Project No.: 050116

# Report on the Review of Forest Service Road and Bridge Maintenance

## Ministry of Forests and Range

**Internal Audit & Advisory Services**
**Office of the Comptroller General**
**Ministry of Finance**
**Province of British Columbia**

Date of fieldwork completion: December 2008

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## Abbreviations

| | |
|---|---|
| ADMC-ILM | Assistant Deputy Ministers Committee on Integrated Land Management |
| FRPA | *Forest and Range Practices Act* |
| FRMA | Forest Roads Management Application |
| IAAS | Internal Audit and Advisory Services Branch |
| IFSR | Industrial Use Forest Service road |
| ILMB | Integrated Land Management Branch |
| MAX | MFR's corporate tracking system |
| MFR, or the ministry | Ministry of Forests and Range |
| MoE | Ministry of Environment |
| MTI | Ministry of Transportation and Infrastructure |
| NIFSR | Non-Industrial Use Forest Service road |
| NSR | Non-Status Road |
| RUP | Road Use Permit |
| RTEB | Resource Tenures and Engineering Branch |
| the manual | Engineering Manual – 2006 Edition, current to 2008 |
| the policy | Business Area 5 – Engineering Fiscal 2008/09 Policy for Operating Funds Road & Structure Maintenance and Road Closure |
| the Program | the MFR Engineering Program, consisting of the Business Area 5 team (RTEB, Regions, Districts, and Operations Division) |

## Executive Summary

We have completed our review of Ministry of Forests & Range Engineering Program (the Program) controls and practices related to the Crown land road network which includes Resource Roads, Non-Industrial Use Forest Service Roads, and Non-Status Roads.

At the request of the Ministry of Forests and Range (MFR, or the ministry), we assessed whether road safety, maintenance, and bridge replacement programs reduce the risks to public safety and to the environment created by the network of these roads.

The definitions of these roads are as follows:

> ***Resource Roads*** are the network of roads on Crown lands used by many industries and overseen by resource ministries. These roads may become problematic for the ministry once industrial activity ceases.
>
> ***Non-Industrial Use Forest Service Roads*** (NIFSRs) are the network of some 11,000 kms of roads no longer having industrial activity, for which the District Managers have maintenance responsibility under the Program. These roads sometime provide access to communities or recreation areas.
>
> ***Non-Status Roads*** (NSRs) are non-maintained roads, in unknown condition, located on Crown land, and not classified, above, for which the ministry has not been required to take responsibility. Although not conclusively mapped, the NSR network is estimated to be some 170,000+ kms, far in excess of that of NIFSRs under Program management.

Our review focused primarily on ministry activities on NIFSRs and NSRs. However, changes occurring on resource roads compound both NIFSR and NSR issues thereby impacting the ministry. Therefore, our report addresses all three road types.

We also assessed the level of progress achieved in implementing the recommendations made in a similar review conducted by the Internal Audit & Advisory Services Branch (IAAS) in 2004.

The ministry is responsible for many of the roads on Crown land that are no longer used for industrial activity, and their number is increasing as the forestry, mining and energy industries scale back their operations and cancel or abandon responsibility for many of their roads. Furthermore, increased public use, the Mountain Pine Beetle epidemic, and climate change are increasing maintenance needs.

The ministry is incurring rising costs, resulting in financial pressures for the ministry.

Overall, we found that the Program provides an adequate framework to support the effective risk-based management of NIFSRs. The key determinant of the effectiveness of Program activity is the annual operating budget, which is allocated independently of identified high risk maintenance needs and may be reallocated, in part, to fund emergency maintenance needs arising during the year. This has resulted in a largely reactive approach to addressing risks to public safety and to the environment, rather than a proactive, strategic approach. The three year capital funding recently announced will aid proactive, strategic planning. We also found that the Program does not adequately address risks presented to it by the NSR network. Strategic planning supplemented by analysis of emergency funding usage would strengthen Program activities.

We found that key Program activities, including annual inspection planning, engineering risk analysis, documentation, use of mandated ministry information systems, and performance measurement are informal and inconsistent in districts and across regions. As a result, the Program cannot ensure that the risks are adequately identified and mitigated. To reduce the risks of using inaccurate data, the Program should enforce existing requirements for system usage and use system data exclusively for reporting and Program evaluation.

We found that there is no government-wide framework, nor strategy, for management of all roads on Crown land. Regulatory frameworks in the several ministries responsible for management of the different types of resource roads govern the management of these roads. These multiple frameworks impede consistency and the effective integration of ministries' activities prior to, during, and after industrial use. They may also lead to duplication of monitoring activities, with possible additional maintenance activity from a change in responsible ministry to MFR. Appendix 1 lists statutory discrepancies.

District staff noted numerous economic and environmental changes to roads on Crown land. A list of 37 such changes has been provided to the ministry reflecting industrial use, non-industrial use, and environmental factors. As these changes will increase risks to government, a cross-government risk management approach to Crown land roads management is necessary to ensure that the developing risks are effectively addressed.

Finally, we found that there has been some progress achieved in addressing the eight recommendations contained in the Review of Engineering Practices on NIFSR report issued by the IAAS in 2004.

However, two items remain in progress:

- Full implementation of the branch's engineering risk analysis procedures has not been achieved.

- Decision-support criteria and regional or provincial plans have not been implemented to facilitate a systematic approach to road closures. Currently, such activity is the responsibility of individual District Managers, who propose or approve deactivation plans or road closures.

Appendix 2 contains a summary of our findings regarding progress on the recommendations.

Recommendations to address the issues raised during the review are contained in this report and a detailed discussion of the issues has been carried out with management and staff of the ministry.

We wish to express our appreciation to staff from the Ministry of Forests and Range and the other ministries for their cooperation during the course of this review.

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Internal Audit & Advisory Services

## Introduction

At the request of the Ministry of Forests and Range (MFR, or the ministry), we assessed whether road safety, maintenance, and bridge replacement programs reduce the risks to public safety and to the environment created by the network of Crown land roads. We also assessed the level of progress achieved in implementing the recommendations made in a similar review conducted by the Internal Audit & Advisory Services Branch (IAAS) in 2004.

The purpose of the MFR Engineering Program (the Program) is to ensure that Forest Service roads and bridges are designed, built, maintained, administered, and deactivated in a safe and effective manner. Its overall goal with respect to the forest road network is to reduce the risks to public safety and to the environment.

The MFR Engineering Program team administers the Program. Operations Division staff conduct the day to day work in the regional and district offices. Bridge inspections are primarily carried out by the regional offices while the responsibility for road inspection and road and bridge maintenance is primarily at the district office level. The Program has two key drivers: the *Business Area 5 – Engineering Fiscal Policy for Operating Funds Road & Structure Maintenance and Road Closure* (the policy) which is updated annually, and the *Engineering Manual* (the manual), which is currently under review.

The maintenance of roads and bridges on Crown land under MFR responsibility was identified as a risk area during a cross-government risk assessment that the IAAS conducted in 2007. As a result, the ministry requested IAAS to review the adequacy and effectiveness of the Program's controls and practices.

Government is responsible for many of the roads on Crown land that are no longer used for industrial activity. The number of roads under responsibility is increasing as the forestry, mining, and energy industries scale back their operations and cancel or abandon responsibility for many of these roads. Furthermore, increased public use, the Mountain Pine Beetle epidemic, and climate change are increasing maintenance needs. As a result, the ministry is incurring rising costs to maintain this road infrastructure.

The province's Crown land road network includes three major types of roads:

***Resource Roads*** are the network of roads on Crown lands used by many industries and overseen by resource ministries - e.g., Industrial Use Forest Service Roads (IFSRs), Petroleum Development Roads, mining roads, and access roads for Independent Power Producers and tourism operators. They include some 44,000 kms of IFSRs, primarily under Road Use Permits (RUPs) or tenured through BC Timber Sales. These roads may become problematic for the ministry once industrial activity ceases.

***Non-Industrial Use Forest Service Roads*** (NIFSRs) are the network of some 11,000 kms of roads no longer having industrial activity, for which the District Managers have maintenance responsibility under the Program. These roads sometime provide access to communities or recreation areas.

***Non-Status Roads*** (NSRs) are non-maintained roads, in unknown condition, located on Crown land, and not classified, above. They are, primarily, former Resource roads, for which the ministry has not been required to take responsibility. Although not conclusively mapped, the NSR network is estimated to be some 170,000+ kms, far in excess of that of NIFSRs under Program management.

Our review focused on ministry activities on NIFSRs and NSRs.

## Purpose

The purpose of this review was to provide the ministry's executive and management with an assessment of the adequacy and effectiveness of ministry controls and practices related to the Program, including recommendations where appropriate, for reducing risks to acceptable levels.

## Scope and Objectives

The scope of this engagement was province-wide and included NIFSRs and NSRs. It included all three MFR regions and a sample of district offices within each region.

The scope excluded roads managed by other ministries, IFSRs, roads managed by users under RUPs and all road access/use planning activities.

The objective was to assess whether road safety, maintenance, and bridge replacement programs are supported by an effective performance management and accountability framework.

The review assessed the adequacy and effectiveness of the ministry's controls and practices related to those roads within scope, including recommendations, where appropriate, for reducing risk to acceptable levels.

In addition, we assessed the extent to which the recommendations in the Review of Engineering Practices on NIFSRs report issued by the IAAS in 2004 have been addressed by MFR. That review assessed the adequacy and effectiveness of the ministry's controls and practices related to NIFSRs.

Fieldwork was conducted between October and December 2008 and included interviews with management and staff from headquarters, the regional offices and nine district offices, as well as a review of road and bridge maintenance plans, policies, procedures, reports, and a random sample of road and bridge inspection files. In addition, we conducted interviews with other ministries having interests in roads on Crown land, including the ministries of Agriculture and Lands, Energy, Mines and Petroleum Resources (including the Oil and Gas Commission), Environment, and Transportation and Infrastructure.

## Observations and Recommendations

### 1.0 Non-Industrial Forest Service Roads

In this section, we assessed whether Program controls and practices effectively support road and bridge maintenance on NIFSRs. We reviewed Program plans and policies, the annual fiscal framework, performance measures, key control activities, and reporting processes.

Based on our review, we found that the fiscal policy and the (operating) engineering manual provide an adequate framework for NIFSR road and bridge maintenance. However, Program funding is insufficient to meet all high risk maintenance needs identified during the previous fiscal year, which results in maintenance deferral to subsequent years. As a result of the funding limitations, operating maintenance and capital projects within each region and district are prioritized based on the amount of funds available and the assessed risk to public safety and the environment. This may increase risks to public safety or the environment.

We also found low levels of compliance with policy requirements set forth in the engineering manual. For example, districts do not consistently adhere to requirements for road engineering risk analysis (s.7.6.1), 100% annual road inspection (s.7.6.2), and year to year deferral of only low risk maintenance (s.7.8).

The projected retirement of many experienced district engineering staff may impact overall Program effectiveness, resulting in additional risks to public safety and the environment if Program goals cannot be achieved.

## 1.1 Program Purpose

### Accountability Framework

The Program's purpose, goals, and objectives are clearly defined in ministry funding policy and in the engineering manual. They are designed to meet the legislated and regulatory requirements in the *Forest and Range Practices Act* (*FRPA*). The goals are supported by a performance management and accountability framework based on the policy and the manual.

Evidence that Program goals and objectives are being achieved is that the Ministry of Attorney General reported that no payments have been made for vehicle damage or accidents on NIFSRs during the past decade. Furthermore, the Ministry of Environment (MoE) staff we interviewed were supportive of the branch's work in managing environmental issues.

### Strategic Planning

There is no strategic plan in place to support MFR engineering activities within the districts. Program operating budget planning is conducted annually, with activities limited by the annual funding received and, even then, only high risk maintenance is scheduled.

The fiscal policy goal of meeting high risk maintenance needs can only be met where sufficient funding is allocated to address high risk needs identified during the previous fiscal year and is not required for emergency maintenance. A longer term strategic plan for Crown land road management would enable the Program to:

- pro-actively assess and address future funding requirements to remediate road and structure deterioration;
- pro-actively assess and address emerging developments;
- identify and address road deactivation opportunities; and
- provide input that can inform special one-time funding decisions, in order to maximize their benefit within an overall roads management program.

## Recommendation

**(1) The ministry should develop a strategic plan to guide Program delivery and to achieve Program goals.**

Succession Planning

We found the achievement of the Program's purpose and goals is largely the result of a well-trained and dedicated engineering staff that relies on professional judgment and local knowledge to ensure safety and environmental protection. However, many of these staff will be retiring from the public service during the next few years which may result in new, often less experienced, staff being hired. MFR advised that it is engaged in succession planning. This is vital, given the length of time required to properly train the engineers and engineering technical staff needed to effectively manage and undertake the Program.

## 1.2 Program Funding

Funding for MFR road activities (including road maintenance, capital works, and deactivation) comes from a variety of sources, including but not limited to operational budgets, capital budgets, liability funding, financing transaction funding, and one-time funding.

Annual Program activity depends on the level of funding, which determines the amount of maintenance work that can actually be carried out. The program relies on the ability to defer identified maintenance requirements until, at least, the following year, because annual funding is allocated to resolve the highest risk issues identified during the previous fiscal year's road and bridge inspections. The recently announced three year capital funding program should enable some proactive approach to maintenance needs.

2008/09 Program funding, before any reallocation to emergency maintenance, was only about 60% of the amount requested by districts for identified high risk maintenance and deactivation needs. This resulted in only part of the high risk maintenance being performed.

Emergency Maintenance

Road and bridge failures on NIFSRs can occur unexpectedly or prematurely due to seasonal or other events, resulting in emergency repairs being required to protect public safety and the environment. Emergency maintenance may be funded from a contingency fund held for these emergencies by the regional office. Funding may also be through the re-prioritization of other district or regional funding originally allocated for the year. This reallocation of funding means that District Managers are not able to exercise full control of the resources allocated to them to accomplish Program objectives.

Although there was insufficient evidence to conclude that emergency maintenance needs are correlated to delays in addressing high risk maintenance issues, district offices may want to determine whether completing maintenance sooner would reduce the number and cost of emergency repairs.

Capital, liability, and financial transaction funding are targeted funding allocated to specific projects or types of roads. This means that the funds cannot be reallocated to pay for emergency maintenance. Therefore, as more roads are classified as capital assets, there is a risk that the operational maintenance budgets will be reduced to fund capital, liability, and financial transaction budgets, further limiting the districts' ability to fund emergency maintenance.

## Recommendations

**(2) The ministry should investigate whether addressing public safety and environmental issues sooner would reduce the number and cost of emergency maintenance needs.**

**(3) The MFR Engineering Program should consider establishing a contingency fund to pay for emergency maintenance rather than reallocating funds from operational maintenance budgets.**

### One-Time Funding

Government periodically provides special funds for specific types of resource roads and NIFSRs. However, the projects funded by these extra funds are not always integrated with the district or region road management plans. This results in the risk that the use of these funds could reduce the effectiveness of previously scheduled road maintenance activities during times when contractor and staff resources are scarce.

Furthermore, districts reported that such one-time funding sometimes becomes available on short notice to pay for planned maintenance projects. Some districts reported difficulties in utilizing this funding before the winter weather stops maintenance activities and/or before the end of the government's fiscal year.

## 1.3 Program Administration and Delivery

Key activities, including annual planning, engineering risk analysis, documentation, and performance measurement, are performed inconsistently in the regional and district offices, and there is extensive use of spreadsheets to record information for monitoring and reporting purposes. Overall, these inconsistencies and the lack of a coordinated source of data impact Program integrity, creating the potential that highest risk issues are not being managed adequately and that Program results are not accurate and complete.

### Planning and Inspection

The engineering manual outlines the engineering standards and processes that must be followed to ensure that forest transportation systems are designed, built, maintained, deactivated, and administered in a safe and effective manner. However, we found several instances where districts are not consistently following the requirements in the manual:

- Some districts include low risk maintenance needs in the maintenance schedule, whereas other districts do not schedule this maintenance because it will not be funded until the risk rating rises to a high level.
- Some districts conduct annual inspections and also complete engineering risk analyses on all NIFSRs whereas other districts do not conduct annual inspections on roads assessed as low risk (based on either engineering risk analysis or professional judgement and local knowledge).
- Engineering risk analyses are not performed consistently across the province.
- Informal processes are used by six of the nine districts that we visited to schedule inspections of all NIFSRs after spring freshet. In the other three districts, annual inspections are planned for roads assessed as high risk (based on professional judgment and local knowledge). We note that, in all districts visited, re-inspection occurs when considered appropriate, such as after storms or accidents.

These inconsistent practices result in the potential for public safety and environmental risks. The lack of inspection prioritization through engineering risk analysis may result in the highest risk roads and bridges not being identified and the risks not being remediated if an inspection of all roads and bridges is not planned and achieved.

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We reviewed 81 randomly selected road inspection files and 30 bridge inspection files and found that there are no controls in place to ensure that all planned inspections are conducted, inspection results are documented in the appropriate databases, maintenance requirements are logged, maintenance is completed, and any outstanding maintenance needs are carried forward to future periods. Table 1 below is a high level summary of the results of our file review:

**Table 1: Compliance with Engineering Manual Requirements**

| Engineering Manual Requirement | % Compliance |
|---|---|
| **Districts:** | |
| Road inspection forms or Forest Roads Management Application (FRMA) used. | 100% |
| Well organized files. | 22% |
| Use of FRMA exclusively (no spreadsheets used). | 11% |
| Completion of inspection form section indicating maintenance completed. | 0% |
| | |
| **Regions:** | |
| Bridge inspection forms used. | 100% |
| Well organized bridge files. | 100% |
| Bridge Inspection reports signed off by regional Bridge Engineer. | 66% |
| Completed documentation of bridge maintenance. | 0% |

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Data from MAX is used in Program performance reporting.

The extensive use of spreadsheets creates data integrity risks because the data entered into the spreadsheets may not be accurate and complete and spreadsheets may be compromised. Furthermore, there is a risk that high quality information will not be available when there are changes in staff.

## Recommendations

**(4) Districts and regions should promptly document inspections and maintenance using the required databases.**

**(5) Reporting of inspection and maintenance activities and results should be database-generated, with district confirmation that documentation and follow-up of activities is complete.**

**(6) The MFR Engineering Program should strengthen, clarify, update, and/or enforce the standards and processes in the manual to ensure consistency across the province.**

Road Deactivation

Regional road deactivation plans have not been implemented. We were advised that there is limited funding available for deactivating roads, with only two of the nine districts we visited having implemented deactivation programs. ***[Information has been severed to protect the financial interests of the Province].***

The Program provides information about roads, including local signage.

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There are also key operational considerations to be made around road de-activation. For example, where structural or road failure occurs on a non-deactivated road, it is generally not feasible to remove the impediment and close the road beyond that point because maintenance work may later be required at a more distant point. We note that whole-road deactivation may not be cost effective but, conversely, the risks of non-deactivation will not be known without a new fully integrated risk assessment of the entire road. This activity should be integrated within strategic planning for the Program discussed in Section 1.1.

## 1.4 Results Management

The Program has developed six performance measures that are appropriate for assessing its success in achieving the goals and objectives. Performance targets are established for each district and region and results are communicated clearly and consistently.

## 1.5 Program Evaluation and Revision

Branch, regional, and district staff review the Program's results and take corrective action when needed to ensure that the Program's objectives are achieved.

# 2.0 Crown Land Roads

We reviewed the Program's effectiveness in mitigating the risks posed by NSRs in particular, and Crown land roads in general. We also reviewed the existing regulatory and policy framework across government. Finally, we identified a series of emerging risks facing government as a result of changes to roads on Crown land.

Based on our review, we found that the Program does not adequately address risks to public health and to the environment presented by NSRs. We also found that there is no government-wide framework, nor strategy, for managing roads on Crown land, including NSRs, and that real and anticipated changes occurring on Crown land roads increase overall risks to government.

Impacts on the network of resource roads from changing economic conditions and roads usage combined with climate change result in the need for increased communication, coordination, and integration of tenuring and permitting activities as well as planning and mapping functions across government.

## 2.1 Non-Status Roads

NSRs pose an operational challenge to the ministry and across government.

NSR Network

MFR may not know that non-forest industry resource roads are no longer used industrially, because of the lack of a requirement for ministries and industrial users to formally transfer them to MFR when industrial activity ceases. These roads become NSRs, without inspection or remedial maintenance plans.

The lack of a comprehensive inventory of all Crown land roads, identifying ownership, use, and responsibility, results in government, being unaware of the extent, nature, and condition of NSRs.

We note that some resource roads have not been recorded in databases (e.g., pre-2006 oil and gas roads) and would, therefore, incorrectly default to classification as NSRs in any road mapping. We understand that the Integrated Land Management Branch (ILMB) is working to address the road inventory issue.

Liability Funding

The fiscal policy restricts deactivation of NSRs to qualifying projects within the annual liability funding allocation. This leads to limitations and delays in the deactivation work that can be performed and, as noted above, industry is increasingly turning back to government roads that may not meet MFR standards, further straining funding.

NSR Inspections

Capacity issues do not permit planned inspections of the large NSR network. Without regular planned inspections, the safety and environmental risks on NSRs are unknown and can be higher, in that the roads are allowed to "revert to nature" by default. Structural, safety, and environmental risks are unknown and failure may occur, and continue, without anyone knowing until the failure creates a safety or environmental risk in an inspected area or one traveled by the public, *and that failure is reported*. While not measured, it can be logically inferred that, with the increase in NIFSR usage, increased NSR usage is also occurring - with corresponding wear and tear.

When the ministry is notified of public safety and/or environmental issues on an NSR, the local District Manager *may* assume responsibility for mitigating the issue on that road, preferably through deactivation. This results in less money available for previously scheduled operational maintenance.

These operational challenges could be mitigated by the development of a cross-government approach to the management of NSRs as part of an overall Crown land roads strategy. Such strategy should take into consideration inter-ministry procedures on cessation of industrial activity, mapping accuracy, inspection, and maintenance funding. Recommendations appear at the end of section 2.2.

## 2.2 Inter-ministry Coordination

We interviewed staff of four resource ministries that have interests in the resource road network: Agriculture and Lands; Energy, Mines and Petroleum Resources; Environment; and, Transportation and Infrastructure, both in Victoria and in field offices. All interviewees reported that good, informal relationships were maintained with local MFR staff, but that contact was not as frequent as is warranted.

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Statutory Framework

Resource roads are governed under multiple acts and regulations resulting in different tenures, levels of enforcement, and standards for the use, construction, maintenance, and deactivation of resource roads. This resource roads management framework, created largely as a result of land use tenures, does not allow effective coordination and integration of ministries' activities.

The lack of coordination also results in information gaps. Because government does not have complete information about all the roads on Crown land, there may be very little information available regarding:

- interested parties who may want a road to remain open (e.g. tourism operators, trappers, recreational users);
- the condition of the roads and bridges (including safety and environmental issues); and
- the structural engineering of the roads and bridges.

Other ministries' legislation primarily addresses the period of industrial usage, and does not address post-tenure/license and deactivation obligations. There are no common road maintenance standards and no formal processes to transfer non-forestry roads to MFR when industrial use ceases. As a result, these roads may become NSRs. Recommendation #9, below, addresses this issue.

Common Standards

Construction standards for resource roads have varied considerably over the decades and, therefore, the roads decay in different ways. MFR field staff reported a lack of structural information for many roads and bridges, both ex-forest industry and other. The result is limited consistency between the ministries, creating problems for MFR when it assumes responsibility for roads. When the ministry is notified or identifies a hazard on an NSR, this can result in it assuming responsibility for a road that may require extensive and expensive, unbudgeted, structural assessment before (also unbudgeted) maintenance work is feasible.

From MFR's perspective:

- during industrial activity, there may be safety and environmental risks on adjacent roads or on Crown land arising from road location, construction, or maintenance (e.g., on eco-sensitive land, on hillsides, or in watershed areas below a road); and

- after industrial activity, resource roads that are of a low standard may:
  - revert to MFR as NIFSRs, thus adding to potential High Risk maintenance needs;
  - pressure Program funding by diverting funds from the year's scheduled operating maintenance; or
  - become NSRs, thus resulting in a lack of subsequent regular maintenance inspection, adding to safety or environmental risk on Crown lands.

Cross-Government Framework

A government-wide statutory framework would require all ministries and all users of roads on Crown land to adhere to consistent road standards from the initial construction through closure or deactivation.

The creation of a single road management entity that is adequately and directly funded to manage and maintain all roads on Crown land would help ensure consistency.

The Assistant Deputy Ministers Committee on Integrated Land Management (ADMC-ILM) may be an appropriate body to develop a cross-government strategy to enact legislation for unified Crown lands roads management.

It would also be the body to establish a strategy for unified cross-government management of Crown land roads - into which government's various incremental, one-time funding could be integrated, so that the full benefit and effect of such funding can be obtained.

## Recommendations

**(7) ADMC-ILM should consider leading the development of a cross-government strategy for the management of Crown land roads.**

**(8) The ADMC-ILM should consider establishing formal inter-branch and inter-ministry working groups, at the appropriate levels in districts and regions, to coordinate permitting/tenuring and road management activities.**

**(9) The ADMC-ILM should consider developing a cross-government strategy to propose legislation for unified Crown lands road management.**

## 2.3 Changes to Crown Land Roads

Extensive changes to Crown land roads are increasing safety and environmental risks, or are expected to increase them. These risks are not being addressed from a strategic perspective, with strategic risk management. The changes noted by district and region staff have been summarized for the ministry in a list of 37 such items raised in the nine districts visited. These encompass:

- **Changes in industrial use** - clients of both MFR and other ministries;
- **Changes in non-industrial use** - recreational, community, and residential uses; and
- **Changes in environmental factors** - weather, wildlife.

Many of the changes relate to industrial activities, including those of other ministries' clients. However, when these activities cease, the ministry will face return of the roads as NIFSRs, or they will become NSRs, by default. The significant growth occurring in the NIFSR network from return of forestry industry roads is already leading to additional pressure on both maintenance and deactivation budgets.

Staff in all MFR districts visited reported that the public does not generally respect road closures and also uses deactivated roads. In both cases, the public may reconstruct road sections to gain access or may detour into environmentally sensitive areas adjacent to a road or structure failure. This illegal activity increases public safety and environmental risks, further jeopardizing achievement of Program goals.

The recommended cross-government strategic approach to Crown land roads management provides the ability to address risks presented by these emerging changes through a program of strategic risk management.

# 3.0 Progress on Previous Recommendations

As part of this review, we assessed progress in addressing the eight recommendations made in the Review of Engineering Practices on NIFSR Report which was issued in 2004.

Overall, we found that some progress has been made in addressing the recommendations. Full implementation of the Program engineering risk analysis procedures has not been achieved. Decision-support criteria and regional or provincial plans have not been implemented to facilitate a systematic approach to road closures. Appendix 2 contains a summary of our findings regarding progress on the recommendations.

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## Appendix 2 - Progress Achieved on Review of Engineering Practices on Non-Industrial Use Forest Service Road Report Recommendations

| RECOMMENDATION | ACTION |
|---|---|
| **Recommendation 1**<br>Resource Tenures and Engineering Branch should communicate to engineering personnel that posting warning signs is at their discretion, on any roads and in any locations where they feel that there is high risk to public safety due to the application of the wilderness-road standard of maintenance. | **Progress has been achieved.**<br>This continues to be a local discretionary item.<br>Districts stated that signs may be posted but they have little effect because the public ignores them. |
| **Recommendation 2**<br>District Managers should reassess the sufficiency of resources assigned to ensure the full implementation of RTEB's policy. | **Progress has been achieved.**<br>Assessment is performed annually as part of the Business Area 5 Service Plan exercise. |
| **Recommendation 3**<br>District and regional engineering personnel should ensure full implementation of RTEB's risk assessment, inspection, and road closure procedures. | **Some progress achieved.**<br>Engineering risk analysis is not performed.<br>Inspections of all NIFSRs are performed in six of the nine districts that we visited and inspections of roads assessed as high risk are inspected in the other three districts. |
| **Recommendation 4**<br>RTEB monitor district risk assessment and inspection processes, and initiate training where required, to ensure the implementation of its policy. | **Progress has been achieved.**<br>Field staff reported that training is adequate. |
| **Recommendation 5**<br>A field review of bridges and roads in remote coastal areas should be conducted to ascertain the level of prevailing risk, and to prioritize maintenance works accordingly. | **Progress has been achieved.**<br>Review conducted as part of the routine road and bridge inspection program. |
| **Recommendation 6**<br>RTEB should give consideration to developing decision support criteria to assist district engineering staff in determining when to close roads -for example, when the level of brush has reduced lines of sight to below the minimum necessary to safely traverse roads. | **Progress not achieved.**<br>General guidance is provided for in policy but specific guidance has not been provided as suggested.<br>Staff continue to use professional judgment on a case by case basis. |
| **Recommendation 7**<br>Regions should give consideration to preparing regional plans to facilitate a systematic approach to road closures. | **Some progress achieved.**<br>Two districts have ongoing plans for deactivation of roads. |
| **Recommendation 8**<br>The ministry should conduct a follow-up review in 2006/07 to ascertain whether risks are being proactively managed and to evaluate whether the level of risk that the ministry is accepting remains tolerable. | Progress has been achieved.<br>This review is the follow-up review. |

## Appendix 3 – Detailed Action Plan

| Priority[1] # | Rec # | Recommendations | Management Comments to be Included in Report (Action Planned or Taken) | Assigned To | Target Date |
|---|---|---|---|---|---|
| 1 | 7. | ADM-CILM should consider leading the development of a cross-government strategy for the management of Crown land roads. | • Government has initiated a coordinated approach to examining, managing, and administering crown roads through the Ministers' Road Committee announced by Premier Campbell in 2008.<br>• MFR would participate in any such initiative(s) as appropriate.<br>• Legislation is proposed which works towards these goals.<br>• There is a Ministers' Roads Committee which is working on addressing Crown road issues (includes: MFR, MOT, MTCA, MEMPR, MCD).<br>• ***IAAS Comment: We note that Ministry of Environment, which expressed many concerns about the negative environmental effects of roads on Crown land, is not represented on the Ministers' Roads Committee.*** | Operations Division and Tenure and Revenue Division | Ongoing |
| 2 | 8. | The ADM-CILM should consider establishing formal inter-branch and inter-ministry working groups, at the appropriate levels in districts and regions, to coordinate permitting / tenuring and road management activities. | | | |
| 3 | 9. | The ADM-CILM should consider developing a cross-government strategy to propose legislation for unified Crown lands road management. | | | |
| 4 | 1. | The ministry should develop a strategic plan to guide program delivery and to achieve program goals. | • In recent years the ministry has moved forward with some strategic road initiatives. As an example, the Capital funding for roads has been evolving and is moving forward with multi-year planning and funding identified.<br>• The MFR Engineering Program will be expanding strategic planning this fiscal by determining priority works for implementation should funding become available, and proposing new budgetary systems to improve the consistency of funding in order to achieve the engineering program's identified goals and objectives.<br>• Strategic planning for training, recruitment and succession planning for ministry staff with engineering skills sets is recognized as "vital". | Operations Division | Ongoing<br>First draft to be completed March 2010. Annual update is expected thereafter.<br>On-hold pending resource availability. |

[1] Prioritized by IAAS.

| Priority[1] # | Rec # | Recommendations | Management Comments to be Included in Report (Action Planned or Taken) | Assigned To | Target Date |
|---|---|---|---|---|---|
| 5 | 6. | The MFR Engineering program should strengthen, clarify, update, and/or enforce the standards and processes in the manual to ensure consistency across the province. | • Revised Engineering Manual has been issued June 2009 which identifies process, roles and responsibilities for FSR inspection/maintenance which is intended to address inconsistencies.<br>• MFR will be implementing measures to monitor conformance to the revised Engineering Manual for the road inspection/maintenance process. | Operations Division | Ongoing – the engineering program has instituted an annual internal audit of engineering field practices (target date for this fiscal is Dec. 2009).<br>Resources limit ability to focus on road inspection / maintenance process at this time. |
| 6 | 4. | Districts and regions should promptly document inspections and maintenance using the required databases. | • Acknowledge inconsistency in FSR inspection planning and implementation and follow through with maintenance and associated documentation.<br>• Revised Engineering Manual has been issued June 2009 which identifies process, roles and responsibilities for FSR inspection/maintenance which is intended to address inconsistencies.<br>• MFR will be monitoring conformance to Engineering Manual.<br>• Work has been underway to provide systems tools for staff for consistent planning, implementing, tracking and documenting inspection/maintenance activities. | Operations Division | Bridge registry being implemented with the determination of "data standards" to be completed by March 2010.<br>Roles and responsibilities integrated into the Engineering manual in 2009 revision. |

| Priority[1] # | Rec # | Recommendations | Management Comments to be Included in Report (Action Planned or Taken) | Assigned To | Target Date |
|---|---|---|---|---|---|
| | | | | | System enhancements on hold pending available resources. |
| 7 | 5. | Reporting of inspection and maintenance activities and results should be database-generated, with district confirmation that documentation and follow-up of activities is complete. | • Systems work has been underway to provide tools for staff to plan, implement, track and document inspection/maintenance activities.<br>• Additional funding will likely be required for populating and maintaining databases. | Operations Division and Tenure & Revenue Division | System enhancements on hold pending available resources. |
| 8 | 2. | The ministry should investigate whether addressing public safety and environmental issues sooner would reduce the number and cost of emergency maintenance needs. | • Currently, the MFR implements its road maintenance activities in a very efficient manner through focussing limited financial and staffing resources on the highest priority works.<br>• Strategic planning will evaluate whether the current approach is resulting in avoidable inefficiencies.<br>• Additional resources would provide greater opportunities for proactive work and reduce emergency maintenance needs. | Operations Division | Strategic plan to be completed by Mar 31, 2010.<br>Progress will be affected by resource constraints. |
| 9 | 3. | The MFR Engineering program should consider establishing a contingency fund to pay for emergency maintenance rather than reallocating funds from operational maintenance budgets. | • Issue has been raised in the past and the MFR risk manages within available financial and staff resources.<br>• There are limited MFR resources to establish an alternative funding source for emergency maintenance.<br>• Typical risk managed approach of setting aside engineering operating funds prior to the spring freshet and allocating remaining funds subsequent to any unforeseen priority works arising from emergency maintenance has been a successful approach.<br>• ***IAAS Comment: The response doesn't fully address the unique nature of "emergency" funding. The ministry approach doesn't protect the routine, previously identified as necessary, high-risk maintenance from emergency funding pressures resulting in delay of such maintenance.*** | Operations Division | Already addressed through FSR deactivation and NSR remediation fund management. |