

1997 – 2009 Forest Management Plan Summary

1.0 Introduction

The Company's 1997-2009 Forest Management Plan (FMP) describes timber harvesting, access development, and forest renewal activities planned for the Tolko Manitoba Forest Management License Area (FML Area No. 2) for the 13 year period of 1997 to 2009 inclusive. This summary of the FMP has been prepared as an appendix document to the SFM Plan being prepared by the Company to meet the Sustainable Forest Management (SFM) requirements of the CSA Z809-02 Standards. The SFM Plan is based upon the approved and licensed plans for forest management activities and processes presented in the FMP and as such, some directly applicable material has been referenced within the SFM Plan document itself. The full version of the Company's 1997-2009 FMP, along with the associated Environmental Impact Statement (EIS) is available for viewing by the public at Manitoba Conservation Environment Approvals Branch Public Registries. This summary of the FMP has also been made available for public access via the Company's website for presentation of SFM related materials at www.tolkomanitoba.com.

The FML Area No. 2 DFA has been reduced in size from the area that was in effect as the FML Area at the time the 1997 – 2009 FMP was prepared, submitted and approved. Section 8 (A) of the FML Agreement between the Company and the Province of Manitoba describes the original FML Area No. 2 as consisting of two parts: Area I and Area II. In 2002 the geographic area encompassed by "Area II" was withdrawn from FML Area No. 2 resulting in the DFA that is now in place and to which the SFM Plan applies. In addition, the rights to harvest of stands on the DFA classified as "Hardwood" and "Mixedwood" in the Manitoba Forest Inventory were withdrawn from the Company and repatriated back to the Crown in 2002. As such, the hardwood and mixedwood resources on the DFA are now managed and allocated by MC.

The manufacturing facilities of the Company located at The Pas, Manitoba, and the rights and responsibilities for the management of the forest resource of FML Area No. 2 were acquired by Tolko Industries Ltd. on August 8, 1997. The Company was acquired by Tolko Industries Ltd. after the 1997-2009 FMP was submitted to the Government of Manitoba for approval and licensing, but prior to the holding of Clean Environment Commission (CEC) public hearings on the FMP. As such, Tolko Industries Ltd. had acquired control of the operation prior to the final public review, and the MC approval and licensing of the FMP which occurred by the end of 1997. Tolko Industries Ltd. is on record as fully supporting and endorsing the content and commitments made in the 1997 – 2009 Forest Management Plan.

As a result of the changes that have occurred with respect to the ownership of the Company and resulting responsibility for management of the DFA, as well as to the size and extent of the DFA itself as outline above, commentary on these changes is provided throughout this summary as applicable. It is important to note that the change in the extent of the DFA is a result of the withdrawal of areas from portions of the original FML Area No. 2 that previously extended further into the Mountain and Interlake Forest

Sections than is now the case with the DFA. As such it is noted that the entire DFA currently in effect was included in the FML Area at the time of FMP preparation, submission and approval and was included in the biophysical and resource use descriptions, sustainability assessment, proposed operations and all other components of the FMP presentation.

The FMP, which is a requirement of the Company's FML Agreement with the Province of Manitoba, required and received approval by Manitoba Conservation (MC), formerly Manitoba Natural Resources (MNR) and a license under the Manitoba Environment Act. An Environmental Impact Assessment (EIA) of the FMP was undertaken and a separate Environmental Impact Statement (EIS) submitted to Manitoba Conservation Environmental Approvals Branch, formerly Manitoba Environment (ME). The FMP received approval under *The Forest Act* and an Environmental License (Manitoba Environment License # 2302 E) under *The Manitoba Environment Act* in 1997.

The timber to be harvested under the FMP is utilized to supply the Company's mills at The Pas and to meet the requirements of third party operators who also have rights to wood supply on the DFA through their Timber Sale Agreements with Manitoba under the Manitoba Timber Sale System.

Tolko Manitoba's manufacturing facilities (unbleached kraft paper mill and sawmill) are described, along with the Woodlands organization which is responsible for planning and implementing the Company's forest management activities. The Company presently employs approximately 550 workers, with an estimated 200 additional people employed in contractor operations directly related to the Company's wood supply needs.

The Company's commitment to sustainable development, the economic and social benefits related to the implementation of the FMP, and the processes for communicating with the public and soliciting input on the FMP are reviewed. The latter includes public information meetings, resource user consultations, the Forest Resource Advisory Committee (FRAC) established in 1996, and the other public awareness activities of Company staff. As one user of the forest, the Company is committed to participating with other forest resource users, the provincial government, and non-government organizations in processes to meet SFM objectives for the DFA.

Introductory material presented in the FMP includes:

- Terms of reference;
- History and overview of the Company to the point in time at which the FMP was produced, including manufacturing facilities, and the Woodlands organization;
- Commitment to sustainable development;
- Preview of the FMP;
- Public participation processes; and,
- Economic and social benefits of the operation.

2.0 Forest Resource Organization and Administration

The ecological context of the DFA and the administrative boundaries established by the Province of Manitoba for forest management are described.

The process by which regulation of the Annual Allowable Cut (AAC) is undertaken by MC is presented, along with a summary of the respective planning and administration responsibilities of the Company and Manitoba as set out in the Forest Management License (FML) Agreement.

Forest resource organization and administration material presented in the FMP includes:

- Ecological context of the DFA;
- Administrative boundaries;
- Regulation of the AAC;
- Company and Province of Manitoba responsibilities; and,
- Joint responsibilities of the Company and Louisiana Pacific Canada for hardwood planning in the portion of Forest Management Unit (FMU) 12 contained in the DFA.

3.0 Biophysical Environment for FML Area No. 2

The description of the biophysical environment for FML Area No. 2 includes information on the lands and resources that make up the FML Area. As described earlier, the area encompassed by FML Area No. 2 at the time that the FMP was prepared, submitted and approved included area that is no longer part of the FML Area identified as the DFA for this SFM Plan. All lands included in the DFA are, however, included within the area for which biophysical environment information was presented when the FMP was prepared.

The characteristics of the FML Area No. 2 DFA described in the FMP include:

- Ecological land classification including ecozones and ecoregions;
- General land description including geology, topography and landforms, soils, climate and the carbon budget, air quality and vegetation;
- Hydrology including watersheds, surface water resources and groundwater;
- Timber resources including the Manitoba Forest Inventory, forest fires, extreme weather conditions, insects and disease, and the condition and supply of timber;
- Terrestrial wildlife including ungulates, furbearers, small mammals, birds, reptiles and amphibians; and,
- Aquatic wildlife including fish and aquatic invertebrates.

4.0 Land and Resource Use

The description of land and resource uses for FML Area No. 2 includes information on the land and resource uses that are present on the FML Area. As described earlier, the

area encompassed by FML Area No. 2 at the time that the FMP was prepared, submitted and approved included area that is no longer part of the FML Area identified as the DFA for this SFM Plan. All lands for which the land and resource uses that are applicable to the DFA are, however, included within the area presented when the FMP was prepared.

The land and resource uses of the FML Area No. 2 DFA described in the FMP include:

- An overview of Crown land classification and administration in Manitoba;
- Transportation infrastructure including provincial road network, railways, and transportation services;
- Hydroelectric power and natural gas development;
- Mining activities;
- Agriculture activities;
- Provincial water resource infrastructure;
- Fishing activities including commercial, sport, and domestic fishing;
- Wild rice harvesting including commercial and domestic production;
- Hunting activities including recreational and domestic hunting;
- Trapping and trapline administration;
- Lodges and outfitting;
- Snowmobiling;
- Skiing;
- Designated waterways;
- Special places including parks, wildlife management areas, and ecological reserves and heritage resources;
- First Nations Lands including Indian Reserves, Treaty Land Entitlement, Northern Flood Agreement and Co-management Agreements;
- Tourism; and,
- Special forest products.

5.0 Former and Existing Forest Management Practices

The planning framework for the DFA encompasses multi-year forest management plans, annual harvest and renewal plans and work permits guided by the legal and regulatory requirements of the Province of Manitoba and the requirements of the FML Agreement between the Company and the Province. The framework includes:

- Long-term strategic forest management plans guided by Manitoba's *Ten Year Forest Management Plan Submission Guidelines* (MNR 1998);
- Annual operating plans guided by Manitoba's *Planning and Submission Requirements for Annual Operating Plans* (MNR 1994); and,
- Work permit applications for each harvest, road development and forest renewal activity.

All forest management activities undertaken on the DFA are reviewed and approved through the government approval process which includes:

- On-going joint review and mitigation development during the course of plan development with the Integrated Resource Management Teams (IRMTs) representing the various Branches of government on behalf of the range of biophysical and resource values present on the DFA. Final review and approval of each FMP, AOP and respective work permits occur through these bodies for the DFA;
- Review and approval of FMPs and AOPs by the Integrated Directors Group (IDG) for review from a provincial perspective;
- Review and licensing of the FMP under *The Manitoba Environment Act* by MC Environmental Approvals Branch (formerly Manitoba Environment);
- Application for a work permit for each forest management operation on the DFA with approval through the respective IRMTs with final site-specific mitigation and work permit conditions of operation identified; and,
- Final on-the-ground monitoring and inspection process with District Natural Resource Officers.

The discussion of access development presents an overview of existing access development on FML Area No. 2. In conjunction with the development of the FMPOPs the Company developed a road classification system which is presented in the plan and has been utilized to categorize all Company roads on the DFA and for tracking and monitoring in the Company's Geographic Information System (GIS). The planning and development process for road construction as well as for associated maintenance requirements is outlined.

An historical overview of logging on FML Area No. 2 is presented in the FMP. Commercial logging operations commenced in 1908 by the Finger Lumber Company along the Saskatchewan River. The first operations for the current mill complex of the Company and its predecessors began in 1969 in the Saskatchewan River Forest Section of the DFA with cut and skid operations. Mechanical harvesting operations began in the DFA in the 1970's and have progressed to this day with up-to-date mechanical systems including cut-to-length operations. Deliveries include both road and rail transport from the areas of the DFA. Annual volumes harvested from FML Area No. 2 to supply the mills at The Pas since 1969 are summarized.

The Manitoba Timber Quota System under which independent timber sale operators harvest timber on the DFA is described. Under this system, MC, formerly MNR has granted third parties the rights to harvest specified volumes of timber from FML Area No. 2. Softwood and hardwood volumes harvested by third parties for their own use from FML Area No. 2 are summarized.

Forest renewal responsibilities of the Company and MC, silviculture systems, forest renewal requirements and prescriptions are reviewed. An historical overview of the Company's forest renewal activities is presented, including tree planting, site preparation, scarification, juvenile spacing, and herbicide release. Prior to development of the FMP, 51 million seedlings had been planted from 1984 to 1995 as the Company took on responsibility for forest renewal on the DFA. Since that time the Company has now planted over 100 million seedlings on the FML Area. Regeneration survey results and the Manitoba Forest Renewal Stocking Standards are presented.

Tolko Manitoba's commitment to integrated resource management is outlined and specific activities are described in the FMP. The Company recognized the importance of integrating other values on the DFA within the planning process through public communication and participation in planning processes and working with the various guidelines in place for forest management in Manitoba. A key part of the FMP development project was the development of the FMPOPs to integrate other values across the DFA in the development and implementation of forest management activities.

A discussion of forest protection addresses the respective roles of the Company and MC in the protection of forest resources on the DFA. Fire control, and insect and disease protection issues and approaches are described.

The Company's Geographic Information System (GIS) is described and research activities for timber and other resources are summarized. The latter includes participation in a woodland caribou strategy for the FML Area.

6.0 Objectives for the 1997-2009 Planning Period

The mission statement, environmental policy and forest management policy of the Company's predecessor were presented in the FMP. The SFM Policy of Tolko Manitoba as described through the Company's Values, Mission Statement, Forest Management Principles, Aboriginal Policy and Environmental Policy is presented on the Company's website at www.tolko.com. The Environmental Policy, Forest Management Principles and Aboriginal Policy of Tolko are also presented as **Appendices 2, 3 and 4** of the Tolko Manitoba SFM Plan document. The objectives set out for the FMP to be applied in management of the DFA are as follows:

- Plan and operate within all federal and provincial legislative and regulatory requirements;
- Apply the principles of SFM to provide for sustainable timber production, social and economic values and maintenance of ecosystems;
- Plan and implement operations which recognize non-timber resource values in FML Area No. 2; and,
- Maintain and enhance ongoing public communication processes to provide opportunities for the public to participate in the forest management planning process for FML Area No. 2.

The four objectives for the FMP are accompanied by a series of strategies for the implementation of the FMP in undertaking forest management on the DFA. These objectives have been set out to provide a consistent framework with the requirements of SFM as set out in the CSA Z809 Standard. Subsequent to the FMP, work on the SFM Plan has led to the development of the SFM performance framework for the DFA through an expanded public participation process to capture the values, indicators, objectives and targets for the DFA. This performance framework, set out in the Tolko Manitoba SFM Plan, provides additional and further defined direction to the Company in planning and

implementing forest management activities in addition to the objectives and strategies laid out in the FMP.

In addition to identification of the Company's objectives and strategies for forest management on the DFA, the Company's also addressed its role in terms of the Province of Manitoba's Forest Policies in terms of planning and operating practices.

7.0 Sustainability Analysis

Manitoba's Forest Plan . . . Towards Ecosystem Based Management (KPMG, 1996) sets the direction for MC for the evolution to ecosystem based management (EBM) of Manitoba's forests. EBM requires managing the forest to ensure future productivity, healthy regeneration, and ecological diversity, as well as satisfying economic, environmental and social values. In accordance with EBM goals and in recognition of the importance of forecasting analysis as a component of SFM planning, the FMP includes an assessment of the sustainability of the wood supply, ecosystems and biodiversity, and wildlife habitat for FML Area No. 2. These sustainability questions are examined for a 100 year forecast period through models utilizing the best available data appropriate to FML Area No. 2.

A sustainability assessment and forecast of the characteristics for forest composition as described by Manitoba FEC V-types and wildlife habitat values as described by Habitat Suitability Index (HSI) values was undertaken for FML Area No. 2 in the preparation of the FMP. The analysis was undertaken for two alternative scenarios representing potential strategies for management of the FML Area:

- Harvest to the full AAC level as per Provincial MC levels; and,
- Harvest to a lower harvest level identified as the potential maximum required to meet the needs of the Company and the Manitoba Timber Sale operators on the FML Area as defined at the time of FMP preparation.

In undertaking the sustainability assessment for these two alternative scenarios, the strategies applicable to both included the Company's commitment to forest renewal for all areas harvested to meet the timber supply requirements of the mill facilities of the Company. In order to test and ensure confidence in the AAC levels applicable to the FML Area, the Company undertook sustainability analysis to examine the forecasted effects of harvest at the AAC levels as the first alternative scenario or strategy assessed. The second alternative scenario examined was to forecast the effects on the elements of the forest utilized in the FMP as indicators at the proposed maximum harvest levels for the Company and third parties on the FML Area at the time of FMP preparation.

Proposed maximum FMP harvest levels and AACs for the FML Area No. 2 in place at the time of FMP development were as follows:

	Softwood (m3)	Hardwood (m3)	Total (m3)
AAC (Level M)	2,639,800	1,124,060	3,763,860
Maximum Proposed Harvest	1,800,000	890,000	2,690,000

Updated proposed maximum harvest levels and AACs for the current FML Area No. 2 DFA are as follows:

	Softwood (m3)	Hardwood (m3)	Total (m3)
AAC (Level 1)	1,645,180	N.A.	1,645,180
Maximum Proposed Harvest	1,224,545	N.A.	1,224,545

As described in the SFM Plan, the harvest levels of the Company and third parties on the FML Area and those currently proposed in the AOP remain well below the maximum harvest levels tested and assessed in the FMP.

Timber supply modeling demonstrated that both the MC AAC and the maximum harvest levels proposed in the FMP (which are within the MC AACs) were sustainable for all forest sections and ecoregions of the original FML Area No. 2 which includes the current DFA, over the 100 year forecast period. The economic and social benefits related to the proposed harvest are also identified as being sustainable.

The wood supply model results were then used in further modeling on an ecoregion basis to analyze sustainability of ecosystems and biodiversity and to assess wildlife habitat supply. The analysis of ecosystem integrity and biodiversity as represented by forecasts of seral state-covertime/Forest Ecological Classification (FEC) composition showed that the distribution remained relatively constant for northern (Ecoregions 88 and 89) and central (Ecoregion 148) ecoregions which incorporate the Highrock, Nelson River and Saskatchewan Forest Sections of the current DFA. The modeling also forecasted a relatively constant supply of habitat for most wildlife species in these same areas.

As noted in the FMP, the Company recognizes that in the implementation of forest management activities over the forecast period, the AAC and related harvest volumes utilized in the FMP modeling analysis will be adjusted in light of actual future forest conditions. This provides opportunity to adjust the AAC and harvest levels to address any potential forecasted adverse impacts on age class structure.

8.0 Proposed Operations

All Company and Company contract operations are to be conducted as documented in the Company's "Forest Management Planning and Operating Practices" (FMPOPs), developed in conjunction with the FMP development process. These FMPOPs, which are included as Appendix 3 to the FMP, document the Company's commitment to responsible forest management planning and operations. The FMPOPs are the basis for measures to mitigate potential environmental impacts of Company and Company contractor forest management activities. The FMPOPs will also play a central role as the Company progresses towards EBM and Sustainable Forest Management (SFM).

In development of the FMP operating areas were established by the Company for planning purposes. They are the areas within which harvesting is planned over the 1997-2009 period. The associated eligible stands for harvest are all forest stands identified as cutting class 3, 4 and 5 in the MC Forest Inventory which are contained within the proposed operating areas.

All-weather and main winter road access development for the 1997 - 2009 period are summarized. The FMP includes proposed construction of 859 kilometres of all-weather road over the 1997 – 2009 period. With the withdrawal of areas south of the 53rd Parallel from the FML Area, the current DFA includes 734 kilometres of the all-weather roads proposed in the FMP.

The Proposed Operations Map in the FMP indicates the proposed operating areas, associated forest stands eligible for harvest, and all-weather and main winter road access corridors.

In development of the FMP the Company indicated a potential maximum requirement for wood volumes based upon a proposed mill expansion plan in terms of both softwood and hardwood utilization.

The maximum annual harvest volumes indicated in the FMP to meet the combined requirements of the Company and the third party Manitoba Timber Sale Operators from the original FML Area No. 2 were described as 1,800,000 m³ of softwood and 890,000 m³ of hardwood. At present, softwood supply requirements for the Tolko mill facilities remain at a level of 1,224,545 cubic metres of softwood annually. At present the Manitoba Timber Sale Operators on the DFA harvest at levels of 49,361.97 cubic metres of softwood, such that the total wood supply requirements from the DFA remain well within the maximum wood supply requirement proposed in the FMP.

Subsequent to the development of the FMP, as noted earlier and in the SFM Plan, the rights to the hardwood resource on the FML Area No. 2 DFA have been repatriated back to the Province of Manitoba.

Areas harvested will be renewed consistent with the FMPOPs and the Company's commitments and obligations as detailed in the FMP.

9.0 Monitoring Activities

As acknowledged in the FMP, monitoring of forest management activities is essential to measure performance and to provide information for any needed adjustments to ensure continuous improvement through the adaptive management process. Monitoring activities described in the FMP include:

- Record keeping systems in place using GIS technology;
- Harvest and forest renewal records and reports;
- Regeneration surveys of harvested areas and certification status by MC;
- Harvest cutblock status reports to monitor harvest and follow-up reforestation activities and renewal status;
- Forest Management Annual Report to MC, which reports on forest management activities undertaken on FML Area No. 2 for follow-up discussion and review at annual meeting with MC; and,
- Utilization of the FML Area and Snow Lake FRAC committees which also provides on-going public and stakeholder participation in monitoring forest management activities conducted on FML Area No. 2.

As described in the monitoring section of the FMP, the Company made the commitment to develop and implement the SFM System for the DFA in fulfillment of the CSA Z809-02 Standards. A number of steps had been taken in this regard in conjunction with the development of the FMP including:

- Formation of the FML Area FRAC, which has since led to the formation of the additional CSA SFM Committee focused directly on assisting the Company in the preparation of the SFM Plan for the DFA;
- Development of the FMP and subsequent AOPs in fulfillment of all legislative and regulatory requirements and the FML Agreement with the Province of Manitoba;
- Development and on-going implementation of the public information meeting process for the FMP and all subsequent AOPs;
- Development and on-going update of the Public Mailing List updated to include all interested persons and organizations attending public information meetings or requesting information of the Company;
- On-going individual one-on-one meetings and group consultations with non-timber resource users on the DFA including trappers, lodge owners and non-government organizations;
- Training and development programs for staff members; and,
- Development and implementation of the Forest Management Annual Report which compares actual activities to those planned on the DFA with respect to each AOP.

As indicated by the Company in the FMP, the preparation of the SFM Plan for the DFA includes a performance framework of values, objectives, indicators and targets that have been developed through a public participation process with the assistance of the members of the CSA SFM Committee.

10.0 Research

The Company's research initiatives have been focused on enhanced forest management (forest inventory and intensive forest management (silviculture)), integrated resource management, and equipment improvements. The Company's interest is in practical research that will contribute to sustainable forest management on FML Area No. 2.

The forest inventory research program includes the establishment of Permanent Sample Plots (PSPs) to be established in a comprehensive sampling of stand conditions representative of the productive stands of the DFA. The data collected will be utilized to assist in development of growth and yield tables and curves for the various stand types in the DFA for future application to sustainability analysis and as a basis for future monitoring. In addition the research is being expanded to include natural disturbance and the effect of herbicides on biodiversity. A new updated forest inventory is also being produced for the DFA with initial work being focused on the Saskatchewan River Forest Section.

The Company has been involved in a number of research initiatives as described in the FMP including:

- Tree Improvement Trials (on-going joint work with MC);
- Manitoba Archeological Predictive Model development with the Manitoba Model Forest, other Manitoba forest industry and Manitoba Conservation;
- Manitoba Forestry Wildlife Project;
- Woodland Caribou Research;
- Northern Manitoba Vision Field Trials; and,
- Bat Hibernacula Habitat Review.

Work in the woodland caribou research area continues at this time with the development of a Woodland Caribou Strategy for the southern Highrock area jointly with MC.

As indicated in the FMP the Company is interested in participating in new research initiatives related to sustainable forest management on the DFA. As such, the Company is currently participating in a university sponsored study on the effects of soil warming on the soil structure and function of black spruce boreal forests.

The Company is a member of the Forest Engineering Research Institute of Canada (FERIC) which undertakes research on behalf of its members in areas of equipment productivity, safety, training and environmental and sustainable forest management issues such as soil and site disturbance. The Company has and will continue to avail itself of training opportunities through FERIC based upon new research developments.

11.0 Training and Development

The FMP indicates the recognition of the Company of the importance of training and development for assisting staff and employees in their roles in resource management. The Company's training and development activities pertaining to its forest management activities include staff memberships and affiliations with a number of other organizations related to the advancement of forest management such as the Canadian Institute of

Forestry. In-house training and development of staff through attendance at seminars, workshops, and conferences is undertaken where suitable opportunities are presented that will contribute to the training and development plan for each staff member. Such opportunities currently include the Company's participation in the Manitoba Forest Practices Committee which is a joint project with MC and other Manitoba forest industry partners to develop operational practices leading to sustainable forest management in the province.

Since the development of the FMP the Company has established an EMS for the DFA that includes a training and development program and a training matrix outlining the program and resulting training undertaken by each staff member. More recently the Company has also integrated the requirements for SFM within the EMS.