

FIA Funding Pressure Request for 2008-09

To be presented and discussed at Forest Investment Council (January 24, 2008)

1 Funding Issue – Information Component

The Ministry of Forests and Range is moving forward with a Resource Roads Act that is to be submitted in the 2008 Spring Session of the Legislature. The act will be aimed at ensuring improved management of resource roads in BC, primarily through the rationalization and coordination of the multiple regulatory and permitting processes that currently exist. An underlying assumption is that a roads inventory can be put into place that will be useful in this context to both government and industry.

An examination of the Province's management of the resource roads has led to the conclusion that the inventory is in poor shape. At least 100,000 km of resource roads are missing altogether. Limited or no attribution is available for many of the roads that have been inventoried. As well, because of missing data required to make a transportation network, the roads in the government data holdings often appear as random, disconnected segments. The current roads data is inadequate for either government or industry.

Although the ILMB, under the Base Mapping program, has the mandate to keep current base mapping information, it relies on other ministries to provide the necessary information on disturbances on the land base to be integrated into the common base map of the province (TRIM). General map updates based on available new photography, is also used to effect map updates. The ILMB has also relied on Data Exchange Agreements, whereby TRIM base maps are exchanged for roads and other updates from forest licensees and other operators on the land base. Despite these efforts, the reality is that the provincial base is on average 10 years old and is not able to effectively meet the needs of government and industry.

The ILMB is proposing to move in new directions to address the base mapping shortfalls. Under GeoBase BC, the TRIM program will be revamped to better meet government and industry needs. TRIM Data Exchange Agreements will be abandoned, TRIM will be modernized by putting it into a true database environment and segregating the layers into discrete themes such as roads so as to enable better data management, data update, and data access. Under this proposal, TRIM will be freely available to the forest industry and roads update will be streamlined through the Ministry of Forests' enabling infrastructure, i.e. through the Electronic Submission Framework. Access to the data, as integrated into the GeoBase BC base mapping data base and published in the LRDW, will be faster and easier. Orthophotos are already in the process of being made viewable through Google Earth and downloadable raw orthophotos will be accessible to industry at the distribution cost of \$50 on DVD.

There is broad industry support for this direction. Much work has been done over the last six months under the North-East pilot on base mapping and vegetation resource inventory to work collaboratively between government and industry to better understand the issues and devise strategies for more effective ways to keep base map components up to date

and more accessible. Industry supports the dropping of TRIM data exchange agreements, the freer access to TRIM data, the rationalization to a single mechanism (i.e. ESF) for forest industry updates (and ePASS for oil and gas related updates), and the better upkeep of the base through segregation of base features into manageable chunks (e.g. roads vs seismic vs streams vs better elevation models vs orthophotos) that afford a good value proposition for moving forward.

As well, the requirement for more upto date and more accessible base mapping is of broad interest and is required for emergency response, evacuation orders, fire fighting, oil and gas planning activities and operations, forest planning and operations, transportation, utilities planning and management, etc. The new directions are meant to address all of these requirements by setting the foundational pieces for the more upto date mapping and access to such features as streams, digital elevation data, place names, etc. For instance, it is intended to work with the oil and gas industry to seek further support on the development of more upto date mapping components (e.g. seismic lines and better elevations) of particular interest to that sector while also being of broad interest to other sectors. It is in this sense that this proposal is streamlined to focus on resource roads and the interest in forestry to deal with the problem of inadequate mapping of roads. This proposal will reduce direct costs and improve timeliness in information for industry operating on the land base.

The realization of a complete and current road inventory requires action on two fronts; (1) addressing the backlog of missing resource roads and (2) maintaining the currency and completeness of the road inventory. As noted herein, the work proposed will leverage already available information from government and industry (e.g. current TRIM data, Digital Roads Atlas, Corporate Watershed Base, MPB supported orthophotos, satellite imagery, roads data from industry) as well as infrastructure investments at ILMB and MoFR (i.e. TRIM currently being reprocessed into new GeoBase database environment, new GeoBC access improvements to LRDW, and ESF infrastructure improvements).

1. Addressing the backlog of missing roads:

The primary source for capturing the backlog of missing resource roads (estimated at 100,000 km across BC) will be from ortho-photography and high-resolution satellite imagery. Simple 2D mapping can affordably identify roads missing from our current inventory as well as identify roads in our inventory that have been altered or that no longer exist.

The backlog capture process will take advantage of other credible sources (industry, Forest Districts, Regional Districts) that can both reduce the mapping effort and add required attribution. For example, CanFor has indicated support, arising from the so called North East pilot project on base mapping and vegetation resource inventory, to pilot the rationalization of their database of roads with provincial sources and the new imagery. Having imagery available will greatly facilitate the integration of these other sources and ensure that the resulting geometry is reasonable.

The estimated costs for this task is about \$1.40 / sq km, for a total estimate of \$1 M for the 700,000 sq km (70%) of BC that is actively roaded. Because most of the missing roads are pre-2004 (i.e. before ABR) the government's existing coverage (2004 to 2007) of ortho-photograph and high-resolution satellite will suffice for accomplishing this task, eliminating the need to purchase imagery. Confirmation of true completeness and currency will depend upon the rigour applied to the maintenance process as described in (2) below.

2. Maintaining the currency and completeness of the road inventory:

The overall maintenance strategy for the road inventory is to make it practical for the road builders to maintain the inventory themselves. Additionally, the Roads Commission, to be established by the Resource Road Act, will likely require that the road builders submit road information in a standard form.

Existing road mapping and current imagery will be made available over the Web and will allow the integration of new roads in an easy and thorough manner, using tools and the database hosting environment provided by the government.

Industrial players will be treated as "trusted partners" and their submissions will undergo automated quality assurance. It is assumed that this submission process will be rigorous and will capture all new roads and hence it will be acceptable to purchase imagery for facilitating Web submissions and validating completeness every second year.

The requirement for new imagery every second year for the actively roaded part of BC implies acquiring 300,000 sq km of coverage every year. This amount of coverage is equal to the annual (2004 - 2007) combined coverage of ortho-photo and high-resolution satellite acquired for purposes such as MPB monitoring. This suggests that the image coverage requirement for road mapping could be met from purchases for other purposes if current acquisition rates are maintained (possibly questionable as the MPB infestation is winding down). The lowest cost image product suitable for road mapping is SPOT 5m data with a total annual cost of \$500,000 (\$1.65/sq km x 300,000 sq km).

Funding will be applied to:

- a) Capture the missing "backlog" roads
- b) Provide the necessary web tools and road and image data such that road builders can easily submit information on the roads they build.
- c) Manage and maintain the road inventory system infrastructure under GeoBase BC to ensure a complete, current and authoritative road inventory is available for BC.

2 Funding issue submitted by

*Mike Lambert, Associate Deputy Minister
Integrated Land Management Bureau*

On behalf of *GeoBC*
add MoFR?

3 Is the issue currently being addressed under FIA? NO

If no, provide a rationale for why this is a pressure.

The pressure comes about because of the anticipated passage of the Resource Road Act in 2008 and the recognition that implementation difficulties will ensue if the management of the resource roads inventory is not significantly improved.

Targeted, strategic funding is required to address both the backlog of forest roads and to build the infrastructure required to maintain the road inventory over the long term.

There is also increasing pressure from industry to either forego a provincial roads inventory altogether, or put a program into place that will be meaningful for industry and the government. Because of this pressure the As Built Roads program in MoFR has been stopped, since it was not able to produce information deemed effective by anyone. Approval of this request will allow MoFR to correct the situation, working with ILMB. Benefits will also flow to other partners including industry, the Oil and Gas Commission, Ministry of Energy Mines and Petroleum Resources, Ministry of Environment, and recreational concerns.

4 Funding Requested

The following budget and outcomes are intended to address the backlog and infrastructure needs identified above to ensure best return on investment.

Budget Item	2007/2008	2008/2009	2009/2010	2010/2011
Backlog subproject	\$ 50,000	\$ 450,000	\$ 450,000	\$ 50,000
GeoBase BC Infrastructure to support inventory and maintenance	\$ 150,000	\$ 350,000	\$ 200,000	\$ 100,000
Imagery to support maintenance	\$ 300,000*	\$ 500,000*	\$ 250,000*	\$ 100,000*
Communications	\$ 10,000	\$ 25,000	\$ 25,000	\$ 25,000
TOTAL	\$510,000*	\$ 1,325,000*	\$925,000*	\$ 275,000*

* image acquisition cost of \$500,000 / year, only required if no image acquisition funded by other programs

The project would begin February 1, 2008 and end on March 31, 2010. Maintenance would kick in April 1, 2010 at a rough cost of \$250,000 per year. However, it is expected that new technology developments will drive the costs down for updates in the long run.

Over the twenty-six month project, there will be progressive deliveries of updated mapping to industry. This includes:

- Month 1: free access to TRIM data to all forest licensees (streamlined access to contractors and other consultants by month three)
- Month 4: access to newly acquired satellite imagery in priority area

- Month 6: pilot on updated roads with new imagery and CanFor roads data completed
- Month 6: first version of GeoBase BC with improved access to TRIM data available
- Month: 12: updated roads for x % of the province available
- Month 18: updated roads for y % of the province available
- Month 18: enhanced access to base data through GeoBase version 2
- Month 22: updated roads for z % of the province available
- Month 26: final updated roads for province available and maintenance program in place

Under the maintenance program, it is expected that road updates received from the ground would be integrated into the base and made accessible within a three month turnaround.

The above costs are also incremental to the investments already being made by the ILMB and its partners to fund the base mapping program in the province. This includes over \$2M per year on TRIM and roads data capture, management and access. However, given the transformative nature of this proposal, the requested funding will not only enable better and more complete roads information, but it will also lay the foundation for streamlining other base map updates in the future, i.e. enabling industry and other players to more easily update and use the base.

Outcomes:

1. A current, complete and authoritative Road Inventory
2. Facilitate improved management of BC's resource roads, including:
 - better coordination of regulatory processes
 - enhanced public security and safety
 - more effective access control
 - reduced environmental impact
 - increased operational efficiencies
 - equitable cost and liability sharing
3. Improved access to data required by licensees to conform to FRPA as well as improved access by government staff.
 - The value of the original investment is realized, as the data is now accessible.
 - Licensees and regulatory arms of the Province are using the same inventoried data.
4. Data accessible to Government and Industry clients through Natural Resource Information Centre portal (NRIC) and corporate access tools
5. Increased certainty in data resulting in better land-use decisions
6. Lower cost through coordinated approach resulting in better outcomes.
7. Better defined roles & understood accountabilities for both industry and Government stakeholders.
8. Stronger linkages to business outcomes – business, industry, public focus