



**Manitoba's Submission Guidelines for
Twenty Year Forest Management Plans**

Manitoba Conservation December 2007



Manitoba Conservation

Manitoba's Submission Guidelines for Twenty Year Forest Management Plans

December 2007

Edited by:

Forestry Branch
Manitoba Conservation

Developed by Manitoba Conservation in Co-operation with:

Tembec Industries Inc.
Tolko Industries Ltd.
LP Canada Ltd.
Ainsworth Engineered Canada LP

Single copies of this publication are available from:

Manitoba Conservation
Forestry Branch
200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3
Phone: 204-945-7994
Website: www.gov.mb.ca/conservation/forestry/forest-practices/planning/planning/fpp-fmps.html

Foreword

Submission guidelines for Twenty Year Forest Management Plans (FMPs) were developed in 2007. These guidelines are periodically updated. The updated guidelines will ensure the submitted FMP is consistent with provincial policy, practices and standards for forest management.

Companies who hold or are seeking a Forest Management Licence (FML) are required to develop a Forest Management Plan. Existing Forest Management Licence agreements specify that a long-range plan must be developed every twenty years.

Twenty Year Forest Management Plans are submitted by the proponent to Manitoba Conservation. The FMP is reviewed departmentally by appropriate branches and regional Integrated Resource Management Teams. The approval of a Twenty Year Forest Management Plan is the responsibility of the Director, Forestry Branch, Manitoba Conservation.

This guidebook is written to help professionals obtain an approved FMP. The proponent has the discretion to assemble the FMP in a form they prefer as long as the required information is contained within the FMP. The tables presented in the guidelines are not standards but are examples of showing the information required in the FMP.

Table of Contents

1.0	Introduction	1
1.1	Guiding Principles	1-2
2.0	Pre-planning Requirements	2
3.0	Overview of Forest Planning Process	2-3
4.0	Communication Strategy	3
4.1	Communication Plan	3
4.2	Minimum Requirement for Communication	3
5.0	The Forest Management Plan	3
5.1	Introduction	3
5.2	Reporting Communication	3-5
5.3	Corporate Overview and Facility Description	5
5.4	Forest Management Licence Area Description	5
5.4.1	Forest Administration	5
5.4.2	Biophysical (Site) Description	5
5.4.3	Historical Forest Description	5
5.4.4	Current Forest Description	5-6
5.5	Socio Economic Conditions	6
5.6	Planning Context	6
5.6.1	Legislation and Policy	6
5.6.2	Resource Goals	6
5.6.3	Criteria and Indicators for Assessing Sustainability	6-8
5.6.4	Quota holders, timber sales, special allocations and third party operations	8
5.6.5	Certification Audits	8
5.7	Resource Analysis	8
5.7.1	Forest Modeling Landbase	11
5.7.2	Modelling Wildlife Habitat	12
5.8	Preferred Management Approach - Selection Process	12
5.8.1	Higher Level Values	12
5.8.2	Management Objectives	12
5.8.3	Targets	12
5.8.4	Strategies	12-13
5.8.5	Evaluation of the Preferred Management Approach	13
5.8.6	Preferred Management Approach	13
5.9	Development Activities (Implementation Strategy)	15
5.10	Operating Practices	20
5.11	Monitoring and Assessment	20
5.12	Research	20
6.0	FMP Amendment	20
7.0	Implementation Strategy	20

8.0 Plan Review and Approval	21
Appendix 1 - Map List	22
Glossary of Terms	23
References	24

List of Figures

Figure 1 Overview of Forestry Planning Process	4
Figure 2 FMP - 1 Forest Management Unit Land Summary	7
Figure 3 FMP - 2 Description of Strata	9
Figure 4 FMP - 3 Current Forest Description Total Landbase	10
Figure 5 FMP - 4 Current Forest Description Netdown	12
Figure 6 FMP - 5 Ranking Scenarios by Objectives	14
Figure 7 FMP - 6 Proposed Silviculture Treatment Prescription by Strata	16
Figure 8 FMP - 7 Forecast of Wood Utilization by Licensee per Year	17
Figure 9 FMP - 8 Forecast of Sequencing by Five Year Terms	18
Figure 10 FMP - 9 Forecast of Primary and Secondary Road Construction and Management	19

1.0 Introduction

Planning for the management and use of the forest resource is essential to ensure the sustainability of Manitoba's forests. Higher level values may be developed in a forest certification process and may be stated in the Forest Management Plans (FMP). Objectives, strategies and targets are established through planning to partially satisfy the higher level values, to guide land and resource based activities and minimize land and resources use conflicts.

Applying Manitoba's Forest Policies, developed as part of Manitoba's overall sustainable development strategy, establishes the need to balance economic objectives with environmental and social needs. In 1996, Manitoba's Forest Plan was released with a commitment to move to sustainable forest management using an ecological approach.

The purpose of these guidelines is to provide direction to the proponent to develop FMP that are consistent with Manitoba's commitment to sustainable development and an ecosystem approach to achieving sustainable forest management. This guideline document provides a framework for the development of a 20 year FMP. The information presented in the FMP may be presented differently depending on the proponent's needs.

1.1 Guiding Principles

The planning process for forest management in Manitoba is based on the following principles.

Sustainable Development

Sustainable Development is defined in the Manitoba Sustainable Development Act as, "A conceptual idea where development meets the needs of the present generation without compromising the ability of the future generation to meet their own needs". The formally accepted Consultation on Sustainable Development Implementation (COSDI) Report 1999 provides a framework and recommendations for sustainable development.

Sustainable Forest Management

Sustainable Forest Management is management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations.

The province recognizes the practice of sustainable forest management requires different skills and a broader knowledge base than sustained yield timber management. The ability to prepare and implement FMPs based on the concept of sustainable forest management will evolve over time as new data sets are created, research is carried out, new skills are acquired and knowledge about forest ecosystems is increased.

Managing Ecosystems

Forests will be managed for ecosystem integrity, long-term forest productivity and biological diversity, while providing an ecologically sustainable flow of natural resources and ecosystem services. FMPs will recognize relationships among the various ecosystem components and their functions, and consider the impact of activities on the ecosystem. Forest strata types are the fundamental building blocks used in the FMP and are defined in the Manitoba Conservation Wood Supply Analysis Base Case.

Planning Units

A FMP should recognize large, ecologically relevant landscape units because of its strategic emphasis. In most cases, reporting on the total FML will occur and in some cases summaries by forest section or forest management unit (FMU) will occur. FMU boundaries will continue to be the primary administrative unit for timber management because Manitoba Conservation tracks Annual Allowable Cut (AAC) by FMU. In some cases, portions of an FMU, contained in a FML, may be combined with an adjacent FMU. The proponent is encouraged to use whatever planning units are appropriate for descriptions or analysis of watersheds, habitat unit, and/or wildlife ranges. The formally accepted COSDI report recommends wide area planning based on natural areas such as watersheds.

Collaboration and Participation

The approach to forest management planning will be open and consultative. The planning process should include extensive and ongoing public involvement. FML holders must provide various public communication information opportunities during the development of the FMP and as a part of the plan implementation process. In preparing plans, the companies will collaborate with appropriate government agencies, other resource industries, communities and the public at the earliest stages of development proposal.

The province also has a role in presenting government policy, legislation and objectives for sustainable use of Manitoba's forest lands and resources. The Government of Manitoba recognizes that its legal duty to consult with Aboriginal peoples about any action or decision that might affect the exercise of an aboriginal or treaty right. This is consistent with the Supreme Court of Canada judgements

that clarify the meaning of section 35 of *The Constitution Act* (1982).

Continual Updating

Forest management planning is a dynamic process. Each new FMP will:

- incorporate knowledge obtained through research initiatives and operational trials
- capture enhancements to forest management approaches resulting from new national direction, provincial policy or legislative changes
- result in improved performance as changes are made, based on feedback from performance monitoring
- become more effectively linked with operational planning, ensuring day-to-day operations are consistent with objectives in long term plans
- use the updated landbase (date stamped) that was employed in developing the Base Case to generate FMP tables and maps provided in the FMP.

In the event of large landbase alterations due to natural causes (ex: fire, insect outbreaks) or social causes the Director of Forestry will advise the proponent of the subsequent course of action.

Consideration of all Values

Management of other forest values is the responsibility of the Crown. These ecological/social values must be considered by the forest industry when developing long-term plans. Forest management planning must also recognize current resource commitments as the basis for future planning and decision-making. Manitoba Conservation recognizes the need to manage forest resources for ecological and social values, as well as timber resources. Some examples of other forest values include cultural sites, social, biodiversity, recreation, water resources, soils, and ecological values.

Monitoring and Reporting

Monitoring is required to determine the progress being made towards achieving objectives in the FMP. Monitoring will be summarized in various reports such as the annual report, the forest report and certification reports. Reporting on results provides a way to measure progress and a measure of accountability on the effectiveness of attaining targets by planned strategies.

Adaptive Management

Scientific knowledge will continue to expand, changing our understanding of how ecosystems work and how they are influenced by human activity. By remaining flexible, and allowing for the incorporation of new knowledge and

changing conditions, managers can use new approaches to forest management and improve the results over time.

2.0 Pre-Planning Requirements

Terms of Reference

The terms of reference is a living document. The terms of reference is used by the proponent and Manitoba Conservation as a planning aid to share information including scheduled activities, which Manitoba Conservation will approve, normally two years prior to plan submission. Wood supply information and/or analysis (base case) will be provided by the province. If Manitoba does not have a base case completed, in part or in total, by the time the terms of reference for the FMP is submitted, the Director of Forestry will give written instructions to the proponent on how to proceed in a timely manner. The province will also provide:

- the date of FMP submission to Forestry Branch
- details of the Manitoba Conservation review process
- details of the Environmental Assessment and Licensing Branch process, under the Manitoba *Environment Act* (dates and actions required)
- Manitoba's First Nation consultation process (timelines and communities), including proponent's role in providing information for consultation
- proposed FMP approval date
- existing issues on the forest management license area
- confirmation that the suite of indicator species (plant and/or animal) proposed are satisfactory
- available information regarding other resource uses
- other relevant landbase management plans

The proponent will provide:

- the public communication plan
- existing issues on the forest management license area
- the selected indicator species to be analysed in the FMP
- a request for information regarding other resource uses and the date the information is required

3.0 Overview of Forest Planning Process

Figure one represents an overview of the planning process.

This documents deals with the preparation of the FMP. Other guidelines, currently being developed, will be used to complete the annual report and the forest report

The diagram displays that a FMP spans a twenty year time frame. The approval date of the current FMP determines its twenty year duration. In the beginning of year nineteen, this overview suggests the submission of the next FMP.

4.0 Communication Strategy

The communication process is an essential element of the FMP. It will help the proponent in developing a FMP that reflects comments from First Nations, Aboriginal and other communities and stakeholders. COSDI recommends involving the public at the earliest stages of a development proposal and Manitoba to develop a protocol to ensure meaningful inclusion of Aboriginal communities in land planning. Formal communication opportunities will be provided throughout the various stages in the planning process. This will be accomplished through the development of a communication plan by the proponent. A mechanism will be developed to encourage First Nations, Aboriginal communities and other communities and stakeholders to help the proponent to identify the location of values within the forest.

4.1 Communication Plan

The communication plan will be developed in the terms of reference. A copy of the terms of reference will be located in the Appendices if it has not been circulated to the public. At a minimum, the communication plan must include the following information:

- A list of the communities, non government organizations, First Nations, stakeholders, advisory groups, associations, and other interested individuals and/or stakeholders that the proponent intends to contact.
- The location and the general timing of proposed communication meetings.
- The level of engagement of each group will be determined by the proponent to help the group provide meaningful input to develop the plan. Given the ongoing clarification the legal system provides regarding Crown consultation, Manitoba Conservation

recommends the proponent meet with Conservation staff to discuss how they plan to engage Aboriginal communities in the planning process.

4.2 Minimum Requirement for Communication

To help an exchange of information, the proponent will deliver information on the following aspects of the plan:

- management objectives
- wood supply/modelling and scenarios
- summaries of resource information
- information to assist in an understanding of the FMP
- access development
- proposed operating areas
- monitoring
- mechanism to identify and collect values in the forest

Not all attributes of the plan will be available at each communication session because of the iterative process of planning.

5.0 The Forest Management Plan

The Twenty Year Forest Management Plan will include these major components:

1. Introduction
2. Reporting Communication
3. Corporate Overview and Facility Description
4. Forest Management Licence Area Description
5. Socio-Economic Conditions
6. Planning Context
7. Resource Analysis
8. Preferred Management Approach – Selection Process
9. Development Activities (Implementation Strategies)
10. Operating Practices
11. Monitoring and Assessment
12. Research

5.1 Introduction

The introduction section will describe, explain the purpose and set the context for the FMP locally, regionally and provincially.

Figure 1

Overview of Forest Planning Process

FMP Year	Planning	Reporting	
17	Submission of Terms of Reference	Annual Report	
18	Submission of Modeling - if required	Annual Report	
19	Submission of new FMP	Annual Report	
20	FMP Approval	Annual Report	
1	1 st year of new FMP	Annual Report	Forest Report (Yrs 16-20)
2		Annual Report	
3		Annual Report	
4		Annual Report	
5		Annual Report	
6		Annual Report	Forest Report (Yrs 1-5)
7		Annual Report	
8		Annual Report	
9		Annual Report	
10		Annual Report	
11		Annual Report	Forest Report (Yrs 6-10)
12		Annual Report	
13		Annual Report	
14		Annual Report	
15		Annual Report	
16		Annual Report	Forest Report (Yrs 11-15)

5.2 Reporting Communication

The Twenty Year Forest Management Plan document must contain a section reporting on communication as part of the planning process. A summary must be included which reports on the information listed below:

- description of the communication processes and activities
- description of when and how the communication occurred
- document what was presented
- list of what input was received
- discussions of how the concerns have been addressed in the plan
- identification of how the proponent will establish an on-going communication program through annual plans and other processes

5.3 Corporate Overview and Facility Description

The overall project, existing and/or proposed, will be described in terms of facilities, production capacity, wood supply requirements (including species utilization), nature of products produced and market(s). Information about the company will be provided including company goals, corporate structure (staffing and organization,), operating mandate, management philosophy and the broad policies under which the company operates.

5.4 Forest Management Licence Area Description

The proponent must provide information that describes the forest area, how it is administered, historic forest conditions, current forest conditions and other uses within the proposed development area. Documentation should include maps at an appropriate scale, tables, graphs, lists and/or narrative.

5.4.1 Forest Administration

The proponent will provide:

- An explanation of how forest lands are organized for administrative purposes. This should include FML area boundaries, forest sections, forest management units, provincial forests, parks, areas of special interest (ASI), designated wildlife lands (ex. wildlife management areas, refuges, etc.) ecological reserves, operating areas,

ecoregions, ecozones, status and ownership.

- Data presented on a map suitable for display as well as a digital map provided to the province at a 1:1,000,000 level of detail.
- An overview of how the FML tenure allocation is managed, in particular how overlapping licensees and quota holders access their approved volume.

5.4.2 Biophysical (Site) Description

A physical description of the FML area is required. It should include, but is not limited to, a description on climate, soils, geology, terrestrial and aquatic flora and fauna, water resources, physical infrastructure and protected areas at available and appropriate levels of detail.

5.4.3 Historical Forest Description

The FMP must discuss the natural and man-caused processes that occurred within the planning area in the past. This information is important for understanding of the current forest condition.

The section must contain information on past forestry operations. The discussion will be accompanied by maps at an appropriate scale and/or tables to describe all past forest management activities, from the date of inventory or for the past ten years, whichever is longer. This information will act as a point of reference for linking past and proposed activities.

The maps and/or tables should include at a minimum:

- existing access development including road class, ownership, status (for example active, retired, rehabilitated), stream crossings
- harvested areas
- report on renewal activities such as, areas scarified for natural regeneration, areas planted, stand tending (including information on vegetation management programs) and renewal surveys
- history of natural disturbances including fire, insects and disease

5.4.4 Current Forest Description

A description of the current condition of the forest provides the basis for planning the use and management of the forest resource and establishes a benchmark for monitoring and reporting. Current forest condition must be described in terms of forest structure, composition, and

function.

Information on the current condition of the forest must include:

- detailed description of the forest resources inventory classification for productive and non-productive forest lands by strata and/or forest type and changes from previous forest resource inventory
- description of landscape diversity

5.5 Socio Economic Conditions

Some productive Crown forest lands within the boundary of the FML area will have been previously allocated or committed for uses other than forestry. Commitments such as protected areas, Treaty Land Entitlements (TLE), or other Crown lands designations within the boundaries of an FML area may be excluded from forest management activities.

These commitments may influence forestry activities during the planning period, or planned forestry activities may have potential to affect uses on committed lands. The plan will recognize these commitments (claims, agreements) and describe the proponent's strategy for addressing any related issues. Other resource uses should be described in terms of local, regional and provincial significance. All pertinent existing and proposed land use activities the proponent is aware of within the planning area should be described. Activities may include hydroelectric development, parks and recreational areas, protected areas, mining, agricultural, utility corridors and highway development.

The proponent will describe:

- From available data (Statistics Canada) the social economic conditions on the FML.
- The economic contribution by the proponent's mill to the province. Recognize (if any) other landbase management plans provided by Manitoba contained in the terms of reference.
- Any recreational, cultural or historical values that contribute to the socio-economical conditions.
- Communities Economic Development policies.

The information required regarding other resource uses will be provided by Manitoba. For organizational purposes and clarity, the proponent may organize the requested information and date the information is required in a table in the terms of reference.

5.6 Planning Context

The plan will contain a section that establishes the context within which the plan has been developed and will be implemented. This includes information on:

- relevant federal and provincial legislation, policy and direction from other sources
- higher level values (biological, social and economic)
- criteria and indicators to assess sustainability
- quota holders, timber sales, special allocations and other third party operations
- certification audits

5.6.1 Legislation and Policy

The plan will make reference to government legislation, policies, plans and agreements that provide current direction for forest management. The proponent will:

- List in an appendix all applicable Acts, regulations and guidelines that must be followed that are relevant to forest management planning.
- Identify requirements and responsibilities under their FMLA as they relate to planning and management obligations.
- Reference The *Manitoba Environment Act* and the forest management activities to be licensed under this act.
- Include a discussion on how the FMP is addressing the integration of recovery plans for provincial and federal species at risk that occur within the license area.

5.6.2 Resource Goals

Goals should be established in terms of the values to be protected and goods and services to flow from the area based on public input, be consistent with government policy and recognize existing commitments.

5.6.3 Criteria and Indicators for Assessing Sustainability

Manitoba, as a signatory to Canada's Forest Accord, has committed to reporting on sustainability using a minimum of six criteria that are part of the criteria and indicators framework developed by the Canadian Council of Forest Ministers 1995 (CCFM).

The criteria developed through the CCFM are:

- biological diversity

Figure 2

FMP - 1 Forest Management Unit Land Summary

Land Type	Land Ownership							
	Crown				Park			
	Open	Closed	Restricted	Private	Open	Closed	Restricted	ASI
Non-forested								
Water								
Barren-bare rock								
Fields								
Meadow								
Marsh-muskeg								
Unclassified								
Subtotal Non-forested								
Forested								
Non-productive Forest								
Lowland								
Treed Muskeg								
Open Muskeg								
Upland								
Treed rock								
Willow and alder								
Protection forest								
Sub-total Non-productive								
Production Forest								
Potential Productive								
Production Forest								
Sub-total Production								
Sub-Total Forested								
Total Crown								

Rationale for FMP-1

This table will establish the amount of area in the different forest land classifications, at the time the plan is written.

Instructions FMP-1

Each FMU and/or Forest Section, or other administrative boundaries approved by MC should complete table FMP-1, which may be included in an appendix. A summary table of all FMP-1 tables should be included in the FMP. Use whole numbers (no decimals).

- ecosystem condition and productivity
- soil and water
- role in global ecological cycles
- economic and social benefits
- society's responsibility

5.6.4

Quota holders, timber sales, special allocations and third party operations

Other timber disposition holders (for example quota operators) within the plan area will be given the opportunity to participate in the development of the FMP. The proponent must involve third party operators at key stages of plan development and document their involvement in the plan.

5.6.5

Certification Audits

Independent forest certification audits may be voluntarily undertaken by the proponent. Each forest certification system developed criteria upon which a certification decision is assessed. The applicable indicators used during certification should be stated in the FMP. A publicly available copy of the most recent certification audit should be placed in the appendix of the FMP. The following forest certification systems are applicable in Canada: Canada Standards Association (CSA), Sustainable Forest Initiative (SFI) and Forest Stewardship Council (FSC).

5.7

Resource Analysis

The process used in development of the FMP must include a detailed analysis of the wood supply in the FML area.

Manitoba Conservation will endeavour to supply the proponent with a base case wood supply analysis that reflects the collaborative efforts between the province and the company in the development of the base case wood supply model. If Manitoba does not have a base case completed by the time the terms of reference for the FMP is submitted, the Director of Forestry will give written specific instructions to the proponent on how to proceed in a timely manner.

The proponent may evaluate the base case and other scenarios to select a preferred sustainable forest management scenario. Manitoba Conservation may cooperate with the proponent in securing other independent analysis to produce a scenario which may assist the proponent in dealing with a specific issue (ex. caribou habitat).

The strata utilized in the proponents' scenarios must employ the base case strata or may be sub-divided (must be able to roll-up) in the development of the various scenarios assessed. This will allow Manitoba Conservation to compare the proponents' scenarios to the base case. If the proponent modifies or revises the strata, yield curves and/or the land base used in the base case, then an analysis must be supplied to Manitoba Conservation to demonstrate the rationalization for that decision. This analysis must be delivered to Manitoba Conservation nine months prior to the delivery of the plan. Within a minimum of three months of receipt Manitoba Conservation will notify the proponent if the analysis is satisfactory with comments or conditions.

The growth and yield for each strata utilized in the base case must stay the same for any other scenarios. When a stratum is sub-divided the same growth and yield information will be used for the new strata as the original stratum.

Figure 3

FMP - 2 Description of Strata

Strata	Definitions

Rationale for FMP-2

This table defines the strata used in this FMP.

Instructions FMP-2

Identify and define the strata.

Figure 4

FMP - 3 Current Forest Description

Total Landbase

Strata	Age Class or Seral Stage (ha)						
Total							

***Note - this information may be represented as a graph or table and a map**

Rationale for FMP-3

- This table will list the area of the age classes or seral stage of each strata in the total current forest condition.
- This table will be used in the future to confirm objectives pertaining to biodiversity, stabilization of strata and future forest conditions.

Instructions FMP-3

Strata: Insert the strata codes from FMP-2 in this column.
Age Class/Seral Stage: Enter area of age classes or seral stages per stratum.

5.7.1 Forest Modeling Landbase

The forest resources inventory used in developing the FMP will be the version used by Manitoba Conservation in developing the base case. The plan must indicate the date of the most recent forest inventory, and when that inventory was date stamped. Any enhancements to the inventory made by the proponent should be indicated and rationalized.

Landbase Netdown and Description

Forest lands within the FML area boundary not managed for timber production must be included in the description of the current condition, including the following:

- federal parks, ecological reserves, protected areas and any lands permanently withdrawn from timber operations through legislation
- areas where policy direction does not permit forest operations
- forest lands that will be managed to meet goals for other values (i.e. buffers along water features)
- areas where forest operations have been deferred until some time in the future. If deferred areas mentioned are included in the base case a generic description is required (ex. to meet adjacency requirements, wildlife guidelines and areas of special interest). These lands are part of the land base for determining timber production levels but are not available in the short term.
- areas depleted but not yet successfully regenerated
- low volume stands

5.7.2 Modelling Wildlife Habitat

The plan should discuss the relative amount of habitat for a minimum of five selected wildlife species and the relative abundance of habitat for the selected species over time.

5.8 Preferred Management Approach - Selection Process

The selected management approach needs to be compared to other scenarios, including the base case analysis. Objectives to compare the base case with other scenarios should be broadly organized in either ecological or social-economic benefits. Each scenario will be assessed against the relevant selected management objectives.

The information required in this section will provide guidance and focus to the FMP by identifying the

proponents' proposed management direction. These should be linked to the desired future condition of the forest identified as part of the overall planning context. The discussion on the management approach will:

- Assess values driven by legislation, criteria and indicators, forest certification, and public involvement.
- Assess the relevant management objectives.
- Include an evaluation of the preferred management approach and summarize potential timber and non-timber flows resulting from implementing the approach.

5.8.1 Higher Level Values

The higher level values of a plan are developed by the proponent using provincial legislation and policies, company policies and commitments, forest certification requirements and public values.

5.8.2 Management Objectives

Management objectives are to be developed to address higher level values. Objectives must be measurable where reasonable and used for the longer term. The management objectives form the core of the plan. All other information in the plan should support the objectives and how they will be achieved.

The management objectives should address the following subject areas:

- Ecological – indicates how this FMP will conserve biodiversity and ecological integrity of the forest and as compared to the base case if the preferred management approach is not the base case;
- Socio-economic – indicates how this FMP will influence the values (associated with cultural and traditional, economics and recreational activities) of First Nations, local communities and other resource users.

5.8.3 Targets

The proponent shall establish targets that are linked to each objective, which will be measurable where practical and have an achievement date.

5.8.4 Strategies

The proponent will indicate the management strategies to be used to achieve objectives. For each objective, the

Figure 5

FMP - 4 Current Forest Description Netdown

Strata	Age Class or Seral Stage (ha)						
Total							

Note - this information may be represented as a graph or table and a map

- This table will document the area of the different age classes or seral stage of each strata in the netdown landbase.
- This table will be used in the future to confirm objectives pertaining to biodiversity, stabilization of strata and future forest conditions.
- This table is different from FMP - 3. The area, by strata, is the net area available for the determination of a sustainable harvest.

Instructions FMP-4

Strata: Insert the strata codes from FMP-2 in this column.
Age Class/Seral Stage: Enter area of age classes or seral stages per stratum.

proponent will provide a detailed description of strategies to be employed over the planning period and any potential challenges that may interfere with meeting objectives. An objective, a target and a group of strategies develop an objective string. These objective strings will be written to be easily read and organized under either ecological or social-economical objectives headings.

5.8.5 Evaluation of the Preferred Management Approach

All the scenarios must be analyzed and ranked against the management objectives that can be quantified in the wood supply modelling process. The discussion and ranking of each scenario must be included.

5.8.6 Preferred Management Approach

The modeling component of the analysis projects how the

forest will develop (future forest condition), when managed to achieve the overall objectives. The various management scenarios including the base case identified in the plan will be scored on their relative achievement of the relevant stated objectives. (FMP-5)

The highest scoring scenario is usually chosen as the preferred management approach. The discussion for rejecting other high scoring scenarios must be contained in this section. Choosing a highly scored scenario that does not have the highest score because it was selected to satisfy higher order commitments is acceptable.

The preferred management approach will be stated. The reasons for selecting this scenario must be included in the discussion. A set of specific benefits for choosing this scenario will be stated. The changes, if any, in the actual day-to-day operations resulting from the preferred management approach will be stated.

A table, map or a chart will be developed to verify that the strata sequence developed in the preferred management approach is possible within the operating areas in the FMP.

Figure 6

FMP - 5 Ranking Scenarios by Objectives

				Level of Achievement of Scenarios		
				1	2	3
Objectives	Target	Weight	Unit of Measure			
Quantifiable Objectives						
Non-Quantifiable Objectives						
Score						
Preferred Management Approach						

Rationale for FMP-5

This table ranks the scenarios in achieving targets of the overriding objectives.

Instructions FMP-5

- List the scenarios in the columns under the heading Level of Achievements of Scenarios.
- List the objectives and their corresponding targets and unit of measure in the appropriate columns.
- Insert for each measurable target the level of achievement for each scenario. The plan author will develop a scoring system to evaluate the scenarios.
- List the non-quantifiable objectives.
- Rank the likelihood of the different scenarios in attaining the non-quantifiable objectives.

5.9 Development Activities (Implementation Strategy)

The proponent must identify the forest development activities that will be carried out to implement the preferred management approach.

The discussion should contain information on:

- harvest operations – operating areas and harvest methods
- road development and access management – primary, secondary and major winter road corridors and alternatives
- forest renewal – renewal prescriptions and associated activities
- forest health – historical forest health concerns on the FML

When Manitoba Conservation is the proponent assessing forest health concerns, the Director of Forestry may order harvesting on Crown Lands.

Information will include the criteria used in identifying and selecting areas for harvest, renewal and tending operations; operational harvest prescriptions for strata; the location of new primary, secondary, and long term winter road corridors and broad management strategies for road use. The FMP should describe strata renewal and tending treatments to be implemented and the provincial renewal standards to be achieved. The treatments proposed should be consistent with the company's standard operating and renewal practices and provincial legislation, policy, guidelines and standards for forest management. Road development and management will also address concerns about access development related to other values such as wildlife.

The following information must be included. A map depicting operating areas should be produced at a poster size. Information may be stated in the FMP tables:

Harvest Operations

- overview of annual wood requirements indicating species, volumes and harvest systems
- proposed operating areas and projected schedule for development
- projected harvest volume by strata for each five-year period
- harvesting methods (clear-cut, strip-cut, mechanical systems)
- understory protection approaches

Road Development, Access Management and Other Infrastructure Development

- development corridors, proposed and may include alternatives, (one kilometre wide) for all weather roads and main winter access roads to operating areas
- water course crossing
- road construction standards
- wood storage and processing areas

Forest Renewal

- overview of renewal activities to be conducted by the company including cost shared programs in site preparation, planting, tending, tree improvement, and regeneration and free to grow (FTG) surveys;
- discussion on renewal methods including natural regeneration, assisted regeneration by direct seeding or planting (include supporting activities such as seed collection and tree improvement operations);
- silvicultural prescriptions by strata

The discussion must include a forecast of the types and levels of activity for renewal and tending operations planned for the FMP period. Renewal activities are to be linked to the overall management objectives and implementation strategies. This linking will be completed by using silvicultural ground rules.

Silvicultural Prescriptions (SP)

The SP is a framework that describes the link between current forest condition, silvicultural treatments and the future forest condition (strata). The SP contributes to achieving objectives, strategies and targets within the overall framework of a sustainable FMP. Each silviculture treatment will be described in table FMP 6.

A SP is reported for each strata harvested in the preferred management strategy. This process may predict major cover type changes and therefore assist in offering changes prior to sustainability issues being developed.

The outcome of these silviculture prescriptions will be monitored using regeneration and FTG surveys and reported appropriately.

The SP will list the desired strata, by percent, resulting from the implementation of the stated prescriptions. The strata forecast in the SP may be different than the strata transition in the base case, treatment and response table.

Figure 7

FMP - 6 Proposed Silviculture Treatment Prescription by Strata

Current Strata	Future Strata	Siviculture Treatment Prescription

Rationale for FMP-6

The purpose of this table is to show the future stratum that the proposed silviculture treatments will develop.

Instructions FMP-2

- List a current stratum.
- List the future stratum and the per cent of the original that those particular silviculture treatment (s) will likely develop.
- Silvicultural Prescriptions: State all the silvicultural prescriptions that are likely to be utilized to attain this future stratum.

Figure 8 FMP - 7 Forecast of Wood Utilization by Licensee per Year

Licensee or 3rd Party	Product	Volume (m ³)		
		Softwood	Hardwood	Total
Total				

Product

Kraft, newsprint, lumber, OSB, fuelwood, rails and posts or unknown.

Rationale for FMP-7

The purpose of this table is to estimate the volume each licensee or 3rd Party will harvest per year by conifer and hardwood.

Instructions FMP-7

- Licensee: List all licensees in the left column.
- Product: List all the products (lumber, kraft, newsprint, OSB, post and rails or unknown) each licensee will produce.
- Volume: List an estimate of the volume of wood harvested by licensee by product by conifer and hardwood per year.
- Total: Sum the softwood and hardwood columns.

Figure 9 FMP - 8 Forecast of Sequencing by Five Year Terms

Strata	Age Class	1st Five Years	2nd Five Years	3rd Five Years	4th Five Years
		Preferred Mgt App Harvest Area (ha)	Preferred Mgt App Harvest Area (ha)	Preferred Mgt App Harvest Area (ha)	Preferred Mgt App Harvest Area (ha)
Sub-total					
Sub-total					
Sub-total					
Sub-total					
Sub-total					

Rationale for FMP-8

The purpose of this table is to highlight the planned schedule for harvest.

Instructions FMP-8

Strata: Use the stratum list from FMP-2.

Age Class: Use the age classes from the modelling.

Preferred Management Approach Harvest Area: Populate this column from the modelling of the Preferred Management Approach.

Figure 10

FMP - 9 Forecast of Primary and Secondary Road Construction and Management

Road Name	Road		Construction (km)	Management Strategy Current*	Management Strategy Proposed*
	Class	Length			
A. New Roads					
Sub-total					
B. Existing Roads					
Sub-total					

*Management Strategy Codes

- A** Regular Maintenance - to provide for conditions that facilitate harvesting and log hauling operations. Includes regular grading, gravelling, repairing and cleaning culverts, ditching and brushing.
- B** Periodic Maintenance - to provide for conditions that facilitate renewal and assessment activities (minimal maintenance to permit access using a 4x4 vehicle).
- C** Monitoring - monitoring of water crossing to mitigate the likelihood of a washout.
- D** No maintenance - road no longer required for forest management activities.
- E** Short term decommissioning
- F** Long term decommissioning
- G** Re-opening

For more information see the Road Development Plan

Rationale FMP-9

This table describes the proposed new roads. This table may also show the existing primary and secondary roads and the associated management strategy.

Instructions FMP-9

- List the new roads planned for construction during the FMP.
- List the road class and the construction length in the appropriate columns.
- List the names of the existing primary and secondary roads under the column Existing Roads. Include the class and the length in the appropriate columns.
- The column named Length is used for the existing road distance.

5.10 Operating Practices

The proponent must present an overview of all forest management planning and operating practices or procedures employed by the proponent in the course of day-to-day operations, including standard operating procedures for harvest operations, road development, access management and forest renewal.

5.11 Monitoring and Assessment

Forest operations will be monitored by the company to ensure compliance with the FMP and operational prescriptions. Monitoring should also identify the effect of forest management activities on forest cover and forest values.

The FMP will contain a section that describes the forest operation monitoring programs. The FMP may contain information on the following if it differs from the normal monitoring:

- A description of the monitoring programs that will be used to monitor forest operations.
- Data collection programs to be carried out by the company include growth and yield studies, permanent sample plot programs and pre-harvest ecological surveys. The FMP will indicate what programs the company intends to implement, the standards for data collection and how the programs will be co-coordinated with similar programs in Manitoba Conservation.

Monitoring will be conducted as part of FMP implementation and will be reported on. Reporting provides:

- A way to account to the public on the results of forest management operations set out in the twenty year plan; and
- A record of forest management operations and their results. This can be used in future planning efforts and to implement adaptive management approaches.

5.12 Research

The proponent is encouraged to partner and participate and recommend future research needs that may increase the growth or health of a forest, verify sustainability, understand ecosystem functions and recovery pathways and increase public acceptance of forest management activities. The proponent should list and describe the current and planned research relevant to their landbase.

Research may assist the proponent write a FMP. Published research is encouraged to be used to help the proponent verify strategies that are used to meet objectives. Current research, that is unpublished but preliminary results have been developed, may be used to explain strategies in the FMP. The improved knowledge resulting from research activities should link to the adaptation of forest management practices.

6.0 FMP Amendment

Significant changes to the overall direction of the FMP will require an amendment. Operational or tactical approaches within annual operating plans (AOP) may change without affecting the strategic direction of the FMP. The effects of these changes on wood supply can be monitored in time. The following will require review and approval from Forestry Branch. An approval of the alteration to the proposal, submitted to the Environmental Assessment and Licensing Branch will be required.

FMP Amendment triggers:

- new operating area, due to significant area lost to fire, insect, landbase changes (parks, TLE, cottage development), operational requirements etc.
- new access development primary and secondary roads or access outside of range described in plan
- deviation from the planned harvest strata sequencing by more than 20 percent when more than 80 percent of the AAC has been harvested
- the proponent is changing the preferred management alternative

7.0 Implementation Strategy

FMPs are implemented through an AOP, data collection programs, performance monitoring and use of adaptive management processes. AOPs are the primary vehicle for FMP implementation. The proponent will provide a description on how the FMP and AOP processes will be linked.

8.0 Plan Review and Approval

Nine months prior to delivery of the FMP the proponent may deliver the modeling portion of the FMP to the Forestry Branch. Within three months of the delivery of the modeling, provided the modeling follows the protocol set out in the Manitoba Submission Guidelines for Twenty Year Forest Management Plans, Forestry Branch will review the modeling and pre-approve the modeling or in writing suggest the changes that are required to have the modeling approved.

The FMP once completed will be delivered to the Forestry Branch. Within two months the FMP is read by a small group in Forestry Branch and a preliminary list of changes is developed mainly focusing on the completeness of the FMP and is provided to the proponent. The proponent is expected to change the FMP before moving forward to the next step.

Forestry Branch will receive an updated FMP in hard copy and digital copy. Within three months Forestry Branch will

co-ordinate the review of the FMP in Forestry Branch and the other branches or departments (Wildlife and Ecosystem Protection Branch, Parks and Natural Areas, Science, Technology, Energy and Mines, Water Stewardship, etc...). Forestry Branch will collate the changes and forwarded the required changes to the proponent within one month after the review has ended.

The updated FMP will also be sent by the proponent to the Environmental Assessment and Licensing Branch in addition to filing a proposal with the Branch to initiate the Environment Act process. In this process, members of the public and technical reviewers from the provincial and federal governments have an opportunity to review the documentation and identify concerns. Additional information will be requested as required to address these concerns.

Once all changes to the FMP required by the Forestry Branch review process and all additional information required by the *Environment Act* process have been completed, approvals can be provided.

Approval

The approved FMP is signed by both the proponent and the Director of Forestry. At the same time, an *Environment Act* licence is issued by the Environmental Assessment and Licensing Branch.

Appendix 1

Map List (maps may be combined)

Map Name	Approximate Scale	Components	Requirement Timing	Attributes
Operating Map	1:100,000 – 750,000 Represent FML on poster size map	Potential harvest stands by operating area. Primary, secondary and long term winter road corridors with alternatives if required and showing major water crossings.	Early in FMP development used in Public Communication.	Will likely change after Public Communication. Selection of one corridor per road.
Cover Type maps	poster	Shows young and old forests by cover type, non-productive and water.	Early in FMP development used in Public Communication.	This map does not change but it will be used in the next FMP.
Habitat availability over time of the selected species (optional)	letter size	Shows the preferred habitat for each selected species (separate map for each species).	FMP delivery date	This map does not change but it will be used in the next FMP.
License Map	letter size	Shows the License Area including large lakes and roads, owner ship, administrative boundaries.	Early in FMP development used as handouts in Public Communication.	
Harvest History –past 15 years or from the date of digital depletions	letter size			
Resource Uses	letter size			
Bio-physical	letter size			
Infrastructure Map	letter size			
Natural Disturbance – fire, insect and disease, windthrow etc.	letter size			

Glossary of Terms

Adaptive Management

Active adaptive management is a systematic process of modeling, experimentation, and monitoring to compare the outcomes of alternative management actions (Farr 2000). Adaptive Management describes an iterative process designed to improve the rate of learning about the management of complex systems. The process incorporates an explicit acknowledgement of uncertainties and knowledge gaps about the response of the system to management actions (Farr 2000).

Active adaptive management involves constructing a range of alternative response models (hypotheses) based on existing data, calculating the long-term value of knowing which is correct, and then weighing this long-term value against any short-term costs incurred in finding out which is correct. Active adaptive management involves deliberately perturbing the system to discriminate between alternative models (hypotheses). (Taylor et al. 1997).

Annual Allowable Cut (AAC)

The volume of wood which may be harvested, in the Forest Management Licence area, is expressed in cubic metres on an annual basis.

Annual Operating Plans (AOP)

Plans prepared and submitted annually by timber operators describing how, where and when to develop roads, harvest timber and renewal of the forest. They describe the integration of operations with other resource users, the mitigation of the impacts of logging, the reclamation of disturbed sites and the reforestation of harvested areas.

Biodiversity

The variety and variability within and between living organisms from all sources such as terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part.

Ecological Approach

The management of human activities so that ecosystems, their structure, composition and functions and the processes that shaped them can continue at appropriate temporal and spatial scales.

Model

An idealized representation of reality developed to describe, analyze or understand the behaviour of some aspect of it. Modeling is a mathematical representation of relationships under study. The quest to find a subset of variables and a function between them that predicts one or more dependent variables.

Operating Area

A contiguous area where forest development activities are planned. Impacts of proposed harvesting activities on various resource concerns (Ex: ecological diversity, habitat management, access, water management) are assessed based on the entire operating area.

Preferred Management Approach

A set of compatible and integrated resource management objectives and strategies are selected to guide plan implementation.

Reforestation

Activities involved in forest renewal (site preparation, tree planting, etc.)

Seral Stage

The series of plant community conditions that develop during ecological succession from bare ground (or major disturbances) to the climax stage. (Dunster 1996)

Silviculture

The theory and practice of controlling the establishment, composition, structure and growth of forests in order to achieve specified management objectives.

Sustainable Forest Management (SFM)

Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations (CCFM 2000).

References

Dunster, Julian and Katherine. 1996.

Dictionary of natural resource management. UBC Press. Vancouver B.C. 363 pp.

Farr, D. 2000.

Defining adaptive management. Adaptive Management Experiment – Report No. 3. 6 pp. www.ameteam.ca/About%20Flame/AAMdefinition.PDF

Government of Manitoba. 1994.

Applying Manitoba's Forest Policies.

Manitoba Conservation. 1999.

Report of the consultation on sustainable development implementation (COSDI). 200 Saulteaux Crescent Winnipeg, MB. 37 p. www.gov.mb.ca/conservation/susresmb/pub/cosdireport.html.

KPMG. 1996.

Manitoba's Forest Plan...Towards ecosystem based management.

Ecological Scarification Working Group. 1995.

A national ecological framework for Canada. Agriculture and Agri-food Canada. Res. Br. Centre for Land and Biological Resources Research and Environment Canada. State of the Environment Directorate, Ecozone Analysis /br. Ottawa/Hull. Report and national map at 1:7,500,000 scale.

Canadian Council of Forest Ministers (CCFM). 2000.

Criteria and indicators of sustainable forest management in Canada. National status. www.ccfm.org/ci/national_status_full_report2000_e.pdf

Canadian Council of Forest Ministers (CCFM). 2003.

Defining Sustainable Forest Management in Canada, Criteria and Indicators 2003. Natural Resources Canada, ISBN: 0-662-34852-4. Ottawa, Ont. 20pp. www.ccfm.org/current/ccitf_e.pdf

Taylor, B., Kremsater, L., and Ellis, R. 1997.

Adaptive management of forests in British Columbia. BC Ministry of Forests, Forest Practices Branch, Victoria, BC. 93 pp. Available at: www.for.gov.bc.ca/hfd/pubs/docs/sil/sil426.htm

The Sustainable Development Act. 1997.

web2.gov.mb.ca/laws/statutes/ccsm/s270e.php



