
***TECHNICAL REVIEW COMMENTS
on the Prince Albert 2018-2038
Forest Management Plan***

Sakâw Askiy Management Inc.

Prepared by
Saskatchewan Ministry of Environment
Forest Service
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Acronyms

CBFA	Canadian Boreal Forest Agreement
CCFM	Canadian Council of Forest Ministers
DFO	Department of Fisheries and Oceans Canada
EA	Environmental Assessment
EASB	Environmental Assessment and Stewardship Branch
EIS	Environment Impact Statement
EMU	Ecological Management Unit
FMA	Forest Management Agreement
FMP	Forest Management Plan
FMPD	Forest Management Planning Document (2007)
FMP Standard	Forest Management Planning Standard (2017)
FRMA	<i>The Forest Resources Management Act</i>
FWL	Fish, Wildlife and Lands Branch
GIS	Geographic Information System
HVS	Harvest Volume Schedule
Minister	Saskatchewan Minister of Environment
Ministry	Saskatchewan Ministry of Environment
NFP	Natural Forest Patterns
NSR	Not Sufficiently Regenerated
NTFP	Non-timber Forest Products
OSD	Old and Very-Old Seral Stage Deferrals
PA	Prince Albert
PAG	Public Advisory Group
RAN	Representative Areas Network
SARA	Species at Risk Act
SGR	Silviculture Ground Rules
SOP	Standard Operating Procedure
The EA Act	<i>The Environmental Assessment Act (Saskatchewan)</i>
TRC	Technical Review Comments
VSA	Visually Sensitive Area

Preface

The Prince Albert Forest Management Agreement (PA FMA) area is approximately 3.35 million hectares in size and is located in the north-central portion of the provincial forest just north of Prince Albert. The FMA wraps around the Prince Albert National Park's west, north and east sides. The major communities within the FMA area include Big River, Weyakwin, Candle Lake, Waskesiu Lake and Montreal Lake.

Forest Service of the Ministry of Environment (hereafter the ministry) provides this document to assist with the public review of Sakâw Askiy Management Inc. (Sakâw) Proposed 20-year Forest Management Plan (FMP).

This document has six parts:

The first part provides an overview of the FMP review process and outlines the events and activities that led to the FMP being released for public review.

The second part provides a description of the FMA area. The third part provides a brief summary of the development being proposed, to assist the reader in deciding whether they are interested in finding out more about the proposed development. It is not intended to be a full representation of the development.

The fourth part of the document details the evaluation of predicted impacts of the proposed project, the effectiveness of any identified remediation and mitigation, and any follow-up requirements of the licensee recommended by the ministry – should the Minister of Environment (hereafter the Minister) approve the project.

The fifth part of the document presents the conclusions reached by Forest Service. When making the final decision regarding the environmental acceptability of the proposed project, the Minister will consider information provided in the FMP, the public's comments and the Technical Review Comments (TRC).

The sixth part of the document provides information on how the public can view the FMP and the Technical Review Comments document and provide written comments to the ministry.

1. Environmental Assessment and Review Process

Introduction

The Forest Resources Management Act (FRMA) in Saskatchewan requires the licensee of a forest management agreement (FMA) area to develop a 20-year forest management plan (FMP). As a part of the forest management planning process, the licensee has documented proposed forest management activities and potential impacts of those activities on environment. If an impact is identified, the licensee proposes the mitigation actions. Once completed, the FMP undergoes both a technical and a public review before the Minister's decision regarding the FMP.

The FMP review process provides a broad understanding of the potential impacts and ways to minimize adverse impacts of the forest management activities.

The purpose of the FMP review is to ensure that the forest resources development proceeds with adequate safeguards for the environment and the sustainability of the forests in a manner understood by and broadly acceptable to the public.

Forest Service is the key regulator through the use of FRMA and its associated regulations. In addition, forestry companies in Saskatchewan must abide by all other applicable provincial and federal legislation (e.g. *The Environmental Assessment Act, The Environmental Management and Protection Act, The Wildlife Act, The Parks Act and Regulations, The Wildfire Act, The Lands Act and Regulations, The Fisheries Act (Canada), The Navigable Waters Protection Act, The Shoreland Pollution Control Regulations, etc.*).

FMA area licence holders are required, under FRMA, to produce a 20-year FMP. Recent changes made in *The Environmental Assessment Act (EA Act)* and FRMA qualify approval of a 20-year FMP under section 39 of the FRMA as approval pursuant to the EA Act. Accordingly, for the purpose of this document, an FMP is equivalent to an Environment Impact Statement (EIS) as defined by the EA Act. Ministry roles and responsibilities during the assessment of the FMP have been established through an internal protocol agreement between Forest Service and Environmental Assessment and Stewardship (EAS) Branch. As defined in the protocol, Forest Service is responsible to assess the 20-year FMP pursuant to the requirements of FRMA, whereas EAS Branch is responsible to ensure that Sections 9 through 15 of the EA Act are fulfilled.

This assessment is for the new 20-Year FMP that will be implemented after approval by the Minister. This new 20-year FMP presents strategies for long-term forest management within the FMA for the 20-year term (2018-2038). Site-specific activities are addressed through the annually submitted operating plans. The public will have the opportunity to provide input and comments on those plans through a separate process.

Once the FMP is approved, the licensee may have to make an amendment if operating conditions or circumstances are such that deviations to the tactical plan exceeds 15 per cent within a planning period (10 years). Changes in the licensee's utilization standard could also necessitate an FMP amendment. Finally, if more

than 10 per cent of the net land base area is impacted by stand-replacing natural disturbance (replanting threshold) within a planning period, a new planning cycle will be initiated. The FMP Standard sets the requirements for the amendment process.

The Forest Management Planning Chapter of the Environmental Code (2015), FMPD and its revised FMP Standard are the main guiding documents provided by the Forest Service to develop the 20-year FMP.

Legal Framework of FMP Development

The Forest Management Planning Chapter of the Saskatchewan Environmental Code (2015) and the Forest Management Planning Document (FMPD), as well as its revised FMP Standard (September 2017), are the basic guidance documents provided by Forest Service to develop a 20-year FMP. The FMP Standard incorporates natural forest patterns (NFP) and provides strategic targets to help manage the forested landscape to more closely approximate the characteristics of forest patterns found in a natural forest at both the stand and the landscape levels.

This FMP was developed using a hybrid approach. The licensee started developing the FMP under the guidance of the FMPD. During the FMP’s development, Forest Service began their revision of the FMP standard. The licensee has complied with many of the provisions in the revised FMP standard but kept the format of the deliverables as specified under the FMPD.

Submission of the Draft FMP

Forest Service issued public notices of the FMP process on July 28, 2014, and August 2, 2014, in various Saskatchewan newspapers.

An FMP was submitted in the form of FMP Volume I, Volume II and other staged deliverables as outlined in the FMP Standard. These documents as a package present analysis and explain how the forest will be managed and the potential risks to the environment will be addressed.

The FMP evaluates the management strategies proposed and identifies actions to reduce potential risks to the environment. Specifically, the FMP identifies methods to minimize or prevent adverse impacts caused by project activities, monitoring activities to ensure that predicted outcomes of the project are achieved and proposes contingency actions to be implemented in the event that the expected outcomes are not achieved.

The FMP Volume I, which provides a brief historical review of the licence area, was approved by the Forest Service in August 2014. Other deliverables such as the Modeling Assumption Document and Forest Estate Modeling Report, and Silviculture Ground Rules (SGRs) were submitted by the plan author for review and approval-in-principle by Forest Service during the planning process.

The Forest Estate Modeling Report was initially submitted in 2015. Due to the evolving FMP standard and Sakâw’s growing concerns with the old forest and green retention targets, Forest Service conducted, in the fall of 2016, an economic impact assessment of Saskatchewan’s draft Forest Management Planning Standard using the Prince Albert FMA as a case study. After a delay of 22 months, Sakâw returned to the planning process and resumed modeling. The revised Modeling Assumptions Report and Forest Estate Modeling Report were submitted on November 10, 2017.

The draft Sakâw FMP was submitted to Forest Service on November 13, 2017. It

consisted of FMP Volume II and supporting Appendices. The FMP Volume II document includes the highlights of the forest characterization, forest modeling assumptions and results of the forest estate modeling, VOITs (Values, Objectives, Indicators and Targets), SGRs, the harvest volume schedule (HVS), implementation strategies (including the interim woodland caribou strategy), and the public engagement report. The tactical plan (maps) can be found in Appendix E of the FMP Volume II. It includes maps, by operating area, depicting where forest operations (harvest and road construction) may be distributed over the next two decades. Deliverables such as FMP planning team terms of reference, workplan and public engagement plan were submitted and approved by Forest Service at the commencement of the planning process.

The TRC document provides a summary of the government's evaluation of the FMP.

Technical Review

The technical review stage of the process requires the ministry to examine the environmental impacts of the proposed 20-year FMP. In reviewing the FMP, Forest Service focused on:

1. Determining and documenting whether the information provided was sufficiently and technically accurate to support the public review phase of the process; and
2. Developing and documenting opinions about how the licensee addressed environmental issues associated with the project.

These technical review comments (TRC) have been prepared to assist the public and government decision-makers in their review of the proposed 20-year FMP. In preparing the TRC, the ministry focused on factors considered to be of primary significance to the proposed project and the environment within the project area.

For the technical review of the FMP, Forest Service identified subject matter experts within and outside the ministry. Comments were collated and sent back to the plan author on December 18, 2017. A revised FMP addressing these issues was submitted on January 15, 2018.

Public Engagement

The public review of the FMP will start on February 17, 2018 and will end on March 17, 2018.

The PA FMA area is close to the city of Prince Albert and many smaller communities in the region and is heavily utilized for many values. Therefore, it is important that the planning process includes adequate public engagement. During the technical review of the FMP, the ministry sought to ensure that the public and First Nations and Métis communities were provided adequate opportunities to express their concerns and provide input during the FMP development process. The input of local residents, Aboriginal groups, stakeholders and the general public ensures that the resulting FMP balances the need for sustainable economic benefits and the health of forest ecosystem in the licence area.

Once the technical review is completed, the FMP (along with the ministry's TRC) are made available online for public review in the following location:
www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/forestry/forest-management-planning/Sakâw - Prince Albert Forest Management Plan.

A 30-day public review period will begin on Saturday, February 17, 2018, and end on Saturday, March 17, 2018. The public is invited to provide written comments on the FMP and the environmental implications of this development. To be considered, comments must be received by Saturday, March 17, 2018, at 5:00 p.m. (Central Standard Time). Please mail, fax or email written comments to:

Mark Doyle
Forest Management Planning Co-ordinator
Forest Service
Ministry of Environment
P. O. Box 3003, Prince Albert (SK) S6V 6G1
Phone: 306-953-2260, Fax: 306-953-2360
Email: mark.doyle@gov.sk.ca

Please reference project number **2014-012** in the subject line (re: Sakâw 20-Year FMP).

If you need help in accessing the documents online, please contact the FMP co-ordinator.

First Nations and Métis Consultation

The First Nations and Métis consultation process is ongoing. To date, no significant impacts have been identified.

Consultation with First Nation and Métis communities is an essential component of FMP development and implementation. In addition to the consultation associated with the FMP, opportunities for consultation will arise on an ongoing basis as Sakâw seeks approval of its detailed operating plans.

The government's duty to consult process is directed by *The Government of Saskatchewan's First Nation and Métis Consultation Policy Framework* (CPF). The CPF was approved by Cabinet in June 2010 and provides direction to all government ministries, Crown corporations and agencies.

The CPF applies to actions/decisions of government that have the potential to adversely impact the exercise of:

- Treaty and Aboriginal rights, such as the right to hunt, fish, and trap for food on unoccupied Crown lands and other lands to which First Nations and Métis have a right-of-access for these purposes; and
- Traditional uses of lands and resources, such as the gathering of plants for

food and medicinal purposes and the carrying out of ceremonial and spiritual observances and practices on unoccupied Crown lands and other lands to which First Nations and Métis have a right-of-access for these purposes.

The duty to consult is triggered at a low threshold, which means that government consults on the basis of a “potential adverse impact” to a community’s ability to exercise established and credibly claimed Treaty and Aboriginal rights and traditional uses. The duty to consult is not limited to project specific decisions/actions with immediate impacts on land and resources. “Strategic, higher level decisions” like FMPs, which guide future decisions, may also have the potential to adversely impact Treaty and Aboriginal rights and traditional uses.

During the development of the FMP, Forest Service identified and contacted 29 potentially affected First Nation and Métis communities. These 29 communities were first notified through a letter dated August 20, 2013 that the Sakâw 20-year FMP development had begun. An official duty to consult letter was sent to the potentially impacted communities on March 4, 2014 to notify the communities of the availability of the FMP Volume I for review. The letter also provided a schedule for the development of the Prince Albert 20-year FMP and an offer to meet in person to discuss any potentially associated impacts to Treaty and Aboriginal rights or concerns with the plan. The letter also included information on how to obtain funding to participate. No responses were received from the March 4, 2014 duty to consult letter regarding the FMP Volume I.

On May 6, 2015, Forest Service sent a duty to consult letter to the 29 potentially affected First Nation and Métis communities to notify them of the availability of the Forest Estate Modeling Report for review. The letter also included a link to the Prince Albert 20-Year FMP Terms of Reference, Workplan and Public Consultation Plan. No further responses were received from the May 6, 2015 duty to consult letter regarding the Forest Estate Modeling Report.

On September 28, 2017, Forest Service sent notification letters to the 29 potentially impacted aboriginal communities to invite them to a duty to consult session to be held on October 18, 2017, (9:00 a.m. to 11:00 a.m.) at the Travelodge Hotel in Prince Albert to review the consultation process and gather information for the draft Sakâw FMP Volume II. At the session, Forest Service presented an overview of the engagement and consultation requirements for the development of an FMP and highlights of the duty to consult process to minimize, mitigate or avoid potential adverse impacts on rights and traditional uses. Representatives of Sakâw were present at this consultation session to present tactical plan maps identifying general plans for harvest over the next 20 years. Two communities attended this meeting. No specific geographic areas of concerns or adverse impacts were identified.

Forest Service will send a final duty to consult letter early February to the potentially impacted aboriginal communities to provide them with another opportunity to identify where and when communities are exercising established or

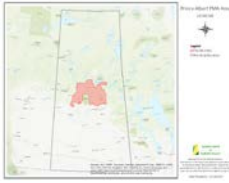
credibly claimed Treaty and Aboriginal rights to hunt, fish, and trap for food or carry out traditional uses in the area of the proposed FMP. Comments are requested by March 17, 2018, to coincide with the public review deadline.

Ministerial Decision

Comments received during the public review of the FMP, together with information generated during the technical review, will be submitted to the Minister for consideration. The Minister, under section 39 of FRMA, may give approval to proceed with the development with any terms and conditions that the Minister considers necessary or advisable or the Minister may refuse to approve the development as proposed. Approval by the Minister pursuant to section 39 of FRMA is deemed approval pursuant to the EA Act. The terms and conditions that might be made as part of the approval process will be considered as part of the plan and their status will be kept up-to-date in the FMP registry and submitted as a part of the annual report to the public. A decision is anticipated on March 29, 2018.

2. Setting the Context

Introduction



PA FMA area in Saskatchewan

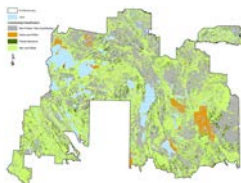
The plan author has submitted a new 20-year FMP for the PA FMA area located in north-central Saskatchewan (see map on the left side bar). A 20-year FMP is typically revised every 10 years as a condition of the FMA.

The current FMP and EIS were approved in 2000 under Weyerhaeuser Canada – Saskatchewan Division. A Management Implementation Team (MIT) was struck at that time to monitor implementation of both the FMP and EIS. Weyerhaeuser announced the permanent closure of its manufacturing operations for mid-2006. To facilitate ongoing forest management operations, a possible sale of the assets, continued fiber supply to third parties, and to maintain contractor capacity, Forest Service supported the continuance of the existing approved FMP.

In the fall of 2010, six separate forest companies with manufacturing facilities and two First Nations organizations – each with specific hardwood and softwood harvest allocations in the FMA area – formed a unique partnership (Sakâw Askiy Management Inc. or Sakâw) to jointly assume the Prince Albert FMA and its management responsibilities. The business model allows local decisions to be made by shareholders while Sakâw provides the coordinated oversight at the FMA area level. The management agreement maintained the current FMP and required a new FMP to be in place by April 2015.

Sakâw’s FMP development was delayed by almost two years due to Sakâw’s concerns about the economic impacts of implementing the NFP strategy, uncertainties related to the SK2 Central Woodland Caribou Range Planning process, change in Sakâw’s governance and the need to update the planning inventory to account for recent forest management activities. The new 20-year FMP is expected to be approved by March 29, 2018, and will be effective to April 1, 2018.

Prince Albert Forest Management Agreement Area

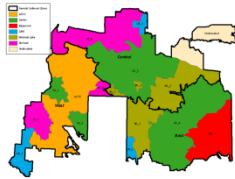


Contributing land base

The PA FMA area is located in north-central Saskatchewan’s boreal forest, north of the city of Prince Albert. It encompasses approximately three million hectares (3,349,533 hectares). More than half (53 per cent) of the FMA is covered by forests with the potential for commercial timber production, of which 1,323,142 hectares is available for forest management. The area available for forest management is referred to as net land base in this document. The remaining portion consists primarily of wetlands, flooded lands, pastures, muskegs and non-forested areas.

Planning Units

For the purpose of tracking harvest distribution over time and space in the FMA area, three planning units have been defined (West, Central and East).



FMA Planning units (West, Central, East) displayed over softwood operating zones

Moreover, 11 management units, based on ecodistricts (characterized by similar relief, geology, vegetation, soils, and hydrology) were developed to support the application of landscape level old forest retention targets.

The PA FMA area is further subdivided into operating zones specific to softwood shareholders (15 zones) and additional overlapping hardwood shareholders (9 zones). These zones identify which shareholder has rights to the softwood and the hardwood volumes. These zones are also used for the development of integrated operating plans.

Please see FMP Volume II document for details on ecological management units and operating zones.



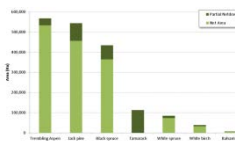
Ecological Management Units in the PA FMA area

Parks and Reserves

The PA FMA area includes four provincial parks (Candle Lake, Clarence Steepbank, Great Blue Heron and Narrow Hills), Nipekamew Sand Cliffs protected area, 38 recreation sites, and three representative areas (Budd Lake, Caribou Flats and Selenite Point). These permanent exclusions cover a total area of 84,790 hectares.

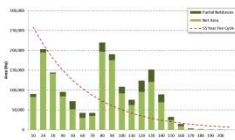
Forest Types

Approximately 56 per cent of the net land base is occupied by softwood-dominated stands, 29 per cent by hardwood-dominated stands and 15 per cent by mixedwood stands. For various reasons, about half of the FMA net land base is not currently available for harvest.



Species distribution on the FMA

The majority of the forested land in this area is comprised of age classes younger than 50 years or between 80 and 140 years. There is a significant amount of old forest area in the PA FMA, suggesting that natural disturbance patterns have been suppressed, leading to a forest landscape that is generally older than what would naturally occur.



Current age class distribution by land type

Stands in the PA FMA area are even-aged (i.e. trees within a stand tend to be of similar age) as they are of fire origin. When a fire occurs, the successional sequence of the burned area is set to a “zero” age-class and the area is assigned as young seral stage. While other disturbances such as insects and disease also cause trees to die, they primarily do it at a much smaller scale, resulting in several different seral stages occurring in the same stand. Residual green patches skipped by large wildfires can also lead to different seral stages.

In areas where fire is absent for a longer period of time, forest stands mature and die. This process is called stand breakup. Dominant tree species tend to break up and either an understory species takes over or the stand goes through some other ecological succession process. The term seral stage is used to indicate the relative age of trees in a stand (young, immature, mature, old and very old).

The longevity of trees in the boreal forest is relatively shorter than tree species found in other regions (e.g. temperate or tropical). On average, trembling aspen, white birch or jack pine enter the very old seral stage at about 110 years (Table 1). Stands at this age start to break up and reduce in timber value. While reaching very old age may reduce the timber value, the higher abundance of dead trees/snags and downed logs in these very old stands represent prime habitat for some wildlife species.

Table 1. Seral stage definitions by cover species group

Cover species group	Young	Immature	Mature	Old	Very Old
H and HS (Hardwood)	0-20	21-70	71-90	91-110	>110
jP leading stand (JLP)	0-20	21-70	71-90	91-110	>110
S and HS (Softwood not jP)	0-20	21-80	81-100	101-120	>120

One of the commercial advantages of the even-aged nature of Saskatchewan’s forests is that if one targets a certain age for harvesting, instead of having to selectively seek out individual trees, an entire stand is usually harvestable. The disadvantage of these types of stands is that they are collectively more prone to disease and loss of commercial value. This is particularly true as stands age and die, contributing dead limbs and organic materials to the forest floor as fuel for wildfires.

One of the objectives of Sakâw’s FMP is to shift the forest’s age class structure toward what would be found under natural disturbance regimes.

Biodiversity

Landscapes on the PA FMA are comprised of matrices of upland forests, bogs, fens, marshes, brush, rock and water, which provide a diversity of landscape patterns, ecosystems and wildlife habitats at many scales.

Several species of ungulates, fur bearers, small mammals, birds, amphibians and reptiles are found in the PA FMA area. The boreal population of woodland caribou is a key species of concern in the PA FMA area. The entire licence area is within woodland caribou habitat range.

Natural Forest Patterns (NFP)

Natural disturbances play a key role in shaping the structure and function of boreal forest landscapes and ecosystems. Fire is the most significant natural disturbance responsible for forest renewal in the boreal forest. Other natural disturbances (wind, flood, and insect and disease outbreaks) are also ecologically important, but generally occur at smaller landscape scales.

Historically, fire is the primary disturbance agent to reset the succession and the cause of the even-aged nature of most stands in the licence area. Tree species such as jack pine are well adapted to fire as it heats the cones, which then release their seeds. Fire also helps to reduce the spread of diseases such as dwarf mistletoe, which can affect forest health if large-scale disturbances such as fire are suppressed.

Forest management can be used to emulate natural forest patterns within their natural range of variation by planning for forest harvest activities at three spatial scales: landscape, event and harvest block.

Suppression of fire is necessary to protect life and property, as well as the economic and social values of the forests. However, suppression of fire in past decades has created a forest mosaic with a higher proportion of old forests than historically present. Historically, the PA FMA area had large amounts of young stands, moderate amounts of middle-aged stands, and low amounts of old and very old forest stands. A downturn in the forest industry during the past decade has limited forest harvesting, further increasing the amount of old and very old forests in the PA FMA area, and potentially leading to a higher risk of wildfires like the intense fire season experienced in summer of 2015 on the PA FMA area.

Forest management can be used to emulate natural forest patterns within their natural range of variation by planning for forest harvest activities at three spatial scales: landscape, event and harvest block. In doing so, the likelihood of the full range of biodiversity is going to be maintained. It is anticipated that by proactively planning for the maintenance of key forest attributes that are ecologically important, a more intact boreal landscape will be maintained. The key forest attributes that need to be maintained include: appropriate age class frequency distribution; event and patch size; interior forest; residual structure in young regenerating stands; and mixedwoods.

The variability inherent in forest patterns provides planners with flexibility in applying NFP to different parts of the landscape and helps achieve balance in economic, social and environmental values of the forests.

Forest Renewal and Silviculture

Pursuant to the PA FMA, FRMA and the Forest Regeneration Assessment Code Chapter of the Saskatchewan Environmental Code, the licensee is required to ensure that lands in the licence area that have been harvested are renewed. Forest renewal encompasses silviculture ground rules (SGRs) and treatment options intended to regenerate the forest after harvesting or natural disturbance. The licensee defines these SGRs in the FMP to achieve the desired future forest conditions.

Communities

Evidence suggests that Aboriginal people have used the resources in Saskatchewan's boreal forest for over 7,600 years. While there is some debate as to how long Aboriginal people occupied the area before European contact, Aboriginals now make up a significant portion of the population in the PA FMA area.

Big River, Weyakwin, Candle Lake, Waskesiu Lake and Montreal Lake are the major communities in the region. In addition, there are several First Nations, Métis and other communities within and near the PA FMA area.

Logging Roads and Trails

Most of the northern communities are resource-based, relying on forestry, mining, fishing and trapping for their livelihood. Development of roads and trails to access these resources is an integral part of the resource extraction. There has been a long history of road and trail development in the FMA area to enable logging and other resource extraction activities such as mining.

Other Land Uses

Geological exploration and development, the demand for remote residences and hunting/fishing lodges, and an increase in recreational activities in the forest throughout the year (e.g. adventure and ecotourism) place additional pressures on the forests in the PA FMA area. These activities result in increased economic development but the impact of these activities on the ecosystem is not well understood.

Advances in Computer Modeling of Forest Growth and Wood Supply

New computer models have become available in recent years and continue to evolve and improve. These models allow forest managers to simulate the growth of the forest in smaller, more manageable areas such as management units. With new forest inventory information available, forest managers are now able to test different types of practices, such as different logging, planting and tending techniques, to see how a computer modeled forest ecosystem responds over an extended time at the landscape level. These tests allow for predictions such as how habitat can be maintained while still allowing the forest manager to even the flow of the timber supply.

Regulatory Environment

The Forest Resources Management Act (FRMA) strengthens Saskatchewan's commitment to sustainable forest management. FRMA provides the legal framework to ensure that the public has the opportunity to participate in decisions about forest use. FRMA ensures that the public will have the opportunity to participate in all levels of forest management planning.

3. Summary of the Proposed Development

Introduction

This 20-year FMP has been prepared in accordance with the requirements of *The Forest Resources Management Act and Regulations*, the Forest Management Planning Chapter of the Saskatchewan Environmental Code (2015), the Forest Management Planning Document (FMPD) and its revised FMP Standard (2017).

This FMP provides strategic direction for the management of the PA FMA area for the next 20 years. FRMA Section 38 (3) stipulates submission of a revised FMP every ten years.

This FMP was developed using the guiding principles of ecosystem-based management, sustainable forest management, engagement of the public, stakeholders and Aboriginal people, social and economic sustainability, adaptive management and continual improvement.

This section provides, in brief, the licensee's proposals for development of the PA FMA area over the next 20 years. Major developments include timber harvesting and renewal, access management and management of non-timber values of the forests including woodland caribou habitat. Public engagement at each step of the planning process has been taken as a guiding principle. Sakâw has proposed a package of 33 VOITs (Values, Objectives, Indicators and Targets) to monitor progress towards implementation of the FMP.

Forest Management Principles and Objectives

A series of 33 VOITs have been developed to assist in monitoring adherence to commitments and assumptions made in the FMP. Section 3 of the FMP Volume II document provides details on VOITs. Appendix A of the FMP Volume II document will provide baseline information for relevant VOITs. Upon approval of the FMP, a Management Implementation Team (MIT) will be formed to assess compliance with these VOITs and the FMP registry. The FMP registry keeps the records and updates the status of the FMP approval conditions or commitments made by the licensee during the planning process. The licensee will report to the public annually on progress towards achieving the targets.

A series of 33 VOITs are proposed for the purpose of monitoring the progress of FMP implementation.

Management of Timber Values

Section 4 of the FMP Volume II provides highlights of the Forest Estate Modeling Report and key Forest Modeling Assumptions. Full reports are provided in Appendix C. The Forest Estate Modeling exercise explored three different scenarios in 2015 and ran sensitivity analyses on multiple variables including variance in harvest method (tree length versus cut-to-length), proportion of tamarack, higher pulp volume proportion, variance in harvest age and yield curves, proportion of in-block retention (4.5 versus 9 per cent), managed stand yield gains, and

regeneration delays. The three scenarios considered included: timber-focused (baseline) scenario, NFP scenario, and composite scenario (NFP plus cut-to-length utilization for softwood and management for woodland caribou habitat scenario). The 2015 analysis was updated in 2017 to reflect inventory updates for fire, harvesting and growth. The composite scenario was then rerun as the new baseline, and three sensitivity analyses were completed. The 2017 composite scenario became the preferred scenario and two additional sensitivity analyses (increased age for caribou disturbance from 30 to 40 years and variance in softwood sawlog utilization from 10 cm to 12.5 cm) were generated before arriving at the Selected Management Strategy (SMS). The latter scenario was deemed as the SMS as it meets the planning team’s vision of desired forest management objectives and targets.

The current softwood allocation (1,265,000 m³/year) can be maintained for the next 35 years.

The current hardwood allocation (948,000 m³/year) can be increased to 1,126,000 m³/year and maintained for the next 35 years.

The SMS determined that the current softwood Harvest Volume Schedule (HVS) of 1,265,000 cubic metres (m³) can be maintained for 35 years before decreasing to a long-term harvest level of 890,000 m³. The initial hardwood HVS of 1,126,000 m³ is significantly higher than the current HVS (947,000 m³) and can be maintained for 35 years before decreasing to a long-term level of 890,000 m³. The forecasted softwood pulp HVS is 600,000 m³/year for 35 years before lowering to a long-term level of 503,000 m³/year. This is slightly below the current HVS of 661,000 m³ (see Figure 1).

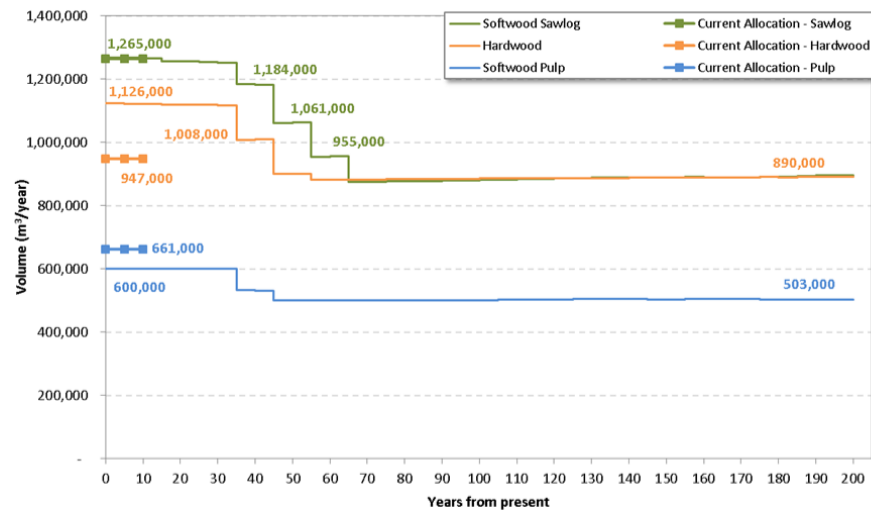


Figure 1. Harvest Volume Schedule (HVS) for hardwood, softwood sawlogs, and softwood pulp

The Sakâw FMP provides for 200,000 m³/year of the total pulp harvest to come from dedicated stands where all the softwood volume from these stands would go to a potential pulp allocation holder (in the event the pulp mill reopens).

Section 4 of the FMP Volume II document also describes silviculture strategies and treatment options the licensee will utilize to fulfill their renewal obligations. Harvesting will be carried out as per the NFP approach using a clearcutting system

with variable green tree retention. Measures to protect advanced softwood understory in hardwood and mixedwood stands will be applied. Depending on site-specific conditions the licensee will implement a variety of treatment options like “Leave for Natural” (no treatment), tree planting or scarification, with the objective of replacing the stands harvested with the same or similar relative species proportions that were present prior to harvest. Detailed Silviculture Ground Rules can be found in Appendix B.

Management of Non-timber Values

Maintenance of Biodiversity

Section 5.1 of the FMP Volume II document describes how Sakâw plans to implement NFP strategies (old and very old seral stage targets, interior habitat, harvest event sizes and in-block retention) that would create a forest landscape expected to support biodiversity at the landscape level.

To that end, Sakâw proposed alternatives to seral stage targets and in-block retention levels identified in the FMP Standard. This proposal is based on a literature review and the most recent study by Andison (2007) that is considered to be a closer representation of the natural range of variation of these attributes for the PA FMA area. The full rationale for these revised targets is found in the *Proposal for Alternative Stand and Landscape Retention Levels* in the Appendix D of the FMP Volume II.

Table 2 shows the alternate Old and Very-Old Seral Stage Deferral (OSD) targets modeled for the PA FMA area. These values differ from Section 1-35(6) of the FMP Standard targets – where amount of old and very old forest must be greater or equal to 15 per cent of the forested landscape, with a minimum of 5 per cent comprised of very old forests.

Table 2. Species groups and seral stage requirements based on a 55 year fire cycle

Group Species Label	Description	PFTs included	% Old + Very Old	% Very Old
H	Hardwood stands	AOH, TAB	10%	5%
HS/SH	Mixedwood stands	HPM, HSM, SMW, PMW	8%	4%
S(BSJ+BSL)	Black Spruce leading softwood stands	BSJ, BSL	6%	3%
S(JLP)	Jack Pine leading softwood stands	JLP	6%	3%
S(WSF)	White Spruce/Balsam Fir leading softwood stands	WSF	7%	3%

OSD will be maintained in Sakâw’s geographic information system and shown on operating plan maps. Harvesting and road building will avoid impacting OSDs.

In-block retention was modeled (at the block level) at four per cent (the FMP Standard target is nine per cent by event). While a full nine per cent retention is planned, five per cent of this is assumed to overlap with other land base netdowns (riparian areas, steep slopes, buffers for cabins, etc.). The specific location of the

retention in harvest area is flexible and will be implemented operationally during harvesting and tracked at the event level.

Wildlife

Section 5.2 of the FMP Volume II document outlines strategies to protect and maintain wildlife habitat.

In consultation with the ministry and the Public Advisory Group (PAG), three species of wildlife were chosen for inclusion in the forest estate modeling process: moose, fisher and woodland caribou. During the term of the FMP, the amount of habitat available for these selected species will be tracked and reported on annually and assessed at five-year intervals.

Woodland Caribou Strategy

Woodland caribou has been declared a threatened species under the federal *Species at Risk Act* (SARA). Saskatchewan has released the draft Woodland Caribou Range Plan for the Boreal Plain SK2 Central Area (hereafter referred to as the “range plan”) in October 2017, to achieve and maintain a self-sustaining woodland caribou population by managing habitat availability while allowing for continued economic activity in northern Saskatchewan.

Section 5.2.2 of the FMP Volume II document outlines a strategy to manage habitat for the woodland caribou until the range plan is finalized. Sakâw’s strategy aims to limit fragmentation in specific areas of the PA FMA currently deemed to be high value habitat, target replacement habitat areas for the future, and manage disturbance levels across the full caribou habitat area in the licence area.

Within the FMA area, Sakâw commits to follow NFP management principles, restore disturbed habitat through reclamation of in-block roads and prompt reforestation of harvested areas, manage caribou habitat based on habitat potential through three classified Caribou Management Zones, limit habitat disturbance to ≤35-40 per cent over the mapped caribou zone and use best management practices (BMPs) to mitigate impacts of timber harvesting on caribou.

The proposed Caribou Habitat Management Zones (see Figure 2) were developed, collaboratively, through input provided by Fish, Wildlife and Lands Branch staff, previous information obtained from woodland caribou tracking and collaring work done by the federal and provincial governments, and input from Sakâw’s forest managers. The Sakâw plan borrows concepts from the approved strategy for caribou management in the Pasquia-Porcupine FMP.

The FMP outlines a risk rating system to determine the calculated level of disturbance within the caribou range. This risk rating system includes a variable buffer approach to human-caused disturbances like linear corridors and harvest blocks (unlike the federal Caribou Recovery Strategy using a single 500 m fixed buffer width). The risk rating has been proposed based on disturbance types such linear disturbances (highways, utility lines, trails and in-block roads) and patch

The licensee proposes a risk rating system to determine the calculated level of disturbance within the caribou range.

disturbances (permanent infrastructures, harvest blocks) and risk factors such as vehicle wildlife collisions, access for hunters/poachers, displacement due to heavy use by humans/vehicles, travel barriers and the increased presence of predators.

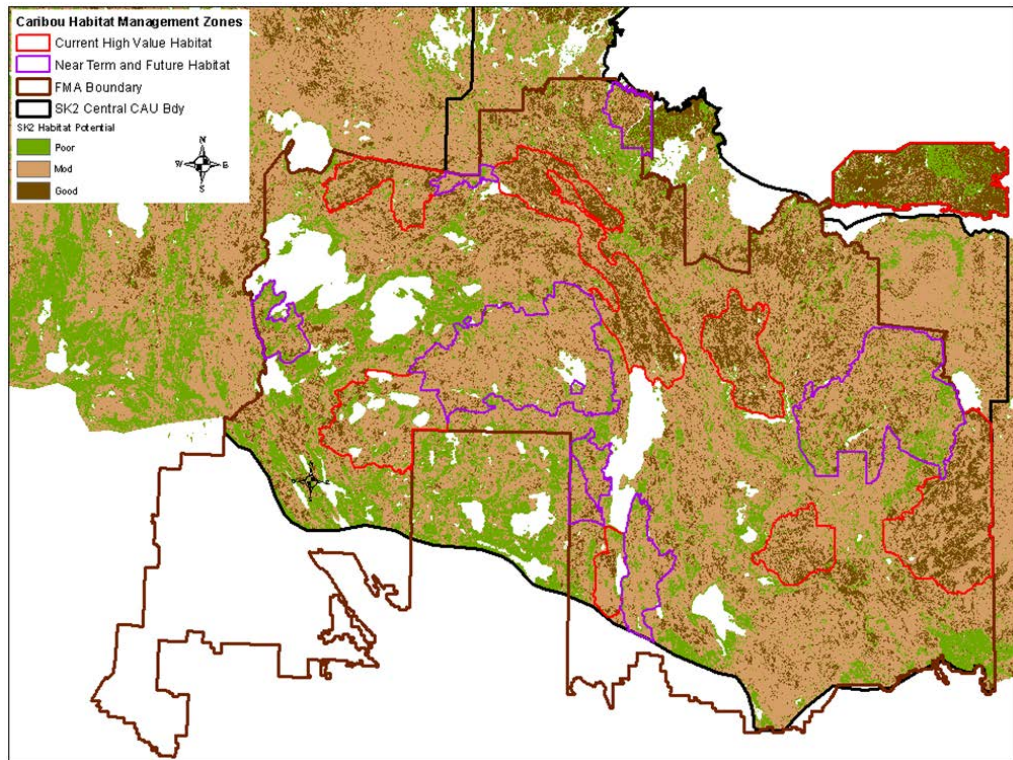


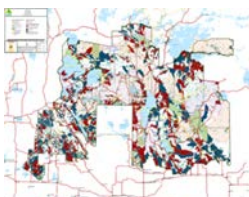
Figure 2. Caribou Management Zones for the PA FMA 2018-2038 FMP

Other Non-timber Values

Section 5.3 of the FMP Volume II document details the strategies that will be used to integrate forest management activities with the wide variety of non-timber activities that take place on the PA FMA area. Major non-timber values of this forest area include berries, mushrooms, watersheds, visually sensitive areas, recreation sites, cabins, watersheds, wildlife habitats, traditional uses of lands by First Nations and Métis communities, tourism and outfitting, hunting, fishing and trapping sites. The licensee commits to continuing support of the PAG and working with other land users in the PA FMA area. The licensee is committed to consideration of all these values in the implementation of their FMP and development of operating plans.

Tactical Plan

Section 6 of the FMP Volume II document provides an overview of the tactical plan and further details and maps are provided in Appendix E. The tactical plan spatially identifies potential harvest areas (general development areas) and major road layouts for the next two decades. The tactical plan was developed as an output of the modeling exercise with input by planners with knowledge of the terrain. One of the benefits of the spatial tactical plan is as a communication tool to the PAG, and



Overview map of the tactical plan

at public and stakeholders meetings.

Although an FMP is typically renewed every ten years, Sakâw has access to these general development areas for the 20-year term of the FMP. Planners will use mapped tactical plan areas as a starting point to develop operating plans during the term of the FMP; a 15 per cent variance in the plan is allowed. Approximately 400,000 hectares of forest area will be accessible for harvest by the licensee and up to half of this area is expected to be harvested over the next 10 years. Using a rough calculation of the annual HVS for 20 years, the licensee will have access to about 57 million m³ of timber and up to half of this timber is expected to be harvested over the next 10 years.

Natural Disturbances in the PA FMA area

Wildfire management strategies and approaches are discussed in section 7.1 of the FMP Volume II, while strategies to deal with forest insects and disease are laid out in section 7.2 of the FMP Volume II document.

Sakâw is committed to work with the ministry on forest protection efforts in the PA FMA area by assessing potential fire risk in harvest areas and implementing slash abatement measures to reduce the risks of wildfires.

Natural disturbances were not modeled. Instead, a replanning threshold (10 per cent of the total net area) will be applied for accounting for natural disturbances. During the term of the FMP, if the accumulated disturbed area exceeds the replanning threshold, Sakâw will reassess harvest levels and amend the FMP as needed.

Implementation of the FMP will be monitored by the MIT through assessment of VOITs and reported in an annual report to the public.

Strategy for Plan Implementation

Section 8 of the FMP Volume II document affirms that Sakâw shareholders will work co-operatively with the general manager to implement the FMP and follow the strategic direction contained therein. A signed Memorandum of Agreement between the Government of Saskatchewan, Sakâw and its shareholders further defines each shareholder's obligations.

Upon receiving ministerial approval for the FMP, Sakâw will form a Management Implementation Team (MIT) with representatives from the licensee, Forest Service, other ministries and the PAG. The MIT will monitor the implementation of the FMP and Sakâw's operating plans.

Management Challenges

In section 8.4 of the FMP Volume II document, Sakâw summaries potential challenges in implementing the FMP. Specifically, the licensee has identified economic challenges (due to seasonality of harvesting activities), timing of water flows, access management, and climate change impacts as potential challenges.

Monitoring and Reporting

All FMP commitments (VOITs and FMP Registry) will be monitored and reported on annually to the public. Each of Sakâw’s shareholders also has internal mechanisms contributing to performance monitoring which include Environmental Management Systems (EMS), and forest certification requirements (under the Sustainable Forestry Initiative program). These programs are based on the principle of continual improvement. The licensee expects that these monitoring and reporting measures will help assess how the FMP is being implemented and whether expected outcomes are being achieved.

FMP Amendments

An amendment to the FMP may be triggered if the licensee exceeds 15 per cent variability from the tactical plan or a change in utilization.

This FMP has been created using the best information currently available. Section 10 of the FMP Volume II document outlines the FMP amendment process (in accordance to the FMP Standard). Sakâw commits to adapt the implementation of this plan as new knowledge, best management practices or unanticipated circumstances arise.

Should an amendment to the FMP become necessary, a joint planning team (the ministry and the licensee) would be assembled and a workplan prepared. Sakâw will maintain an FMP Amendment Log with information pertaining to the proposed amendment and public engagement would be required.

4. Technical Review Comments

The intent of the technical review process is to evaluate:

1. Licensee conclusions regarding the predicted impacts of the proposed project;
2. The effectiveness of any identified remediation and mitigation measures;
3. Additional requirements of the licensee recommended by the ministry.

Further, provincial foresters and experts in soil, water, plants, wildlife, and fisheries have examined the 20-year FMP in order to:

- determine whether the information provided by the licensee is adequate and technically accurate to support the public review phase of the process;
- develop opinions about how adequately the licensee have dealt with environmental issues related to their proposed approach to forest management in the FMA area for the next 20 years.

The FMP process differs from a typical development considered under the EA Act. Because this FMP was developed over a five-year period with active collaboration between the industry and Forest Service, it is unlikely that significant outstanding issues would remain at the time the plan is ready for public review. However, the release of the FMP for public review should not be interpreted as all-encompassing agreement on the part of the ministry with the management approaches proposed in the FMP, but simply the view that any remaining issues can be managed through the ongoing regulatory relationship or terms and conditions that might follow from a decision made pursuant to FRMA.

In order to provide the public with an idea of the issues and questions encountered during the development of the FMP Volume II document, a summary of some of the reviewers concerns, and the licensee's efforts to address them, are provided in the following section.

Background

The licensee submitted the draft of PA FMA 20-year FMP (2018-2038) Volume II to Forest Service on November 13, 2017. Forest Service identified 17 experts across the government to review the FMP. In addition, Tom Moore, a consultant with Spatial Planning Systems, was contracted to carry out an independent review of the forest estate modeling results for the PA FMA area in June 2015.

Planning Process

In the executive summary and section 1 of the FMP Volume II document, reviewers noted the unique situation that led to Sakâw not revising the current FMP in 2011. Reviewers suggested the plan author describes the situation better and makes reference to the circumstances under which the new plan was developed (i.e. hybrid approach that incorporates NFP elements of the new FMP Standard in the FMPD).

Although licensee started their planning process based on the FMPD, they have followed many of the new requirements of the FMP Standard.

VOITs

In section 3.3 of the FMP Volume II (and associated Appendix A), reviewers noted that Sakâw FMP is lacking a VOIT related to protection from wildfire. Although this FMP is being submitted to a hybrid of the FMPD and the new FMP Standard, there would be benefits for Sakâw to tweak these VOITs to fulfill the FMP Standard and make the path to the next FMP revision clearer. Reviewers suggested combining or reworking VOITs for better alignment with the VOITs framework identified in the FMP Standard. Reviewers further noted a lack of clear strategy or commitment on multiple VOITs related to engagement, spatial tracking of non-timber values and traditional ecological knowledge (TEK). Sakâw has had extensive discussion with the public and shareholders on the existing VOITs and is hesitant to change them. If communities show an interest (in wildfire protection), Sakâw will refer them to Wildfire Management experts. The VOIT on TEK was revised to be the same as the FMP Standard. Engagement-related VOITs are now in the same order as the FMP Standard. Revisions made by the licensee have resulted in the total number of VOITs changing from 35 to 33.

Reviewers commented that acceptable variance for Indicator 3 for harvest event size category of 3,501-8,000 hectares needs to be revised so that target percentage of area harvested has a value greater than zero per cent. Forest Service reviewers also reminded Sakâw that guidelines are being developed to implement events at the operational level as a strategy to achieve this target. Sakâw has reduced variance to five per cent (target is now between five to 15 per cent instead of zero) and added the commitment to implement new guidelines once they are in effect.

In Indicator 4, on area of retention left in harvest areas, Sakâw proposed no restrictions on block level retention (can be as high as desired). Although the FMP Standard allows for exceptions to the tree retention targets to address ecological considerations, forest health and social values, such planned deviations must be identified in an operating plan and approved by Forest Service. The MIT will assess achievement of the targets for retention.

In Indicator 5, reviewers questioned treatment option, and the monitoring and reporting strategy for the SGR 1-H-HW to address replacing softwood component in hardwood stands. The licensee has discussed possibilities with Forest Service silviculture expert and has revised the target to be, “Average softwood stocking density in free-to-grow (FTG) surveys on blocks that were H stands prior to harvest exceeds 200 stems per hectare of softwood”. The licensee has also committed to work with Forest Service to determine softwood densities at FTG.

In Indicator 9, under the acceptable level of variance for caribou habitat within the FMA, reviewers requested that the licensee defines a “small incursion” in terms of area size and suggested larger incursions be identified and approved in operating plans. Sakâw defined small incursions as area less than 10 hectares.

Forest Service is satisfied with revisions made to the VOITs and commitments made by the licensee.

FMP Registry

In Section 3.4 of the FMP Volume II document, 13 conditions from the 2000 approved FMP and EIS ministerial approval are carried forward as approval conditions for the 2018-2038 FMP and the status of each of these conditions will be tracked and reported on during the term of the FMP. Reviewers observed that many of these registry items were redundant or completed, and agreed they could be dropped since they were no longer relevant or were addressed through legislation, standards and regulations or elsewhere in the Sakâw FMP. Only two conditions remain from the 2000 FMP and EIS.

Table 3. FMP Approval Conditions and Commitments carried forward from the previous FMP

Condition Code	Condition/Commitment	Measurement Criteria (old FMP)	Comments
3.6.c	Establish a 1 ha buffer around known listed plant occurrences.	Provide a protective buffer around known plant sightings.	Ongoing. Currently no known occurrences of listed plant species in FMA.
Rare and endangered species	Work with the ministry to develop approaches for the early identification and protection of rare and endangered species. Co-operate with the ministry in development of management and recovery plans for rare and endangered plant and wildlife species found on the FMA area. Support early establishment of a woodland caribou management board by the ministry. This board should include Sakâw and other concerned stakeholders, and work to develop management plans to protect and maintain this vulnerable species.	If found at the planning or operations stage, Saskatchewan Conservation Data Centre (CDC) - listed species are identified and a management strategy put in place. The ministry is working on a recovery strategy for woodland caribou.	Maintain list, have field crews watch for occurrences of listed species.

Table 3 will be revised and appended to the Sakâw FMP if new approval conditions are imposed by the Minister.

Forest Service is satisfied with revisions made in section 3.4 of the FMP Volume II document and commitments carried forward.

Silviculture Ground Rules

In section 4.1 of the FMP Volume II document, the plan author stated that although no yield gains have been assumed from the use of improved seeds or silviculture treatments to be applied, Sakâw expects to quantify volume gains from these activities. Reviewers suggested further explanation should be provided as to why the licensee may be doing this and include findings as part of the silviculture effectiveness monitoring. Sakâw expects volume gains can be attributed to managed stand yields as a result of these practices, and quantifying these gains will

need to occur during the term of this FMP if they are to be recognized in the next FMP (2028). Forest Service is satisfied with revisions made to this section.

Access Management

In section 4.2 of the FMP Volume II document, Sakâw outlines its road access and management strategy. Reviewers noted Sakâw should use the proper terminology (reclaim or decommission) in place of “putting to bed.” Reviewers also noted that access management is a risk to Sakâw’s proposed caribou management strategy and the licensee should reconsider its commitments or clarify the scope for the identification of roads to be permanently decommissioned to improve caribou habitat. Sakâw revised the text to use “decommission”. The licensee is willing to accept the risk at this stage since the permanent decommissioning of roads should be done in conjunction with the ministry and the range planning process. Forest Service is satisfied with this explanation.

Forest Estate Modeling

Timber Utilization Specifications

In section 4.3 of the FMP Volume II document, Sakâw listed utilization specifications used to compile the yield curves employed in the FEM and proposed a process to follow in situations where, for economic reasons, softwood shareholders may want to shift sawlog utilization from 10 cm to 12.5 cm minimum top diameter (inside bark) for one or more operating years during the term of the FMP implementation. Reviewers appreciated the proactive approach but recognized that this is a responsibility of Forest Service, and therefore details should not be included in the plan. Forest Service has made a commitment to the licensee to develop a policy or directive that will address the process to handle any deviation to the utilization specifications (as per Section 1-52 of the FMP Standard). The deadline for the development of this strategy is April 1, 2018. Sakâw edited this section to only provide information necessary to support the potential request. Forest Service is satisfied with revisions made to section 4.3.

Harvest Volume Schedule

In section 4.4 of the FMP Volume II document, Sakâw provided a summary of the main model inputs used in assessing the HVS during forest estate modeling. Reviewers requested that critical information about land base classification presented in Table 1 of the FEM Report be incorporated directly within the text to avoid confusion. Sakâw has made a reference to Section 2.2 of the Appendix C for further details.

Reviewers identified several instances where inaccurate descriptions or statements were made regarding growth and yield, silviculture treatments and natural disturbance assumptions. Forest Service is satisfied with revisions made to assumptions in section 4.4 of the FMP Volume II.

Independent Review of FEM Results

A few discrepancies were found by the consulting firm in 2015 between documentation, model implementation and the preferred management scenario results in the initial modeling runs but Moore noted that discrepancies were not significant, and were such that they would have a negligible impact on the HVS values.

Overall, Forest Service is satisfied with modeling results and concluded that no significant difference was observed (in recent shadow analysis conducted by Forest Service) on the HVS calculated with the Woodstock model and Patchworks model.

Wildlife

In section 5.2 of the FMP Volume II document, reviewers questioned how existing nest and other sensitive plants and wildlife species found during site visits or operational startup would be protected. The licensee committed to protect all known sites.

Reviewers suggested avoidance of areas likely to provide habitat for listed at-risk species during the breeding season (June 1 – July 15) and obtain distribution mapping for olive-sided flycatcher, Canada warbler and rusty blackbird from the government HabiSask website. Reviewers also pointed out that five recently added species under SARA (barn swallow, bank swallow, bobolink, horned grebe and western grebe) were missing from the list. Since mapping on HabiSask is too broad to be helpful to identify harvest areas, the licensee has committed to work with the ministry to protect species and associated critical habitat, specifically engage with Fish, Wildlife and Lands to develop a strategy.

Reviewers noted that Sakâw's Caribou Habitat Management Zones are not the same as the Caribou Habitat Management Areas identified in the range plan and that BMPs should include the intention to reduce sensory disturbance during the sensitive late winter, calving and post calving period (April 1-July 15). The licensee revised wording for clarity, and has committed to reduce sensory disturbances between April 1-July 15 in critical calving habitat areas.

Forest Service reviewers contrasted the differences between Sakâw's proposed Woodland Caribou Strategy and the range plan. The key differences are as follows:

1. Disturbance reclamation time <30 years old (Sakâw) versus 40-year disturbance reclamation time (range plan)

The definition of 'disturbed' is integral to the calculation of the disturbed area target used in the plan. Sakâw has defined disturbed areas as linear and patch openings less than 30 years old. Sakâw believes that this disturbance definition aligns more closely to the desired 'natural' age class structure for the PA FMA area and that it would skew the age-class structure away from historical natural conditions if 65 per cent of the land base were to be maintained greater than 40 years old.

Also, results in the FEM report showed there is a significant impact on both softwood sawlog and pulp harvest levels when the disturbance age is increased to 40 years. It should be noted that there is no difference in the first decade when either 30 or 40 year definition is used – differences only occur in future decades. Thus, for the 10-year planning period of this FMP, there appears to be little risk associated with this assumption.

2. Variable buffers (Sakâw) versus static 500-metre buffer (range plan)

The draft range plan uses a single 500-metre buffer width around disturbed areas when calculating the amount of disturbance. Sakâw's range of buffer sizes is based on the perceived risk to caribou, because disturbances of various types and ages affect caribou differently. The types of risks associated with each type of disturbance and the intensity of the disturbance is used to guide risk rating assignments. This variable buffer width approach has already been approved in the Pasquia-Porcupine FMP.

3. Maximum 40 per cent disturbance level (Sakâw) versus maximum 35 per cent disturbance level (range plan)

In VOIT Indicator #7c, Sakâw has allowed a disturbance level variance of five per cent (up to 40 per cent). Currently, the FMA disturbance is 34.8%. The range plan limits disturbance to 35 per cent. Short-term variance is needed because of the significant recent wildfire activity in the FMA. Approximately 125,000 hectares of fire area will be recovering in the first two to three years of the plan, which means that disturbance should remain below 35 per cent.

4. Full HVS utilization assumption (Sakâw) versus 50 per cent HVS utilization assumption (range plan)

An approved FMP allows for 100 per cent of the HVS to be utilized. However, based on historical harvest levels the range plan forecasted thresholds for disturbance based on an assumed 50 per cent utilization of the HVS within SK2 Central. The range plan assumption is supported by a 2016 economic impact assessment that demonstrated historical harvest levels (2010-2015) of only 47 per cent of the softwood HVS.

The licensee is aware that they may have to adapt their approach to woodland caribou management once the range plan is finalized and released. Forest Service is satisfied with the interim approach proposed.

Other Non-timber Values

In section 5.3 of the FMP Volume II document, reviewers noted that the requirement to complete self-assessments for crossings as per DFO requirements on waterbodies that support commercial, recreational or Aboriginal fisheries should be included. Reviewers also noted that pesticide and herbicide applications were referenced in this section. The licensee does not intend to use pesticides or

herbicides as a management tool. Forest Service is satisfied with revisions made.

Tactical plan

Several iterations of the Tactical Plan maps were reviewed. Most recently, reviewers noted that Not Sufficiently Regenerated (NSR) areas, visually sensitive areas, and wildlife habitat and habitat features were missing from the maps or map legends. Other tactical map suggestions focused on the map presentation such as reducing the number of road classes and crossing types presented on maps. Further cleanup was conducted in areas of overlap between caribou deferral zones and FMA exclusion areas and clipping tactical areas that previously overlapped with caribou deferral zones. Reviewers noted several discrepancies when comparing the draft 2018-2019 operating plan with the tactical area sequencing. In several instances areas defined as Term 2 (T2) in the FMP tactical plan were being proposed in the draft 2018-2019 operating plan (i.e. Term 1 (T1)). While Sakâw will have flexibility to select Term 2 areas for harvest in Term 1, it was felt that since the plans (FMP and operating plan) were being developed in unison that the FMP tactical plan maps should be revised to have an accurate depiction of the planned upcoming operations. Sakâw revised the tactical plan maps as per reviewers' suggestions. Forest Service is satisfied with the final submitted tactical plan maps, although it was noted that the balance between the T1 (~66 per cent) and T2 areas (~34 per cent) could have been balanced better (ideally close to a 50/50 split).

Wildfire Management

In section 7.1 of the FMP Volume II document, reviewers noted that the Wildfire Act Regulations allow for the fire season to be extended (outside of April 1 and October 31), and does not designate a qualified person to prepare a Wildfire Prevention and Preparedness Plan. Reviewers provided further clarification regarding *Wildfire Act* requirements, and a copy of the Wildfire Management Operational Policy and Procedure Manual (April 11, 2016) for the Values at Risk section. Forest Service is satisfied with the revision made in section 7.1 of the FMP Volume II and the commitments made by the licensee.

Insects and Disease

Section 7.2 of the FMP Volume II was reviewed by Forest Service insect and disease expert. Sakâw has inserted all edits and committed to ensure, to the extent practical with no pulp market, that harvest operations are conducted so as to minimize the amount of logging debris, slash piles and other potential habitat that may increase bark and engraver beetle populations. Forest Service is satisfied with revisions made to this section and commitments made.

Consultation and Information Sharing

Section 8.3 of the FMP Volume II document provides details on the licensee's approach to engage the public in the planning process. Reviewers noted that the

plan did not clearly distinguish between stakeholder engagement and the government’s duty to consult. Moreover, a report for the public engagement session was initially absent from the document. Sakâw has reworked the text to clarify the two separate obligations (engagement versus consultation). The Public Engagement Report for Volume II FMP (2018-2038) has been included (Appendix F) in the latest version of the Volume II document. Altogether, 20 public engagement sessions were held during the five-year planning process, and 10 meetings with the PAG, including two field trips in the FMA to look at riparian practices, in-block retention, regeneration success and harvesting practices. Forest Service is satisfied with the public engagement process and the opportunities made available to date for public input into the FMP.

Monitoring Programs

Reviewers pointed out that requirements for reporting of silvicultural effectiveness monitoring and the progress of renewal activities, non-compliances, and associated actions taken to address non-compliances were omitted from this section. Reviewers further noted that adherence to the Forest Data Submission Standard for operational activities summary should be addressed. Forest Service is satisfied with the revisions made by Sakâw.

Increased Hardwood Retention

Sakâw introduced a new strategy in the final FMP Volume II document that identifies a selective harvest system within mixedwood stands where softwood is harvested and hardwood is left as higher retention levels. This strategy is focused on softwood shareholders within the PA FMA area, because there is currently a limited market for the hardwood timber generated from their operations. This practice is unauthorized under the 2000 approved FMP.

Sakâw has proposed an increased hardwood retention strategy for economic reason.

Sakâw believes the impact on the HVS would be minimal, yet has not undertaken any remodeling to determine the potential impacts on the harvest levels. Reviewers noted that the impacts of excess hardwood retention (which may be up to 50 percent in each mixedwood harvest block) on the long-term sustainable harvest levels are uncertain and further analyses are required.

Selective harvesting of softwood may impact the long-term productivity of the forest and reduce the long-term wood supply.

Reviewers further noted that excess hardwood retention for economic reason was not included in discussion with the general public or Sakâw’s PAG. Further, additional duty to consult effort led by Forest Service may be required.

Reviewers also commented that the effectiveness of the proposed renewal strategies and expected renewal success for mixedwood sites where excess hardwood is retained is uncertain and have not been addressed adequately in the plan. Specifically, Forest Service is concerned that this practice has the potential to “un-mix the mixedwoods”. This can be an issue because the transition rules that were used in the timber supply modelling are a 1:1 relationship. Simply put, when mixedwoods are harvested they are expected to regenerate as mixedwoods. Under

Forest Service needs to consider potential impacts of excess hardwood retention after Sakâw adequately explore this practice and addresses all the concerns in a plan amendment.

higher hardwood retention harvest practices there will be many relationships that have not been considered in the forest estate modeling and determination of the HVS. Higher retention of hardwood in mixedwood stands may not maintain the mixedwood designation after harvest because only the softwood may be regenerated (through replanting) and the hardwood, which was not disturbed, may not regenerate.

Moreover, increased hardwood retention both scattered and in larger clumps and islands, has a significant effect on overall site productivity. Based on productivity rates derived from the Sakâw's fee rate calculations, mixedwood sites generally have a higher productivity (180 m³/ha) than either a pure softwood (125 m³/ha) site or pure hardwood (150 m³/ha) site separately. Site occupancy is a similar issue related to site productivity and this may result in these sites not meeting the Forest Regeneration Assessment Standard at establishment (4-7 years post-harvest) and Free to Grow (8-14 years post-harvest), since not all the survey plots will be stocked with eligible regeneration (a mature hardwood tree is not considered acceptable regeneration). If sites are not fully occupied (i.e. not meeting the minimum 80 percent stocking requirement), lower yields would also be expected at the next rotation.

Reviewers also noted that Sakâw does not have documented operational controls that would ensure a successful implementation of the new strategy and needs to develop a monitor strategy that compares actual outcomes to expected outcomes to mitigate uncertainties that have been identified. No such monitoring program has been proposed to date.

The Sakâw FMP is based on even-aged management with a single entry to remove all species and products. This practice is preferred both ecologically and economically. The proposed shift to uneven-aged management is a significant departure from the FMP strategy and could impact several, already approved FMP deliverables such as silviculture grounds rules and forest estate modeling report. Until addressed in the FMP, Forest Service does not have adequate information to approve this practice and allow Sakâw to operate in this fashion.

Public engagement and consultation with First Nations and Métis communities completed to date on the proposed plan did not incorporate the concept of uneven-aged management. Other ministry strategic plans such as the woodland caribou range planning could be impacted. Prior to approving this change in forest management strategy, Forest Service and Fish Wildlife and Lands need time to review potential impacts.

In order for Sakâw to have operational certainty, a new FMP must be in place for the next operating plans, for which the shareholders will be seeking approval by April 1, 2018. Without the completion of the FMP, forest operations will be in jeopardy.

To allow operations to continue, Forest Service recommends the approval of the

Sakâw FMP – without the inclusion of the increased hardwood retention strategy. All parties agree that operational realities for the next several years will deviate significantly from modeling scenarios presented in the FMP Volume II document. A modeling scenario that reflects expected operational realities (e.g. hardwood retention, transition rules, utilization and yield) needs to be incorporated into an amendment. The planning team will need to reconvene to formalize the process and identify timeline to amend Sakâw FMP pursuant to the FMP Standard. This will allow the licensee to explore adequately the potential impacts of excess hardwood retention and address all concerned identified by Forest Service.

In the meantime, Forest Service has committed to work with Sakâw to identify a limited number of harvest blocks that meets softwood sawlog requirements for softwood shareholders while minimizing the need for excess hardwood retention.

5. Conclusion

This FMP is developed for the next 20 years and, as required by FRMA, will be replaced with a new FMP after 10 years. The new FMP is required to extend the existing FMA.

The technical reviewers and the licensee feel that the proposed 20-year FMP represents a sound approach to sustainable forest management based upon the current scientific knowledge related to sustainable forest management practices in Canada.

The licensee has proposed an alternative approach to NFP that differs from the FMP Standard (2017), specifically with regards to old and very old forest retention based on Andison's work (2007) derived from an average fire cycle for central/western Saskatchewan's boreal forest of 55 years. Although Forest Service deemed this approach acceptable for this FMP, the licensee will need to conduct a licence-specific study to assess the fire cycle within seven years of the FMP approval.

To address woodland caribou habitat, the licensee have proposed to defer harvest in specific zones and proposed a variable buffer approach to the features, such as roads, by rating the risks related to woodland caribou habitat. The licensee is aware of the possibility that they may have to adapt their FMP when the SK2 Central Woodland Caribou Range Plan is finalized in 2018.

Sakâw has proposed an increased hardwood retention strategy for economic reason in the final stage of the FMP process. Selective harvesting of softwood in mixedwood stands may impact the long-term productivity of the forest and reduce the long-term wood supply. Forest Service needs to consider the potential impacts of excess hardwood retention before Sakâw can implement this strategy.

A new FMP must be in place by April 1, 2018 in order for Sakâw to continue forest operations. Forest Service recommends the approval of the Sakâw FMP – without the inclusion of the increased hardwood retention strategy. The new proposed increased hardwood strategy will be subject to a plan amendment (at a later date) in accordance to the FMP Standard. As part of the amendment process, Sakâw will have to run a new modeling scenario that reflects expected operational realities (e.g. hardwood retention, transition rules, utilization and yield). The planning team will need to reconvene to formalize the process and identify timeline to amend Sakâw FMP.

Overall, Forest Service is satisfied with the licensee's approach to developing this 20-year FMP. Forest Service concludes that the public review of the FMP should now proceed. The public can provide input/comments to the plan as outlined in the next section.

6. Invitation to Comment

The public is invited to review Sakâw's 20-year FMP and Forest Service's TRC and to provide comments to the Minister.

The comments received during the public review period along with the TRC will be considered by the Minister in the decision under section 39(1) of FRMA to:

- a. give Ministerial approval of the FMP with any terms and conditions considered necessary or advisable; or
- b. refuse to approve the FMP.

If the Minister was to refuse the FMP, the licensee would have to resubmit a new 20-year FMP. Harvesting would continue under the existing forest management agreement and the current FMP.

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