existing data and capitalize on the latest and most effective technologies.
- 6. Objectives**
- Confirm the existing and future business requirements for elevation data (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports);
  - Assess the current status and perceived adequacy of the existing surface elevation data
  - Establish guidelines for the collection and quality control of data acquired for elevation acquisition projects and its derivatives;
  - Identify a set of standards and the general definition of a standard elevation product that will meet the majority of stakeholder requirements and expectation in a cost effective manner.
  - Provide recommendations to and for the development and maintenance of standards
  - Identify an elevation data steward and responsibilities including storage and management strategies
- 7. Milestones** Working Group will:  
Develop a business case outlining the range of needs for this dataset and the justifications for the commitment of public resources for ongoing cost

associated with the development maintenance and distribution of this "best available" dataset.

Specific milestone include the delivery:

- a) comprehensive business plan;
- b) data content standard.
- c) Security classification, custodianship and other terms and conditions

## **8. Decision Making**

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to elevation data acquisition. Decisions that do not have a consensus may be tabled until next meeting.

A call for consensus may be issued via email; if no objections are raised with 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

## **9. Leadership**

The Chair(s) will be recommended by the Head of the Spatial Data Department in consultation with involved stakeholders. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

Ensure that meeting minutes are accurate and publicly available.

## **10. Meetings**

A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.

## **11. Communication**

Written communication will take place via email. A workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:

- Charter
- Workplan
- Data Standard
- Meeting Minutes

## **12. Dissolution**

The working group will be dissolved upon completion of the identified deliverables.



## Imagery – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub- Group Name** Imagery Sub- Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Group

Representative Name      Department/Institution

*\*Working group members subject to change*

### 3. Sub-Group Vision

The establishment of the Belize National Map will require detailed, current and geographically accurate imagery. Accurate and up to date high resolution imagery provides a very valuable geospatial reference framework that is simple to use and understand by non-technical users. According to the BNSDI requirements study, over 74% of the activities carried out by BNSDI stakeholders will use this information in some manner.

### 4. Purpose

The purpose of this component of the Belize National Map Programme is to provide a comprehensive national imagery base map at levels of accuracy and resolution that are required to support the majority of stakeholder business functions.

### 5. Goals

To facilitate the initial acquisition of high resolution orthographically corrected imagery to be used as an image basemap component of the Belize National Map. Following this initial effort, it is intended that this sub-group will continue as a full Imagery Working Group to assess the broader need for ongoing acquisition, maintenance, and distribution of a high quality national imagery data to depict the most current on-the-ground conditions.

### 6. Objectives

- Confirm the existing and future business requirements for imagery data (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports);
- Assess the current status and perceived adequacy of the existing imagery data
- Identify a set of standards and the general definition of a standard imagery product that will meet the majority of stakeholder requirements and expectation in a cost effective manner.
- Identify an imagery data steward and the general parameters for a future National Imagery Programme within the BNSDI

**7. Milestones**

Working Group will:

- Formalize and finalize the sub-group charter
- Draft a workplan that is accepted by the Working Group.
- Recommendations are developed that identify standards for the development of the Belize National Map as well as stewardship, funding, and general parameters for the implementation and maintenance of a National Imagery Programme

Specific milestones include the delivery of:

- a) comprehensive business plan;
- b) imagery data contents standard;
- c) security classification, identification of permanent custodian and any related terms and conditions.

**8. Decision Making**

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the sub-group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to the imagery program. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

**9. Leadership**

The Chair(s) will be recommended by the MNR/SDD Head in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

**10. Meetings**

Ensure that meeting minutes are accurate and publicly available.

A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.

**11. Communication**

Written communication will take place via email. a workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:

- Charter
- Workplan
- Data Standard

- Meeting Minutes

**12. Dissolution**

The working group will be dissolved upon completion of the identified deliverables.

## Place Names – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name** Place Names Sub-Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Group

Representative Name      Department/Institution

*\*Working group members subject to change*

### 3. Sub-Group Vision

Places are features of common reference and their associated names (geonames). These include those regional features that have traditionally been associated with a map gazetteer as well as points of interest that are prevalent in urban mapping and car navigation systems. They may provide the user with general orientation information, or in the case of a gazetteer, comprise a comprehensive inventory of places of common reference, both natural and man-made. A classical gazetteer or place names dataset may include villages, towns, historic locations, landmarks, mountain peaks, valleys, and any other type of common locational reference. There is presently no official registry of gazetteer place names or urban points of interest. This sub-group will address the development of such official registry as part of the Belize National Map Programme (BNMP).

### 4. Purpose

The purpose of this component of the Belize National Map Programme is to provide a comprehensive place names gazetteer and urban points of interest at levels of accuracy and resolution that are required to support the majority of stakeholder business functions.

### 5. Goals

To facilitate the initial acquisition of comprehensive geographic registry of place names and urban points of interest component of the Belize National Map. Following this initial effort, it is intended that this sub-group will continue as a full Imagery Working Group to assess the broader need for ongoing maintenance an official place name gazetteer for Belize.

### 6. Objectives

1. Confirm the existing and future business requirements for place name data (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports);

2. Assess the current status and perceived adequacy of the existing place name data
3. Identify a set of standards and the general definition of a standard place name mapped registry that will meet the majority of stakeholder requirements and expectation in a cost effective manner.
4. Identify a place name data steward and requirements for ongoing data maintenance and management.

## 5. Milestones

Working Group will:

- a) Formalize and finalize the sub-group charter
- b) Draft a workplan that is accepted by the Working Group.
- c) Recommendations are developed that identify standards for the development of the Belize National Map as well as stewardship and funding for the implementation and maintenance of a national place names gazetteer and urban points of interest data programme

Specific milestones include the delivery of:

- comprehensive business plan;
- place names data contents standard;
- security classification, identification of permanent custodian and any related terms and conditions.

## 6. Decision Making

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to the imagery program. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

## 7. Leadership

The Chair(s) will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

Ensure that meeting minutes are accurate and publicly available.



- 8. Meetings** A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.
- 9. Communication** Written communication will take place via email. a workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:
- Charter
  - Workplan
  - Data Standard
  - Meeting Minutes
- 10. Dissolution** The working group will be dissolved upon completion of the identified deliverables.

## Transportation – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name** Transportation Sub- Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Group

Representative Name	Department/Institution
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*\*Working group members subject to change*

### 3. Sub-Group Vision

The establishment of the Belize National Map will require detailed, current and geographically accurate depiction of highways, streets and tracks. Many mapping applications can suffice with only a simple centerline representation of the transportation network, but other applications require a “navigable” database that can be used for routing and logistical analysis. Such a navigable street database includes the necessary geometry and intelligence to recognize one-way streets, underpasses, overpasses, turning restrictions at intersections, and other issues. Typical applications that need this sort of information include but are not limited to bus routing, garbage collection routing, emergency ambulance, fire and police dispatch, maintenance crew daily planning, service call routing, and others. A navigable street database that adequately models possible movements along a roadway is needed to support these applications.

In addition to navigability, the roads database also needs to support pavement and other roadway asset management. This is often accomplished through a “linear referencing system” whereby pavement condition and treatment information that is described as measured segments referenced against nodes in the street network. In this manner, the node-to-node structure of the street network does not have to be physically split to smaller nodal segments, but rather the measurements are simply referenced to the network for spatial analysis and display. Likewise, some road asset management systems likewise maintain the asset information in a tabular database with a linear reference to the

street network to approximate the location, while others maintain these as separate geographic features.

- 4. Purpose** The purpose of this component of the Belize National Map Programme is to provide a comprehensive and accurate depiction of the road network in Belize at levels of accuracy and associated attribution that are required to support the majority of stakeholder business functions.
- 5. Goals** To facilitate the initial acquisition of comprehensive and accurate map of all navigable roadways in Belize, inclusive of highways, streets, public and private roadways and tracks. The feasibility of also capturing navigation attributes for the network will also be assessed.
- 6. Objectives**
- Confirm the existing and future business requirements for road network data (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports) ;
  - Assess the current status and perceived adequacy of the existing road network data
  - Identify a set of standards that will meet the majority of stakeholder requirements and expectation in a cost effective manner.
  - Identify a transportation data steward and requirements for ongoing data maintenance and management.

**1. Milestones**

Working Group will:

- a) Formalize and finalize the sub-group charter
- b) Draft a workplan that is accepted by the Working Group.
- c) Recommendations are developed that identify standards for the development of the Belize National Map as well as stewardship for the ongoing maintenance of a national transportation network data programme

Specific milestones include the delivery of:

- a) comprehensive business plan;
- b) transportation data contents standard, terms and conditions;
- c) security classification, identification of permanent custodian and any related terms and conditions.

**2. Decision Making**

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to the imagery program. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

**3. Leadership**

The Chair(s) will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

**4. Meetings**

Ensure that meeting minutes are accurate and publicly available. A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.

**5. Communication**

Written communication will take place via email. a workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:

- Charter
- Workplan
- Data Standard
- Meeting Minutes

**6. Dissolution**

The working group will be dissolved upon completion of the identified deliverables.

## Surface Hydrology – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name** Surface Hydrology Sub- Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Group

Representative Name      Department/Institution

*\*Working group members subject to change*

### 3. Sub-Group Vision

Surface hydrology data depict the location and extent of streams and rivers, water bodies, and associated information. Surficial hydrology data are required to support a broad range of issues in Belize, and is especially critical to climate resiliency planning and adaptation. According to an earlier BNSDI study, over 67% of the activities carried out by stakeholders could derive benefit from this information in some manner. The range of existing or potential uses for this data in Belize include:

- Analyze the predicted location and extent of flooding from a theoretical storm scenarios or actual storm events;
- Assess groundwater recharge potential;
- Environmental impact assessment;
- Environmental habitat modeling;
- Watershed analysis and protection;
- Drainage analysis and storm control system design;
- Hazard overlay mapping for land use planning;
- Use as a cartographic reference on topographic basemaps.

### 4. Purpose

The purpose of this component of the Belize National Map Programme is to provide a comprehensive and accurate depiction of the surface hydrology network in Belize at levels of accuracy and associated attribution that are required to support the majority of stakeholder business functions.

### 5. Goals

To facilitate the initial acquisition of comprehensive and accurate map of all surface hydrology features in Belize, inclusive of rivers, streams, lakes, wetlands, springs, etc.

## 6. Objectives

- Confirm the existing and future business requirements for surface hydrology network data (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports);
- Assess the current status and perceived adequacy of the existing surface hydrology network data;
- Identify a set of standards that will meet the majority of stakeholder requirements and expectation in a cost-effective manner.
- Identify a surface hydrology data steward and requirements for ongoing data maintenance and management.

## 7. Milestones

Working Group will:

- Formalize and finalize the sub-group charter
- Draft a workplan that is accepted by the Working Group.
- Recommendations are developed that identify standards for the development of the Belize National Map as well as stewardship, terms and conditions for the ongoing maintenance of this data layer.

Specific milestones include the delivery of:

- a) comprehensive business plan;
- b) surface hydrology layer data contents standard, terms and conditions;
- c) security classification, identification of permanent custodian and any related terms and conditions.

## 8. Decision Making

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to the imagery program. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

## 9. Leadership

The Chair(s) will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

Ensure that meeting minutes are accurate and publicly available.

- 10. Meetings** A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.
- 11. Communication** Written communication will take place via email. a workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:
- Charter
  - Workplan
  - Data Standard
  - Meeting Minutes
- 12. Dissolution** The working group will be dissolved upon completion of the identified deliverables.



## Buildings – Sub Group Charter

**Working Group Name** Belize National Map Programme Working Group

**Sub-Group Name** Buildings Sub- Group

**Date:** January 31st, 2018

### 1. Membership

Participation is open to all interested government, academic, institutional or private sector organizations or individuals with an interest in contributing to this subject. Voting rights are restricted to BNSDI Technical Committee members only.

### 2. Project Working Sub-Group

Representative Name      Department/Institution

*\*Working group members subject to change*

### 3. Sub-Group Vision

Buildings and habitable structures that will be used for residential or commercial establishment location purposes, those to which other information should be tied to, or those that will be used for 3D visualization will need to be modeled as discrete geographic objects accordingly. Buildings may require referencing for both cadastral as well as street addressing and spatial referencing purposes.

Building data provides the spatial framework object that other databases can be linked to for geospatial referencing and depending upon use the locations can be mapped as points and/or polygons. According to the earlier BNSDI study, nearly 82% of stakeholder activities could derive benefit from this information in some manner.

### 4. Purpose

The purpose of this component of the Belize National Map Programme is to provide a comprehensive and accurate depiction of the location and essential descriptive information regarding all habitable structures in Belize. There is a time-sensitive need to establish a national inventory to support the 2020 population census to be developed by the Statistics Institute Belize (SIB).

### 5. Goals

To facilitate the initial acquisition of comprehensive and accurate map of all habitable structure in Belize. The feasibility of also capturing essential commonly needed attributes for each structure will also be assessed.

### 6. Objectives

- Confirm the existing and future business requirements for building data. This includes the time-sensitive need to provide a

comprehensive inventory of habitable buildings to support the 2020 national population census. (ref. 2016 BNSDI Requirements Assessment and Data Inventory and Assessment reports);

- Assess the current status and perceived adequacy of the existing building data;
- Identify a set of standards and specifications that will meet the majority of stakeholder requirements and expectation in a cost-effective manner.
- Identify a buildings data layer steward and requirements for ongoing data maintenance and management.

**7. Milestones**

Working Group will:

- Formalize and finalize the sub-group charter
- Draft a workplan that is accepted by the Working Group.
- Recommendations are developed that identify standards for the development of the Belize National Map as well as stewardship terms and conditions for the implementation and maintenance of a national buildings data layer

Specific milestones include the delivery of:

- a) comprehensive business plan,
- b) building point and polygon layer data contents standards and specifications:
- c) security classification, identification of permanent custodian and any related terms and conditions.

**8. Decision Making**

Meetings shall be guided by the consensus rule of those attending the meeting. It is the intent that the Working Group will seek consensus on the best solutions and resolutions of the issues and present recommendations as they relate to the imagery program. Decisions that do not have a consensus may be tabled until next meeting or referred to the BNSDI Technical Committee for further resolution.

A call for consensus may be issued via email; if no objections are raised within 5 working days consensus will be considered achieved.

The Chair is the final arbiter if consensus cannot be reached in an appropriate amount of time

**9. Leadership**

The Chair(s) will be recommended by the MNR Head of BNSDI Department in consultation with the involved stakeholder organizations. The responsibilities of the Chair shall include:

- Call, prepare and distribute meeting agenda, and chair meetings of the working group
- Preside over working group decisions
- Provide executive oversight and leadership to advance efforts and activities in support of the working group purpose
- Report to the Executive and Technical Committee of any decision and recommendations

- 10. Meetings**                      Ensure that meeting minutes are accurate and publicly available.  
A minimum of 6 meetings shall be convened within 16 weeks. Additional meetings may be called at the discretion of the Chair.
- 11. Communication**              Written communication will take place via email. a workgroup page will be maintained on the BSDI Website maintained by the Spatial Data Department. Website postings will include:
- Charter
  - Workplan
  - Data Standard
  - Meeting Minutes
- 12. Dissolution**                    The working group will be dissolved upon completion of the identified deliverables.