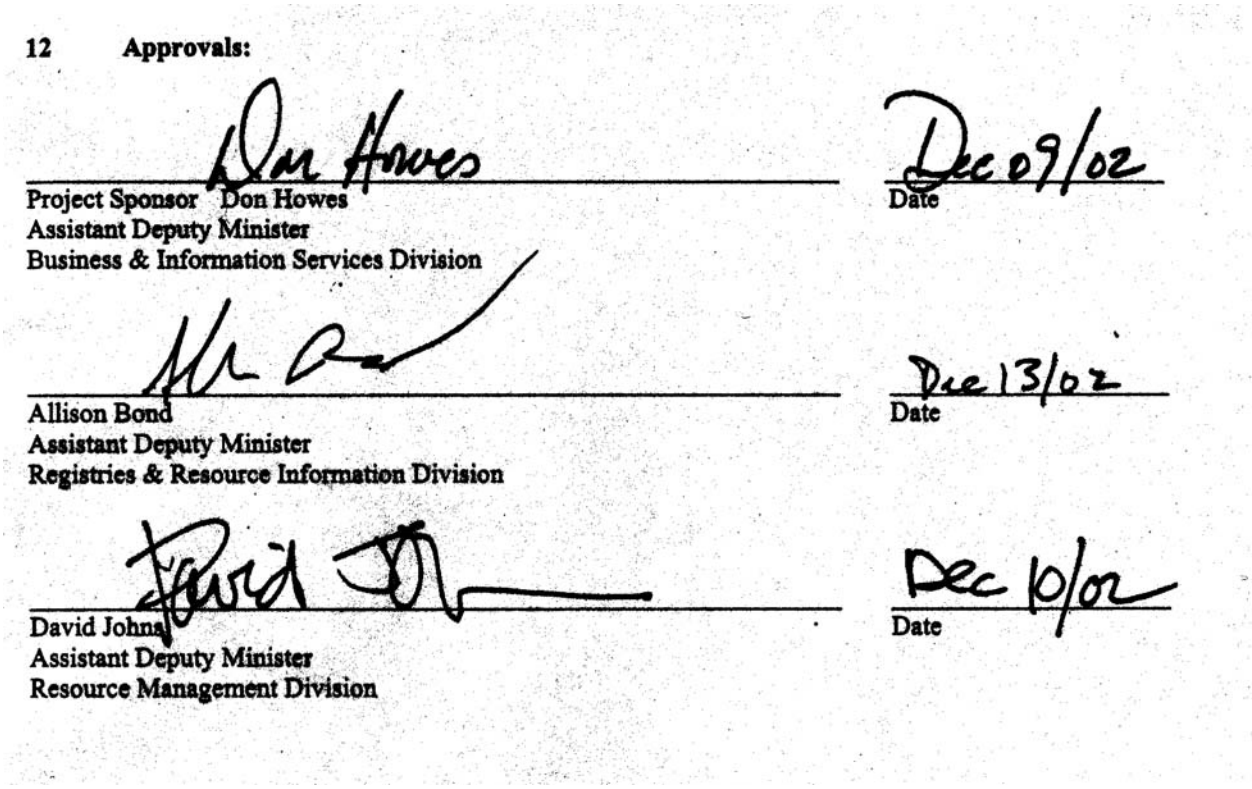
STANDARD OPERATING PROCEDURE

Base Mapping (TRIM) and Resource Inventories Mapping

The first issue of this Standard Operating Procedure (SOP) has been prepared by the Ministry of Sustainable Resource Management (MSRM) and is issued for use under the authority of the individual(s) identified in the Approval and Signature box below. The SOP will be administered by the Base Mapping and Geomatic



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Revision of any part of this SOP must be recorded in the table below. A brief description of the revision, with section number reference, shall be included. Revisions will become effective on the date that an authorized individual has approved and signed the revision.

rev'n No.	Revision made by	page #	Revision description	approved by	signature	Date
1	R.Johnson Manager AP&LS	6 7 8 10 11 12 13 14 16 17 83	*Para 3 re 'Roll out'* *(refer to Glossary)* *Section 1 penultimate para revised* *Section 2.1 'mapping projects with base mapping features and elements'* *Section 4.1 Figure 1-2 Org Chart as of Dec 2003 added* *Section 4.2 para 1 revised* *Section 4.2.1 para 1 revised* *Section4.2.1 web links relocated to Appendix H, web link for confidence levels added* *Section 4.2.2 web links relocated to Appendix H* *Section 4.3, 4.4, all references to GMOP sections changed to Core Policy Manual (CPM) sections.* *Section 4.3.1 contract amount removed.* *Reference to Agreement on Internal Trade removed.* *Section 4.3.2 BMGS QA status updated.* *Section 4.3.2 Specifications – bullet added* *Section4.3.2 Procurement template – deleted* *Section 4.3.3 Submission to Corporate Base Mapping Advisory Committee - deleted* *Section 4.3.4 final sentence revised.* *Section 4.3.7 refers to Freedom of Information and Protection of Privacy Act.* *Product audit clause added* *Appendix I added* *Appendix E. Procurement, Quality Assurance templates deleted, three templates revised*	R.Balser Director BMGS		24/03/04

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Appendix B - Letter from Co-Chairs of the Integrated Steering Committee (ISC) dated January 2002 – *Available at* *http://srmwww.gov.bc.ca/bmgs/sop/index.html*

Appendix C - Provincial Corporate Base Map Content & Standards Review report by Sierra – *Available at* *http://srmwww.gov.bc.ca/bmgs/sop/index.html*

Appendix D - Provincial Corporate Base Map Governance report by RLS & Associates – *Available at* *http://srmwww.gov.bc.ca/bmgs/sop/index.html*

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Preamble

In January 2002, a **Base Mapping (TRIM) and Resources Inventories Mapping Task Force** (TF) was established. The primary, but not the only deliverable, for the TF was a Standard Operating Procedure Document (SOP). The Terms of Reference (TOR) for the TF (Appendix A) gave additional guidance on the topics the SOP should address. The TOR instructed that the TF should complete its work within three months from its start date and then be disbanded.

The TF, comprising ten members, met every two weeks to discuss a wide range of issues faced by proponents of mapping projects. The TF sought to address the project needs of a wide range of map users and producers within Government agencies beyond those represented on the TF. While the private sector mapping users and producers were not represented on the TF, their interests were considered in development of the SOP. On completion of the TF's work, the applicability and use of the SOP will be explained to the private sector mapping industry users and producers in a series of meetings.

During the period December 2002 to November 2003 SOP, 'roll out' meetings to describe the SOP and obtain comments were held at Government offices throughout the Province for both Government staff and industry representatives. Similar roll out presentation were held for mapping industry participants and for those responsible for administration of the Forest Investment Account (FIA). Details of the meeting locations and presenters are in Appendix I. The Corporate Base Mapping Advisory Committee (CBMAC) meets on a regular basis. As of November 2003 27 submissions have been made to CBMAC.

The TF members addressed the process by which Government agencies acquire mapping products and services. That process has been captured in Process Flow Charts in the SOP.

Two key documents and a letter were reviewed by the TF members during a half-day meeting, as follows:

Report to Ministry of Sustainable Resource Management
Provincial Corporate Base Map
Content & Standards Review
Version 1.0 - September 15th, 2001
by Sierra Systems – *Available at http://srmwww.gov.bc.ca/bmgs/sop/index.html*

and

Provincial Corporate Base Map
Governance
Prepared for Ministry of Sustainable Resource Management
by RLS & Associates Consulting Inc. – *Available at*
http://srmwww.gov.bc.ca/bmgs/sop/index.html
September 11, 2001

Appendix B contains a letter from the Co-Chairs of the **Integrated Steering Committee (ISC) – *Available athttp://srmwww.gov.bc.ca/bmgs/sop/index.html*** dated January 2002 that gave Guidance on using the documents and establishing the documents as a key component of the policy of the Base Mapping and Geomatic Services (BMGS) branch of the Ministry of Sustainable Resource Management (MSRM).

Appendix C contains the **Executive Summary** of the **Provincial Corporate Base Map Content & Standards Review** report by Sierra **– *Available at http://srmwww.gov.bc.ca/bmgs/sop/index.html***, with identifiers showing which item was considered to be of relevance to the TF and for the SOP as determined by the TF members at their meeting.

Appendix D contains the **Recommendations** of the **Provincial Corporate Base Map Governance** report by RLS & Associates **– *Available at http://srmwww.gov.bc.ca/bmgs/sop/index.html***, with identifiers showing which item was considered to be of relevance for the SOP as determined by the TF members at their meeting.

This Standard Operating Procedure for the planning and implementation of mapping products and/or mapping services is the principal deliverable that the TF was mandated to produce.

1 Purpose

The purpose of this Standard Operating Procedure (SOP) is to provide direction to government agencies and partners with Government, in the documentation and procedures to be followed during the planning and implementation of mapping projects, inclusive of any aspect that relates to base mapping. The SOP will be applicable to mapping projects which have any component of Government funding. Base mapping, in this context, comprises a number of elements or features referenced in Appendix A, Section 11.1.

Specifications for each of the mapping elements or features will be addressed in more detail in subsequent sections of this SOP.

The Ministry of Sustainable Resource Management (MSRM), as the ministry with prime responsibility for governance of Base Mapping, and as the custodian of most, if not all, of the base map data, has the objective to ensure the following:

- That there is co-ordination between government agencies in the planning and delivery of mapping projects.
- That there will be a review process to avoid duplication of mapping projects.
- That if there is a base mapping component to a Government mapping project, that it will be done according to corporate standards e.g. TRIM and related specifications.
- That Base Map data from different sources is integrated on the Provincial Corporate Base Map i.e. TRIM (refer to Glossary).
- That effective use is made of business area expertise.

These topics will be addressed in this SOP.

Topics from the Sierra report (Appendix C) **– *Available at http://srmwww.gov.bc.ca/bmgs/sop/index.html*** and from the RLS & Associates report (Appendix D) **– *Available at http://srmwww.gov.bc.ca/bmgs/sop/index.html*** which the TF members decided should be addressed in this SOP are:

Sierra

- Update
- Data exchange

RLS

- Corporate standards

- One organization for coordinating
- Data exchange by BMGS

These reports were prepared prior to the establishment of the Partnership Branch of the MSRM.

This SOP will describe submissions to be made, endorsements required, both technical and administrative in the execution of a mapping project that relates to base mapping.

While this SOP has been prepared for use by government agencies it is recognized that it will have implications for private sector users and producers of map data, hence, it has been prepared with due recognition of private sector involvement.

2 Applicability

2.1 B.C. Government agencies

This SOP has been prepared for use by, and is applicable as follows:

- All ***mapping projects with base mapping features and elements (section 4.2.1)*** undertaken by any B.C. Ministry

Other agencies of B.C. Government over which MSRM (BMGS) has no authority, but who may find this SOP to be of value to both the agency and to the Government at large are:

- Agencies of the B.C. government which have mapping projects directly or indirectly, partly or wholly funded by the government e.g. Elections B.C., BC Assessment Authority.

- Crown Corporations which have mapping projects directly or indirectly, partly or wholly funded by the government e.g. B.C. Rail, B.C. Hydro.

- First Nations, Municipalities.

- Any other organization that wishes its data to be integrated into the Provincial Corporate Base Map.

2.2 Partners with Government

It is the intent of the MSRM to promote the merits and benefits of this approach in the planning and implementation of mapping projects to partners with Government in the private sector and with non-governmental organizations, because it makes good business sense.

The objectives of co-ordination, avoidance of duplication, use of corporate standards, integration of data from different sources into the Corporate base map, as in Section 1 PURPOSE, are expected to be as appealing to the private sector mapping industry users and producers, as to the Government.

MSRM will direct industry to adopt this SOP in projects that are directly or indirectly, partly or wholly funded by the Government or involve ‘in kind’ data exchange with Government. This situation could occur, for example, where a private sector industrial end user of mapping with a base map element or with base map features, contracts directly with a private sector map producer and seeks to offer the base map data produced under this private sector contract to the Government, under a data exchange agreement.

2.3 Typical Mapping Products, Services

This SOP has been written to be applicable to both ***mapping products*** and ***mapping services***. In this context, products are taken to be actual maps and similar products. Services are taken to be those activities which are undertaken in a mapping project but do not directly or immediately result in a map. Services can also be or will be used in map production at some time, e.g. aerial photography, scanning of aerial photographs. A chart, which shows the linkage between base mapping and other, mapping products and services, as well as the required level of precision for different categories of mapping, is shown in Appendix H.

Typical products include, but are not limited to:

- Terrain Resource Information Management (TRIM)
- Forest Cover (FC1) & Vegetation Resource Inventory (VRI)
- Ministry of Sustainable Resource Management (MSRM)
  Cadastral Data Management System /Crown Land Registry Service (CDMS/CLRS)
- Orthophoto
- Baseline Thematic Mapping (BTM)
- TWA (Watershed Atlas)

A more extensive list of base map products is included in Appendix C of the Sierra report.

Typical services include, but are not limited to:

- Services for the acquisition of aerial photography including flying, photographing
- Photography production and duplication
- Scanning of aerial photography
- Aerial triangulation both conventional and soft copy
- Production of orthophoto

3 RESPONSIBILITY & AUTHORITY

3.1 Responsibility & Administration

Responsibility for this SOP lies with of the B.C. Ministry of Sustainable Resource Management (MSRM) and will be administered by the Director of the Base Mapping and Geomatic Services (BMGS) Branch.

3.2 Authority

The Standard Operating Procedure is issued under the authority of the Assistant Deputy Minister (ADM) whose name and position within the B.C. Ministry of Sustainable Resource Management is identified on the title page of this document. Where a fundamental policy change within the government requires that the procedures described in the document are no longer appropriate, then the document shall be re issued complete by the authorized individual. Minor revisions shall be processed as described under the revision control procedure in section 3.3

3.3 Revision control of this document

This document is subject to revision control. Only the Director of the BMGS Branch, or an authorized designate, is authorized to approve revision of this document according to the instructions on the title page.

4 Procedure

4.1 General

An Organization Chart, Figure 1-1, shows the interaction between the Corporate Base Mapping Advisory Committee (CBMAC), a mapping project sponsor and other groups as of May 2002. Figure 1-2 shows the Organization Chart as of December 2003.

For the purpose of this SOP, the planning and implementation of mapping projects which include base map data, is considered to be organized into three phases as follows:

- Pre-Procurement project planning and definition.
- Procurement.
- Production, inspection, acceptance.

A Process Flow Chart (PFC) for these activities identifies a number of process steps. A Standard Procedure for each step will be described including the documentation to be produced, any submissions to be made, specifications to be used and records to be maintained for quality audit or inspection

4.2 Pre-Procurement

A Pre-Procurement Process Flow Chart (Figure 2) and a Data Exchange Process Flow Chart (Figure 3) show the typical planning activities involved in a mapping project before proceeding to procurement. The primary objective of this stage of the project is documentation which describes the project in sufficient detail for submission to, and review by the Corporate Base Mapping Advisory Committee (CBMAC). CBMAC will review and endorse the project, or will provide reasons if it is unable to endorse the plan. Following endorsement or failure to endorse by CBMAC, the decision to proceed with the project resides with the appropriate Expense Authority. The primary activities in these two PFC's will be described in the following sections.

4.2.1 Project Description

The project sponsor shall prepare a high level description of the mapping project with adequate detail to determine if it includes any of the following base map elements or features, and is suitable for review by CBMAC:

Elements of base mapping, refer to Appendix A:

- Acquisition of aerial photography - conventional film based or digital.
- Photography processing.

- Aerial triangulation - conventional.
- Aerial triangulation - soft copy.

- Digital aerial photography - scanned from film based photography.
- Digital Elevation Models.
- Orthophoto production.
- Other remote sensing techniques which acquire and process data to produce base map data.

Base map features as defined in the TRIM Specification reference as in Appendix F:

- Map features including; topography, planimetry.

TRIM specifications for base mapping include four data levels that can be accepted, (reference specification: Digital Baseline Mapping at 1:20 000 Appendix H-7). A method for assigning confidence levels to map data is described in the reference in Appendix F. These levels now enable a wider range of data to be incorporated into what is now the Provincial Corporate Base Map compared to the data which was compiled during the early years of the development of the TRIM programme.

A template for the submission of the project description to CBMAC, which addresses each of the topics in the Pre-Procurement PFC (Figure 2), is included in Appendix E.

4.2.2 Base Map Specifications

A list of Base Mapping specifications related to the Products and Services in Section 2.3 is included in Appendix F. Web sites at which Corporate mapping specifications can be found are also shown in Appendix F together with links to other Government web sites which have mapping specifications which may be of relevance to the project under consideration.

4.2.3 Data Exchange

Where a mapping project sponsor plans to engage in a data exchange with Government, a description of the data exchange shall be included with the project description described in section 4.2.1.

A template for the submission of the data exchange plan to CBMAC which addresses each of the topics in the Data Exchange PFC (Figure 3), is included in Appendix E.

It is desirable that a project sponsor who plans to engage in a data exchange with Government discusses the prospective data exchange with the Partnerships Branch of MSRM prior to the project submission to CBMAC.

For project sponsors who have not previously engaged in data exchange with Government, the Partnerships Branch and most probably the BMGS Branch will provide guidance on:

- specifications
- data quality
- commercial exchange value
- required approvals
- Terms & Conditions of a typical Data Exchange Agreement

4.2.4 Submission to Corporate Base Mapping Advisory Committee

The completed project description template together with the completed data exchange plan template shall be submitted for review and endorsement or otherwise by CBMAC. A decision will be provided to the Project Sponsor from CBMAC within 10 working days from receipt of project documentation.

The mapping project shall not proceed to the procurement phase before receiving endorsement from CBMAC.

The interaction between a mapping project sponsor, CBMAC, the Technical Working Groups and related agencies is shown on Figure 1-1 Organization Chart.

4.3 Procurement

4.3.1 General guidelines

The procurement process for mapping projects undertaken, according to this SOP, shall follow the most recent revision of the Government **Core Policy Manual (CPM).** CPM section 6.3 Policy , provides directives for the solicitation process in general.
While preparatory work can be done in advance, issue of the RFP shall proceed only after the project description (section 4.2.1) and the project data exchange (section 4.2.3) submissions have been made to and endorsed by CBMAC.

Mapping projects undertaken according to this SOP shall meet the following conditions:

- The lower threshold for the contract amount at which the CPM solicitation procedures apply shall be as in the CPM. Where the project is funded via the FIA, the FIA administrating agency shall establish the contract threshold amount at which the CPM solicitation procedure or FIA approved solicitation procedure applies.
- The solicitation process shall be Request For Proposal (RFP). In certain cases an Invitation to Quote (ITQ) solicitation may be appropriate. The RFP and ITQ solicitation methods shall be as described in CPM Section 6.3.2 Pre-award and Solicitation - para 5. Guidance on the use of the ITQ is contained in in a link from the CPM document
- The proposed project shall not be subdivided for reasons other than complexity.

4.3.2 Proposal Solicitation

The Procurement Process Flow Chart (PFC) (Figure 3) describes the steps in preparing the documentation for and in issuing an RFP.

The Quality Assurance (QA) related procedures which are to be requested in the RFP and which are described in the following sections are considered to be typical of those in use in professional service organizations that provide mapping services to Government and the private sector as of spring 2002. While these procedures are typical of those that may be used in organizations that are ISO 9001 (2000) compliant, organizations that choose not to have a formal ISO designation may find such procedures to be of value in producing map data.

In line with an emphasis on QA in its areas of responsibility, steps have been taken within BMGS as of spring 2002, to begin the process of ISO 9001 (2000) certification and registration. BMGS expects to undergo audit during spring 2004, with a view to achieving registration by mid 2004.

Accordingly, as noted on the Procurement Process Flow Chart, the RFP shall request respondents to provide the following:

Quality Assurance manual, inspection, acceptance

- That the prospective contractor has a documented QA manual and procedures which will be followed in the execution of the mapping project. The contactor shall submit the QA manual to the Project Sponsor for review and approval after contract award and prior to work commencement.

- That the contractor has documented inspection and acceptance procedures for the base mapping components of the work to be produced. The contactor shall submit the in-process and final inspection plan documents to the Project Sponsor for review and approval after contract award and prior to work commencement. That appropriate in-process and final inspection records shall be delivered with the product.

- That the Project Sponsor or designate shall have the right to inspect at any time, or attend any in-process or final product inspection at the sole discretion of the Project Sponsor or designate and that the contractor shall provide advance notice of the date of the final inspection.

- That the in-process and final inspection records shall be adequate to enable CBMAC or its designate to verify that the data meets the project mapping specifications and classification level whether CBMAC or its designate attends in-process or final inspections at the contractor's premises or not.

Equipment

- That equipment to be used in the production of the base map data is listed in the RFP response and that the equipment calibration is current e.g. photogrammetric instruments, cameras, scanners. Actual calibration documentation will be required for review and approval only after contract award and prior to commencement of the work.

  In cases where the Government is providing equipment to a contractor for use in the production of the base map data, similar information shall be provided in the RFP documents and prior to commencement of the work.

Personnel

- A list of personnel to be assigned to the project, with alternates, in the event that a designated individual is unavailable at the time of the contract execution, with confirmation that the personnel are qualified and experienced in the work they will be carrying out. Actual personnel qualification and experience documentation will be required only after contract award.

Schedule

- A production schedule for the mapping project.

Specifications

- The RFP shall identify the specifications, typically as in Appendix F, which shall apply in the production of the map data.

4.3.3 Evaluation of Proposals

Responses to the RFP shall be evaluated according to the requirements of 6.3.3 Contract Award – all procurement. A record of the evaluation, identifying the evaluation team, the method and the ratings according to the objective selection criteria included in the RFP, the contract price and the contractor selected for the contract, shall be sent to CBMAC at the time of contract award and retained by the project sponsor for record and audit.

4.3.4 Contract Price

The contract price shall be in accordance with the requirements of CPM 6.3.3 Contract Award – all procurement para a, b, c.

4.3.5 Contract

The contract documentation and Terms & Conditions and any contract changes and modification shall be according to the requirements of CPM 6.3.3 Contract Award – all procurement para d.

4.3.6 Contract Information Disclosure

Requests for information on the RFP process, the evaluation and contractor selection process and the contract award shall be responded to according to the requirements of the ***Freedom of Information and Protection of Privacy Act.***

4.4 Production

4.4.1 Post contract award actions

The Project Sponsor shall conduct the following post contract award activities and shall maintain project records for review/audit by CBMAC:

- ***Contract review meeting prior to start of the work***

  This meeting can be waived at the discretion of the Project Sponsor e.g. for routine contracts and where similar work has previously been successfully performed by a contractor who is familiar with Government procurement and contract procedures.

- ***Monitoring, evaluation, reporting***

  As identified in the RFP documents, contract monitoring, evaluation and reporting shall be according to the requirements of CPM 6.3.6 Contract Administration and Monitoring. This shall include a post contract evaluation.

- ***Contract change order***

  Any change in the contract deliverable requested either by the Project Sponsor or by the contractor, shall be documented and if accepted as to price, quality and delivery schedule, shall be changed in the contract according to the requirements of CPM 6.3.3 Contract Award – all procurement para d.9.

4.4.2 Quality Assurance

As required by the RFP and the contract document, the contractor shall provide to the Project Sponsor a copy of the contractor's Quality Assurance Manual, documenting the quality procedures which shall be followed in execution of the mapping project.

4.4.3 Inspection, Acceptance Procedures

The contractor's quality procedures for inspection and acceptance shall provide for, as a minimum, the following:

- ***In-process inspection, acceptance***

  As appropriate to each contract and depending on the project deliverable, documented procedures for each process in the mapping project, indicating the organization's practice for in-process inspection and checking of the map data production e.g. scanned data files, digital map data files, softcopy aerial triangulation data. The procedures shall indicate the original data producer, the inspector, and the date of inspection, the acceptance criteria and if the data passed the acceptance criteria. Inspection record sheet(s) shall be supplied with the product and shall be available for audit by CBMAC or its representative.

- ***Final inspection, acceptance***

As appropriate for each contract and depending on the project deliverable, the contractor shall advise the Project Sponsor at least one week in advance of the date on which the final product inspection shall be undertaken and the Project Sponsor reserves the right to attend or waive attendance. The Project Sponsor shall advise CBMAC immediately on receipt of the invitation to attend the final inspection and CBMAC shall at its sole discretion send a representative to the final inspection or waive attendance.

The final inspection procedures shall indicate the original data producer, the inspector, and the date of inspection, the acceptance criteria and if the data passed the acceptance criteria. Final inspection record sheet(s) shall be provided as a deliverable with the supply of the product.

4.4.4 Product Audit at contractors

CBMAC will undertake Product Audits at project sponsors and with their agreement, at sponsor's contractors and as applicable at contractor's sub contractors for the purpose of assessing if the production procedures meet the quality assurance requirements specified in this document and that the products provided for evaluation for acceptance into the Provincial Corporate Base Map meet the appropriate Specifications and Standards.

4.5 Data for Provincial Corporate Base Map

Base map data produced according to the requirements of this SOP and for incorporation into the Provincial Corporate Base Map shall be delivered to CBMAC complete with in-process and final inspection records. CBMAC or its designate will verify that the inspection records confirm that the base map data meet the project specifications and the classification level as proposed in the pre-procurement project description template submitted to and approved by CBMAC.

If CBMAC is unable to verify that the data meets the contract specifications and classification level, the data shall not be accepted and shall be returned to the contractor for re work and re submission.

Figure 1-1

Organization Chart as of May 2002

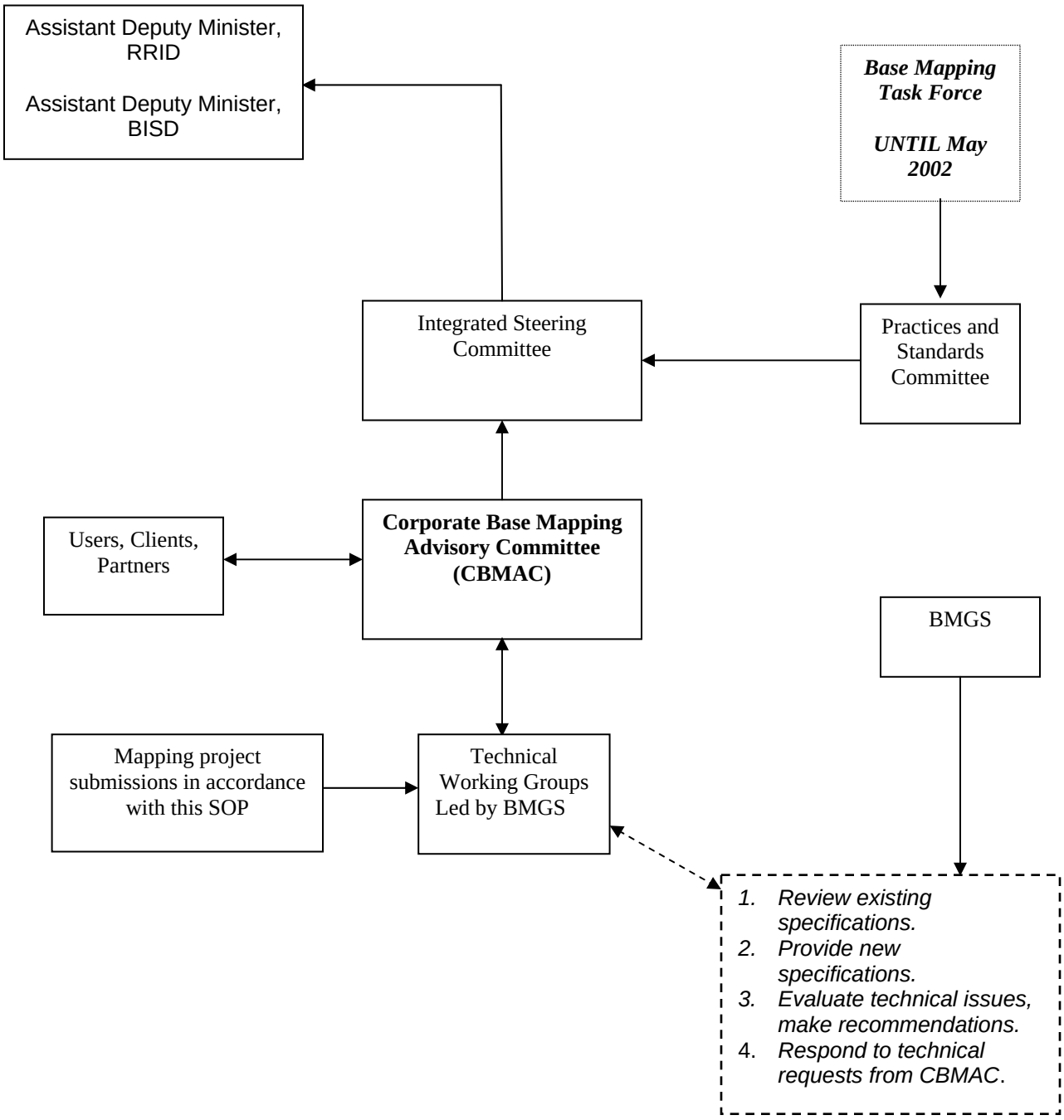
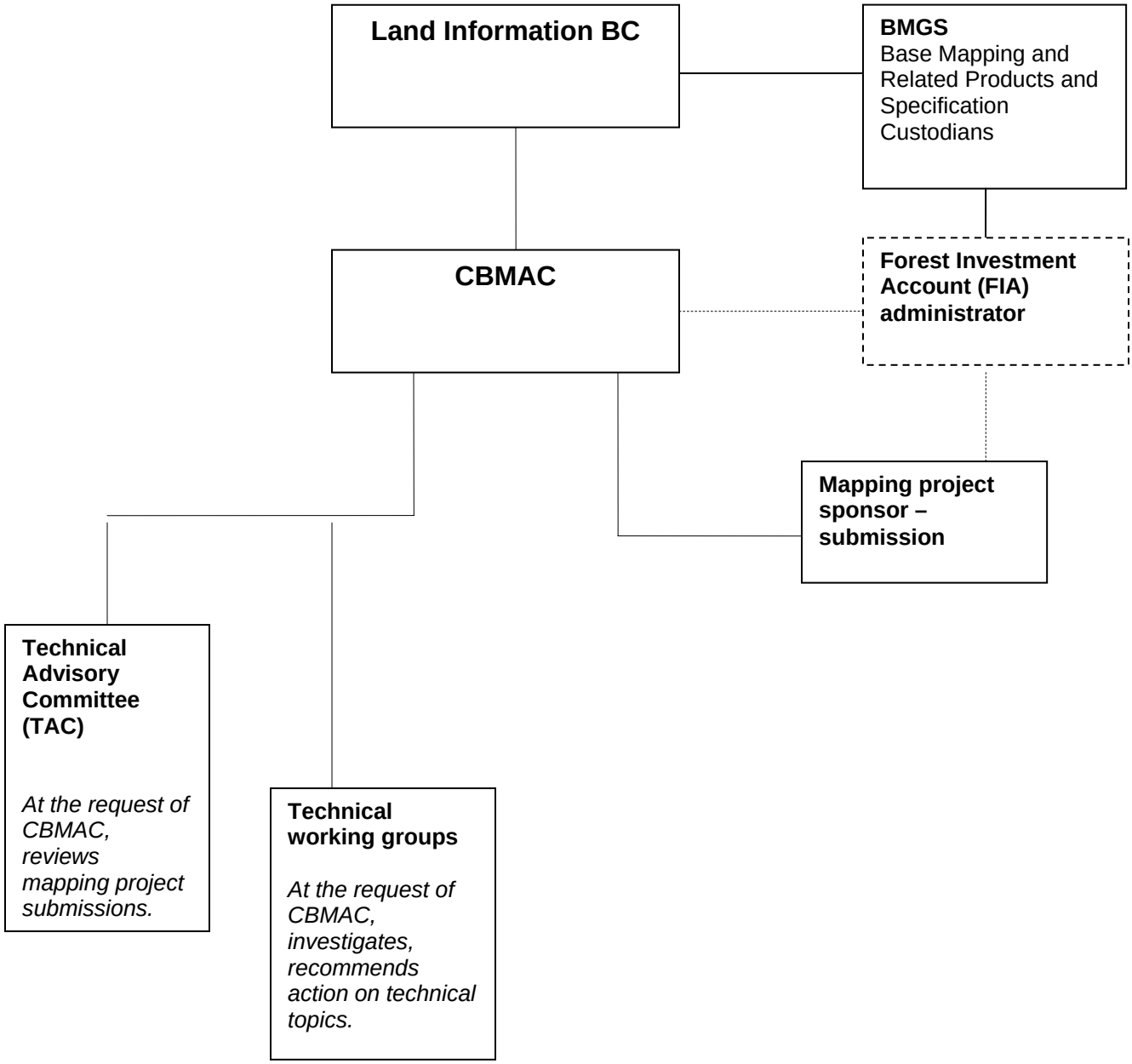


Figure 1-2

Organization Chart as of December 2003



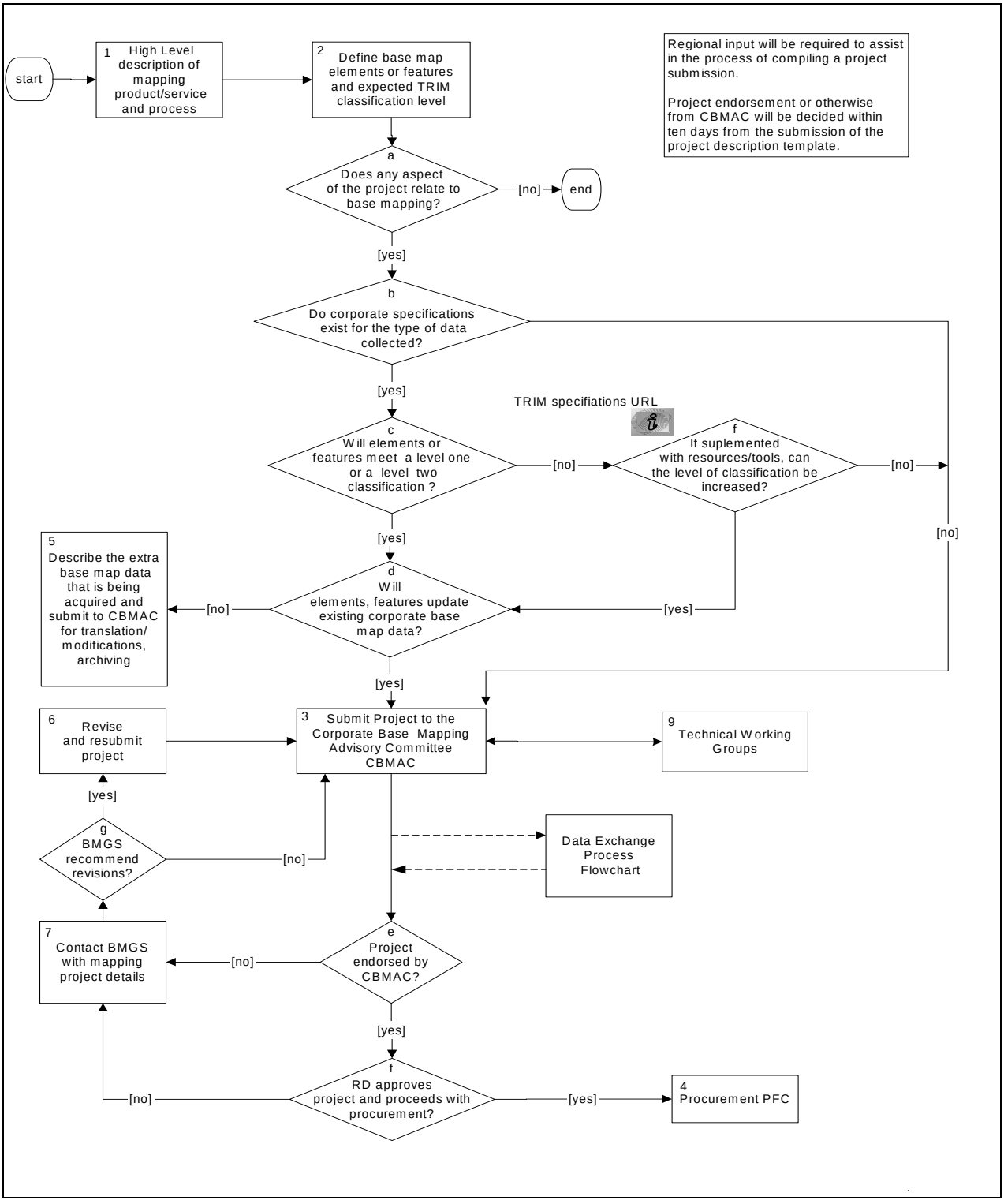


Figure 2 **Pre-Procurement Process Flow Chart**

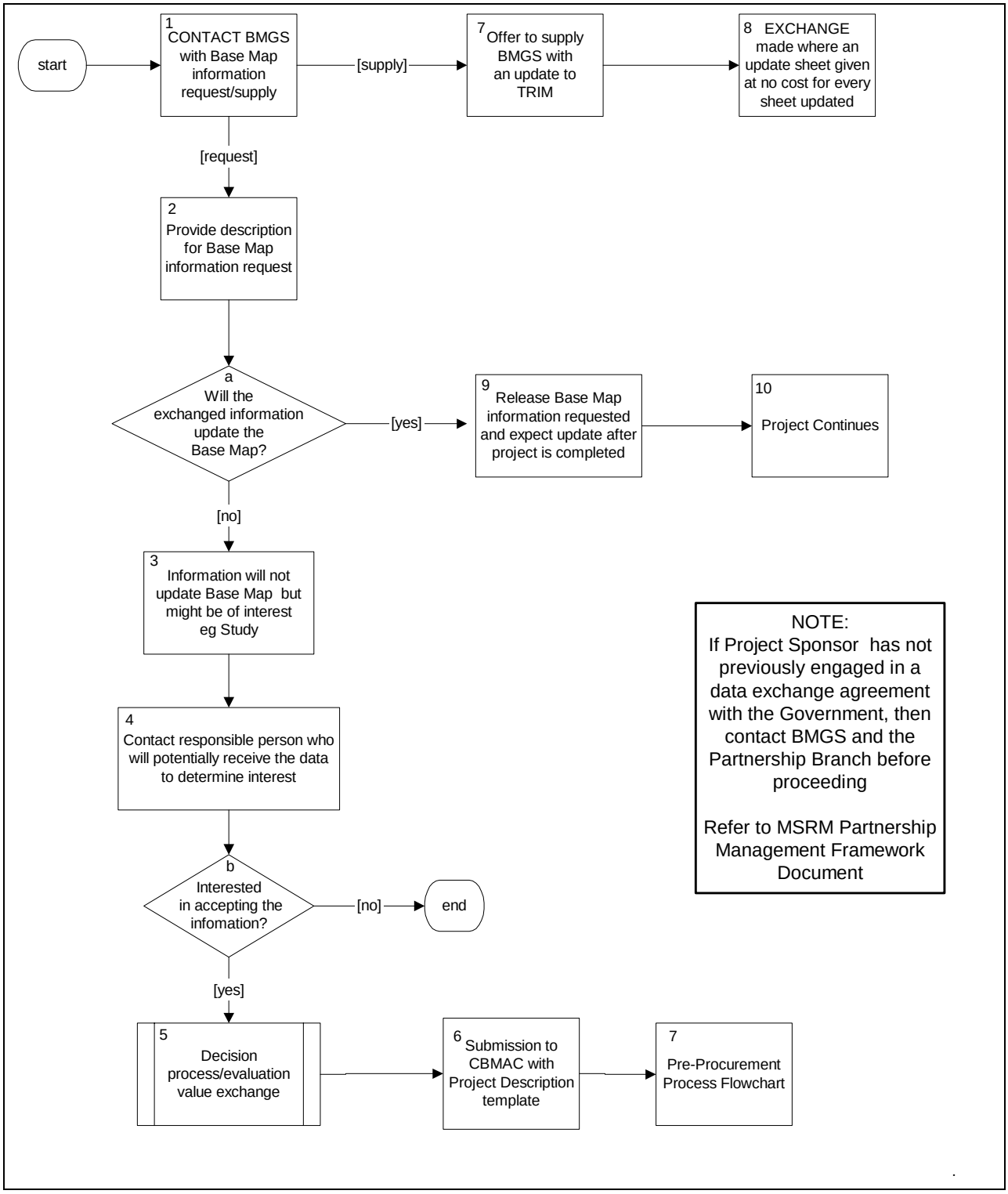


Figure 3 **Data Exchange Process Flowchart**

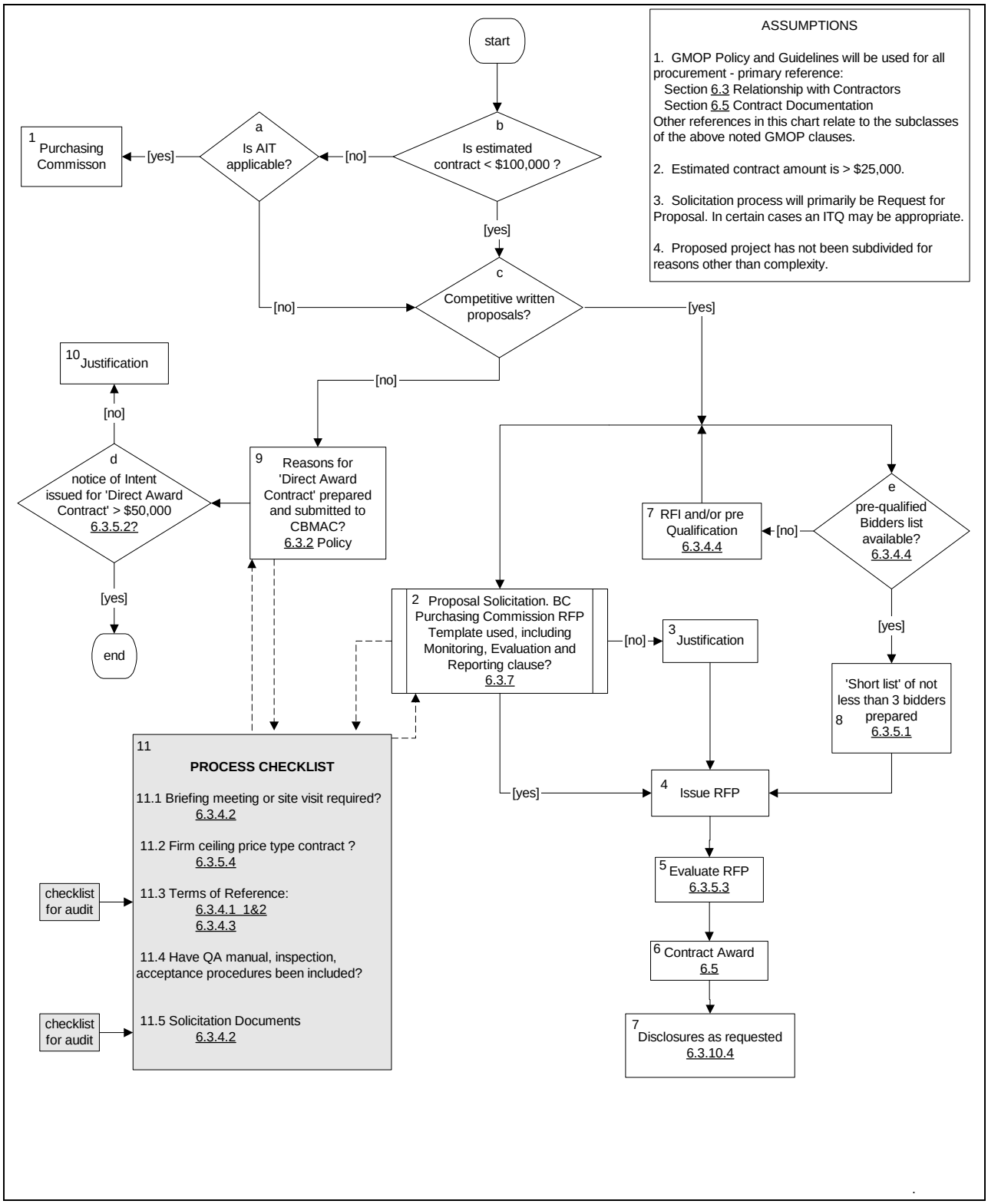


Figure 4 **Procurement Process Flow Chart**

Appendix E

A CBMAC submission is required for projects exceeding $5,000 or for any project involving a data exchange.

Part 1 Project, Sponsor, Contact information ☐

Part 2 Project Description ☐

If the proposed project includes data exchange with the Provincial Government, please complete the following Part 3.

Part 3 Data Exchange ☐

Note: CBMAC will respond within Ten (10) working days.

Please note in the box ☐ the Parts for which a submission is being made and e-mail to:

BMapPro@Victoria1.gov.bc.ca

Part 1 Project, Sponsor, Contact information

CBMAC Reference #	

1.	***Project Information***		
1.1	Project Title:	date:	
		☐ Initial Submission	
		☐ Revised Submission	

2.	***Project Sponsor***		**Internal Reference #**	
2.1	Project Sponsor: Name Position Organization			phone # e-mail
2.2	Primary Contact (same as above) ☐ Name Position Organization			phone # e-mail

3.	***Distribution***		
3.1	Data Exchange Information offered to: Not Applicable ☐ BMGS ☐ Other ☐ Other Organization Contact Name Position		phone # e-mail
3.2	Submitted to local contact for information Yes ☐ No ☐ Name Position Organization		phone # e-mail
3.3	Submitted for review to:	**Chair,** **Corporate Base Mapping advisory Committee (CBMAC)**	
	CBMAC review (For Committee Use)		
3.4	CBMAC endorsement Note: Ten (10) working days turnaround	Yes ☐ No ☐	If no, then CBMAC will provide reasons and recommended revisions for review by the Project Sponsor.	Date:

End part 1

Part 2 Project Description

4.	***Project Description***	
4.1	Project Type	
	☐ TRIM	☐ Terrestrial Ecosystem Mapping (TEM)
	☐ TRIM Watershed Atlas	☐ Vegetation Resource Inventory (VRI)
	☐ Airborne and/or Satellite Remote Sensing	☐ Predictive Ecosystem Mapping (PEM)
	☐ Non-Obligatory Bark Beetle Management Activities	☐ Other – Describe in 4.3
4.2	High Level (Brief) Description of the Project	
4.3	Detailed description of a non-standard project, (If not on the Project Type list above) Including typical and potential users for the mapping product/service.	
4.4	Proposed Project Area	BCGS sheet #(s)

5.	***Corporate Base Map Specifications***			
	Base map ELEMENTS included in the project Refer to Appendix F for links to specifications	Using Corporate Spec'ns (BMGS)	Additional Spec'n Required?	Comments/ Spec'n requirements
5.1	☐ flying and aerial photos - film based	☐	☐	
5.2	☐ photo processing	☐	☐	
5.3	☐ scanning - aerial photography	☐	☐	
5.4	☐ aerial triangulation – Diapositives	☐	☐	
5.5	☐ aerial triangulation - Scans	☐	☐	
5.6	☐ digital elevation models	☐	☐	
5.7	☐ viewable stereo model files	☐	☐	
5.8	☐ orthophoto production	☐	☐	
5.9	☐ other remote sensing – description	☐	☐	
5.10	☐ other	☐	☐	

6.	**Base Map FEATURES included in the project** Refer to Appendix F for links to specifications	Using Corporate Spec'ns (BMGS)	additional Spec'n Required?	comments/ Spec'n requirements
6.1	□ aerial triangulation feature class	□	□	
6.2	□ hydrographic feature class	□	□	
6.3	□ hypsographic feature	□	□	
6.4	□ land cover feature class	□	□	
6.5	□ land form feature class	□	□	
6.6	□ land mark feature class	□	□	
6.7	□ text feature class	□	□	
6.8	□ transportation feature class	□	□	
6.9	□ other	□	□	

7.	***Data collection methods for mapping project***	
	Field Data Capture	**Additional Details**
7.1	□ Aerial photography	Scale 1: Emulsion: B&W □ Colour □ Other □
7.2	□ scanning aerial photography	Resolution:
7.3	□ GPS	Accuracy:
7.4	□ other remote sensing	Describe:
7.5	□ other	
	Control	
7.6	□ aerial triangulation – Diapositives	
7.7	□ aerial triangulation– Scans	
7.8	□ other	
	Data Process	
7.9	□ rubber sheeting	
7.10	□ table digitizing	
7.11	□ photogrammetric	
7.12	□ digital elevation models	
7.13	□ other	
	Office Data Capture	
7.14	□ orthophoto	
7.15	□ viewable stereo model files	
7.16	□ other	

9.	***Project Details***		
9.1	Expected TRIM classification level? Refer to Appendix F for links to specifications	☐ Level One ☐ Level Two ☐ Level Three ☐ Level Four	Comments
9.2	If supplementary resources are used can additional base features be captured? E.g. updates to roads in a VRI project	☐ yes ☐ no	If yes, then submit data to CBMAC technical advisory group.
9.3	Will elements or features update existing corporate base map data?	☐ yes ☐ no	If no, describe the data that is being acquired e.g. study.

10.1	Estimated Project Schedule	start date:	finish date:	
10.2	Constraints: seasonal dependencies resources technical equipment			
10.3	Proposed Delivery Schedule	First Delivery:	Milestones:	Final Delivery:
10.4	Estimated project value:	$5 000-$50 000 ☐	$50 001-$100 000 ☐	$100 001-$150 000 ☐
		$150 001-$200 000 ☐	$200 001-$250 000 ☐	$250 001-$300 000 ☐
		$300 001-$400 000 ☐	$400 001-$500 000 ☐	$500 001-$1 000 000 ☐
		$1 000 000 < ☐		
10.5	Source of funding	FIA ☐ Government ☐ Non-Government ☐		
10.6	Procurement process:	Forest Investment Account (FIA) Approved procurement process ☐ Core Policy Manual (CPM) Procurement process ☐ Other approved procurement process (Non-Government Funding) ☐ Describe:		

11.	***Project Legacy***	
11.1	List any known projects covering this area,	Provide description and year of mapping project.
11.2.	Other relevant technical information:	

End part 2

Part 3 Data Exchange

12.	***Does the Project Sponsor have a current Base Mapping Data Exchange agreement with Base Mapping and Geomatic Services?***		☐ yes ☐ no	If **yes,** Quote agreement number and Submit : If **no,** Continue.	
13.	***Describe the base map data REQUESTED from BMGS***			14.	***Describe the base map data to be SUPPLIED to BMGS***
13.1	☐ aerial photography – film based			14.1	☐ aerial photography – film based
13.2	☐ aerial photography reproductions			14.2	☐ aerial photography reproductions
13.3	☐ aerial triangulation-scans and adjustments			14.3	☐ aerial triangulation-scans and adjustments
13.4	☐ aerial triangulation-conventional			14.4	☐ aerial triangulation-conventional
13.5	☐ scanned- aerial photography			14.5	☐ scanned- aerial photography
13.6				14.6	☐ digital elevation models
13.7	☐ viewable stereo model files			14.7	☐ viewable stereo model files
13.8	☐ orthophoto			14.8	☐ orthophoto
13.9	☐ digital base map data file	☐ TRIM ☐ 1:250,000 ☐ Gridded DEM ☐ TRIM DEM ☐ Enhanced Base Map ☐		14.9	☐ digital base map data file	☐ TRIM ☐ 1:250,000 ☐ ☐ ☐ ☐
13.10	☐ geo spatial control	☐ BCACS ☐ MASCOT ☐ CDGPS		14.10	☐ geo spatial control	☐ GPS ☐ MASCOT ☐
13.11	☐ other remote sensing	☐ LandSat ☐ SPOT ☐		14.11	☐ other remote sensing	☐ LandSat ☐ SPOT ☐
13.12	☐ other Provide description of requested information.			14.12	☐ other Provide description of non TRIM data offered in exchange for BMGS data. Provide contact information for this data supply if different from the Project Sponsor contact.	

15.	***Project Location for data REQUESTED***			16.	***Project Location for data SUPPLIED***	
15.1	Proposed Project Area Same as 4.4 ☐	BCGS sheet #(s)		16.1	Proposed Project Area Same as 4.4 ☐	BCGS sheet #(s)
15.2	Number of BCGS map sheets (equivalent) and location			16.2	Number of BCGS map sheets (equivalent) and location	
15.3	Details for data requested			16.3	Details for data to be supplied	
15.4	Number of air photos requested			16.4	Number of air photos to be supplied	
15.5	Data for other base map elements. e.g. any items in table 13			16.5	Data for other base map elements e.g. any items in table 14	

17	***Exchange Conditions***		
17.1	Will BMGS be offered data at no cost *on project completion*, in exchange for providing the Provincial data at no cost to the sponsor?	☐ yes ☐ no	If yes, then proceed with Partnership Management Framework and/or Corporate Policy Division documents. If no, then describe the data or information to be offered to BMGS in exchange for the TRIM data requested.
17.2	Do clients have data exchange conditions?	☐ yes ☐ no	Describe conditions.

18.	**Data Offer Acceptance (for Committee Use)**		
18.1	Interested in accepting information?	☐ yes ☐ no	If yes then evaluation of data offered, and proceed with Partnership Management Framework and/or Corporate Policy Division documents. Wording? If no, then no data exchange agreement.

End part 3

Appendix F Reference Specifications and Links

Aerial photography specifications
http://srmwww.gov.bc.ca/bmgs/airphoto/air_photo_specifications.htm

Geospatial reference MASCOT
http://maps.gov.bc.ca/apps/mascot__

GPS specifications
http://srmwww.gov.bc.ca/bmgs/gsr/gsr_standards.htm#specifications_control_gps

TRIM Standards (Content & Specifications)
http://srmwww.gov.bc.ca/bmgs/trim/trim_specs.html

Specifications For Aerial Triangulation
http://srmwww.gov.bc.ca/bmgs/trim/trim/trim/atspecs98.pdf

Digital Orthophoto Specifications
http://srmwww.gov.bc.ca/bmgs/trim/trim/orthospe.pdf

Resources Information Standards Committee (RISC) Web site

http://srmwww.gov.bc.ca/risc/index.htm
http://srmwww.gov.bc.ca/risc/standards.htm

- Terrestrial Ecosystems - Ecology
- Terrestrial Ecosystems - Biodiversity
- Terrestrial Ecosystems - Vegetation

Geology - Specifications and Guidelines For Bedrock Mapping In British Columbia
http://srmwww.gov.bc.ca/risc/pubs/earthsci/bedrock/

Guidelines and Standards to Terrain Mapping in British Columbia – NOTE: not formal specifications but information guides
http://srmwww.gov.bc.ca/terrain/index.html

Visual Landscape Inventory: Procedures and Standards Manual
http://srmwww.gov.bc.ca/risc/pubs/culture/visual/index.htm - a

Roads - Digital Road Atlas
http://srmwww.gov.bc.ca/bmgs/dra/index.html

Appendix G Glossary

Accuracy The closeness of an estimated (measured or computed) value to a standard or accepted value of a particular quantity, i.e., relates to the quality of the result.

With regards to numbers in a mathematical table or those produced by a computer Accuracy may mean: (a) the number of significant digits in the numbers, (b) the order of magnitude of the least significant digit. (See also Precision).

Aerial photography Traditionally, aerial photography refers to the process of capturing photographic images in the visible light spectrum from airborne platforms and to the products of this procedure (diapositives and paper prints).

Aerial Triangulation The main objective of aerial triangulation is to “extend” the density of ground control points to ensure the accurate orientation of the stereo models necessary for compiling orthophotos or line mapping in digital or analogue form. This is achieved by using a bridging instrument to measure the positions of all control points, both surveyed ground control and pre-selected photogrammetric points, within each stereo model space of a project.

An adjustment program is then used compute ground control values for the photogrammetric points by mathematically linking all of the readings previously made and performing a best fit to the known values of the ground control points.

Base Mapping The physical base maps and the mapped features (1:250,000, TRIM, 1:10,000, 1:5,000 and other scales as produced by or through BMGS), contours and Digital Elevation Models (DEMs)

Corporate Base Map The official base map (and its related products) for the province of British Columbia, essentially being the Terrain Resource Information Management (TRIM) program.

Local Contact Local contact with information to offer or who would benefit from being informed of the project status

Mapping Product An actual map and similar product

Mapping Service Activities undertaken in a mapping project, which do not directly or immediately result in a map. Services can or will be used in map production at some time.

Meta Data Data about data, it typically includes information such as currency, accuracy, extent, custodianship, and collection methodology. Meta-data is typically stored in data models, dictionaries, schemas and other representations.

Orthophotos An orthophoto is an image that has been rectified to remove the relief shifts and camera tilt present in standard perspective photography. This conversion can be controlled by the use of a raster Digital Elevation Model and image rectification algorithms. Included in this category is remotely sensed imagery.

Precision A measure of the tendency of a set of random numbers to cluster

about a number determined by the set. The usual measure is either the standard deviation with respect to the average i.e., relates to the quality of the method by which the measurements were made and is distinguished from accuracy which relates to the quality of the result.

Primary Contact Person to be contacted for detailed information

Project Sponsor Person who initiates and plans the project.

Project Title Short descriptive name with geographic reference

Pre-set stereo models - Pre-set stereo models are overlapping image pairs that have been pre-oriented, by incorporating control points, or bundle parameters, derived from aerial triangulation. A desktop mapping system is able to use these images to view geo-spatial information 3-dimensionally.

Revised Submission A submission to clarify the details of a project submitted previously.

Rubber Sheet A procedure to adjust features of a coverage in a non-uniform manner. Links representing 'from' and 'to' locations are used to define the adjustment

Scanning and Scanned Images - Scanning is a procedure that employs a computer controlled scanning device to convert a hardcopy image or document into a pixilated digital file.

ACRONYMS

ADM	Assistant Deputy Minister
AIT	Agreement on Internal Trade
BISD	Business and Information Systems Division
BMGS	Base Mapping and Geomatic Services
BTM	Baseline Thematic Mapping
CBMAC	Corporate Base Mapping Advisory Committee
CDMS	Cadastral Data Management System
CLRS	Crown Land Registry Service
DEMs	Data Elevation Models
FC1	Forest Cover
GMOP	Government Management Operating Policy
ISC	Integrated Steering Committee
ITQ	Invitation To Quote
MSRM	Ministry of Sustainable Resource Management
MoF	Ministry of Forests
OM	Other Mapping
P&SC	Practices and Standards Committee
PFC	Process Flow Chart
QA	Quality Assurance
QC	Quality Control
RFP	Request For Proposal
RRID	Resources and Registry Information Division
SOP	Standard Operating Procedure
TEM	Terrestrial Ecosystem Mapping
TF	Task Force
TOR	Terms of Reference
TRIM	Terrain Resource Information Management
TWA	TRIM Watershed Atlas
VRI	Vegetation Resources Inventory

Appendix H

Schematic Guide to Access and Management of Base Mapping,
Related and Referenced Mapping Products
(Portal View to the Data Warehouse)

Appendix I

‘Roll out’ presentation of Standard Operating Procedure

Presenters:

- **Ron Johnson BMGS**
- **Paul Quackenbush BMGS**
- **Jim Hogg BMGS**
- **Gord Fish BMGS**
- **R.L.Williamson (Prismoid Consulting)**

Locations:

- **Prince George 11 Nov 02**
- **Williams Lake 19 Nov 02**
- **Smithers 10 Dec 02**
- **PWC Vancouver 9 Jan 03**
- **Kamloops 20 Jan 02**
- **Fort St.John 18 Feb 03**
- **Richmond * 27 Feb 03**
- **Nanaimo 25 Mar 03**
- **Nelson 1 May 03**
- **Victoria 24 Sept 03**

- **The SOP was presented to approximately:**
  - **50 Industry Clients**
  - **100 Government Staff**
  - **20 *Mapping Industry Representatives**

40 comments and suggestions were collected and acted upon.