

Forest Management Manual for New Brunswick Crown Lands

Results-Based Forestry Option

August 2014

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Introduction

In 1982, with the proclamation of the Crown Lands and Forests Act (Act), a comprehensive forest management system was introduced for Crown land. The Act made provision for the establishment of Crown Timber Licences (Licences) and the assignment of management responsibility for those Licences to the forest industry (Licensees). The role of government in this management system is to set forest management goals, objectives, and standards, monitor the activities of the Licensees, and to periodically assess Licensee performance. The role of Licensees is to implement the goals and objectives set by government.

This framework is described in the Forest Management Manual (FMM), which is amended by mutual consent of the Minister of Natural Resources and Licensees. The FMM forms part of the Forest Management Agreement (FMA) which outlines the specific responsibilities of Licensees and the Minister in the management and use of Crown land. The FMM represents Schedule "E" of the FMA. The forest management system devised for Crown land operates on a five-year cycle. The Minister and Licensee review the FMA at the end of each five-year period of the FMA. The FMM is also reviewed at five-year intervals. Each review re-establishes the goals, objectives, standards, and assessment criteria for Crown License management and related activities on the ground.

Two essential components of Crown land forest management are the requirements for management planning and the evaluation of management performance. Licensees develop long-term Forest Management Plans that describe how the goals and objectives of government are to be achieved over the next five-year period and in the longer term. Forest Management Plans are implemented through Operating Plans that are prepared annually by Licensees. The Minister of Natural Resources (DNR) is responsible for approving management plans and verifying that operating plans are achieving their intended outcomes. At the end of each period, using defined indicators, DNR evaluates how well Licensees performed in achieving the stated goals and objectives of government. The results of that evaluation are a prime consideration in DNR's decision on whether to extend the term of a Licence for an additional five-year period.

Goals & Objectives for Crown Land Management

In March of 2014, Government released a forest strategy titled: 'Putting Our Resources to Work', which set forth several new directions in Crown land management. The strategy targets a globally competitive and resilient New Brunswick forest sector. Major policy elements of that strategy which include:

- **Forest Sector Investment** – the Government will allocate additional fibre to support companies who have committed to make substantial investments in mill modernization and equipment. Crown forests will be managed as a highly productive source of high quality forest products.
- **A Commitment to a Healthy Forest** – the Government maintains its commitment to a healthy, vibrant forest with trees at various stages of maturity and respects the principles of conservation and biodiversity. This strategy maintains a diverse forest through time that provides old forest, deer habitat, clean water, untouched and protected areas while putting the

remainder of our forest to work today and into the future.

- **Results-Based Forestry** – the Government will pursue a more efficient and less costly approach to managing Crown land by adopting a ‘results-based framework’ with Crown licensees. This manual details such a framework. Licensees will be held accountable to achieve clear, forest-wide objectives and Government will assess their performance by examining the outcomes of Licensee management and harvest and silviculture practices. This framework, which is aligned to the original intent of the 1982 Crown Lands and Forest Act, will allow industry to be more efficient in conducting its operations while being more clearly accountable through a set of performance measures. ‘Results-based’ relies on strict process control, process improvement / performance excellence, and an integration of DNR into independent certification systems.

Crown lands will be managed for multiple objectives that fit into the three recognized pillars of sustainable forest management (SFM):

- Stewardship of the Environment
- Supporting a Vibrant Forest Sector
- Maintaining Social License to Operate

Themes	Values	Goals	Objectives
Stewardship of the Environment	Terrestrial Biodiversity	The full variety of healthy and resilient native forested ecosystems are present and sustainable across their ecological ranges.	Functional patches of old forest will be retained across each ecoregion in each of 14 identifiable community types. Objective levels in each ecoregion aim to sustain at least 6-8% in old age classes of each forest community's total area (1980's inventory). <hr/> The full diversity of mature forest ecosystems will be represented in Protected Natural Areas. Natural processes will be permitted to unfold with minimal human influence. <hr/> Forestry operations encountering site-specific habitats (including rare species, bear dens, raptor nest sites, etc.) maintain their associated function(s).
		The full range of native forest-dwelling vertebrates are present and sustainable across their ecological ranges.	Populations of all 161 native vertebrate species will be maintained. For the 53 old forest dependant species, functional patches of old forest habitat will be maintained to support populations in geographic sub-region where the species is native.
		Populations of consumptively used wildlife are maintained at desired levels.	Habitat structures to support herds through severe winters will be maintained In designated traditional white tail deer wintering areas.
	Water Quality & Aquatic Ecosystems	The integrity of watercourses and wetlands will be maintained so as to preserve the physical, chemical, and biological properties and functions of these systems in their natural state.	All perennial watercourses and wetlands greater than 1 ha will be protected through 30 m buffer zones. Buffer zones will be managed to regulate micro-climate, provide organic matter, maintain aquatic habitat, and act as sediment filters.
			Forest road construction and maintenance will manage the physical impact to water quality and fish passage by means of effective planning, and well designed and executed crossings

Themes	Values	Goals	Objectives
			Waterways in designated watersheds will be protected by 75m buffer zones that will be managed to minimize physical effects that harvest could have on water quality.
	Soil	Harvest and silviculture operations on Crown land will preserve soil function, processes, and health through minimizing disturbance and contamination.	<p>Forest operations will minimize rutting through careful planning, and effective response when incidents occur.</p> <p>Environmental contamination due to spillage of hazardous materials (fuels, oils, pesticides, etc.) will be minimized.</p> <p>Operations will effectively clean and/or mitigate any contaminations that do occur.</p> <p>The permanent net loss of productive forest area due to heavy harvest debris will be minimized.</p>

Themes	Values	Goals	Objectives
Supporting a Vibrant Forest Sector	Growing the Resource	Crown forests will be used to sustainably supply timber to NB's forest sector. Forest management will plan harvest and silviculture activities such to optimize the potential economic value of wood fiber from Crown lands.	<p>Crown forests will be primarily managed to maximize Sp/bf/jP saw timber harvest in the short-term and grow it in the long-term.</p> <p>Supply of mixed hardwood species from Crown lands will be maintained in the short-term. In the long-term, overall hardwood supply will decline to a sustainable level through a reduction in the inventory of lower value species and products.</p> <p>Where high-quality tolerant hardwoods or white pine are dominant, forestry activity will focus on culturing a sustainable supply of quality saw timber. There should be no net-loss of such area on a License.</p> <p>Harvest and silviculture operations on Crown land will be controlled using site-level prescriptions that consider forest type, environmental features, neighboring land uses, related policy, and the legislative framework in the context of forest management objectives.</p> <p>The overall forest management activity by the Licensee will maintain and improve the long term financial value of the Crown forest inventory.</p>
	Optimizing the Value Chain	Trees harvested from Crown forests will be used to provide maximum benefit to the people of New Brunswick.	<p>New Brunswick industries will maximize their utilization of the available AAC from Crown lands at all times.</p> <p>100% of trees felled from Crown land will be processed into products which contribute to NB's economy. Economic value to Government will be maximized.</p>

Themes	Values	Goals	Objectives
Maintaining Social License To Operate	Access to Crown Forests	Forest road networks will allow traditional non-commercial access to Crown lands	In addition to use for forest management, designated roadways will be maintained in passable condition for the purpose of allowing traditional public access to Crown lands for recreation and non-commercial uses.

		Forests surrounding waterways of traditional high-recreational use will be managed to maintain aesthetic quality, user experience, and integrity	Forest harvest activities will respect Crown Angling Leases, Canadian Heritage Rivers, and other waterways of high-recreational use through special designated buffer zones.
	Transparency	DNR, Stakeholders, and members of the public will have access to important information regarding the management of Crown forests.	<p>A forest management plan will be prepared which demonstrates how current and planned activities achieve Government's economic and environmental objectives. The forest management plan will be no more than 5 years old; 10 years of planned harvest activities will be mapped and the document will be publically available.</p> <p>An annual operating plan will be prepared which maps the approximate location of planned harvest, silviculture, and road construction activities. Maps will be publically available and no older than 1 year.</p> <p>An annual report will be prepared which details the activity on the License over the previous operating season.</p> <p>An online operations activity map will be maintained and will be available to DNR staff.</p> <p>A financial statement will be prepared with information on royalty paid for Crown timber, License management service fees collected, and silviculture expenses (reimbursed or in-kind). Variances between actual and budgeted amounts will be explained.</p>

Strategic Forest Management Planning

A Forest Management Plan (FMP) is required by the Act and is found as Schedule “C” in the FMA. The plan defines how the License will be managed and forms the benchmark against which many elements of Licensee performance is measured. The FMP must demonstrate for a period of at least 80 years, the sustainability of the Licensee’s harvest and silviculture strategy, and its ability to fulfill the objectives established by DNR. The FMP is developed through a mutually agreed-upon set of planning standards, according to adaptive planning process repeated on a 5-year cycle, headed by a technical committee with Licensee, DNR, and other expert representatives. The FMP describes strategic direction and reports the expected state of the forest at future time periods using state-of-the-art forecasting models.

For a period of 10-years, the FMP maps:

- The area set aside to achieve objectives for terrestrial biodiversity, water quality, aquatic ecosystems, and recreational opportunity: collectively termed ‘the Conservation Forest’
- The planned location, time period, and general prescription of harvest activity required to access the annual allowable cut (AAC)

The FMP is considered valid for a period of 10 years. Updates are triggered with:

- Any catastrophic natural disturbance event (forest fires, insect outbreaks, windstorms, disease) which causes significant changes to harvest or silviculture patterns over a sustained period.

- Any fundamental changes to the science and/or inventory information which forms the foundational elements to the modelling approach with the potential for a dramatically improved plan.
- The completion of a 5-year management period, as set forth in the Act, with the current FMP taking effect April 1, 2012.

The Government is responsible for:

- Defining the goals and objectives for forest management and the requirements of the FMP.
- Defining the boundaries of the protected areas, habitats, and other special management zones that form the Conservation Forest.
- Strategic review and approval of the FMP.

The Licensee is responsible for:

- Formulation of a harvest and silviculture strategy which are aligned with the Government's objectives.
- Delivery of the FMP that describes the harvest and silviculture strategy, forecasted future state of the forest, and demonstrates sustainability with respect to environmental, economic, and social indicators.
- Implementation of harvest and silviculture programs that are well-aligned to the strategy.

Operating Plans

An Operating Plan (OP) is required by the Act and is found as Schedule "D" in the FMA. The OP serves as the principal mechanism for approving annual OP elements such as scale arrangements and work permits and Sub-Licensee agreements. Through the OP, approval is provided for implementation of the major activities associated with the management of Crown land.

The OP also serves as a key transparency element where interested members of stakeholder groups and the public can identify the location of planned harvest and road construction activities. OPs will map:

- Possible locations which may be harvested in the upcoming one to two years.
- Major road construction or maintenance (rebuidls) activities.

Key policy elements:

- OPs are available to the public online and are free-of-charge.
- OPs are updated annually.

The Government is responsible for:

- Reviewing the OP for consistency with the objectives identified in the FMP, and FMM requirements.
- Providing the “Letter of Approval” when these conditions have been achieved.
- Issuing work permits for industrial operations prior to commencement of operations. The OP approval letter will be the work permit for Licensee/Sub-Licensee Crown land operations.

The Licensee is responsible for:

- Submitting an OP that is consistent with objectives identified in the FMP and meets FMM requirements.
- Providing Sub-licensees with intended operating blocks prior to April 1st of each year.
- Maintaining an accessible spatial database of annual OP blocks and roads (including harvest prescription).
- Maintaining a database showing the location of active harvest operations on the License

Operations - Harvest

Old Forest Community and Old Forest Wildlife Habitat Harvest Policy

Objective:

- Old Forest Communities (OFC) and Old Forest Wildlife Habitats (OFWH) are managed on Crown land to ensure a full variety of healthy and resilient native forested ecosystems and a full range of native forest-dwelling vertebrates are present and sustainable across their ecological ranges.
- While timber harvesting is allowed in some stands, it’s critical that stands meeting the required structure to provide OFC / OFWH prior to harvest continue to provide the required structure following harvest, both spatially and temporally.
- DNR has identified targets for OFC and OFWH types in each combination of Eco-region and License. Forested stands sufficient to meet target levels have been designated and spatially identified based on a combination of ground-based knowledge and forest strata probabilities.
- Structural requirements for OFC and OFWH types are described in the “Old Forest Community and Old-Forest Wildlife Habitat definitions for New Brunswick 2012” document.

Key Policy Elements:

- Timber harvesting is permitted in eligible OFC and OFWH types to allow for the extraction of wood products while maintaining the desired stand structure characteristics post-harvest. Harvesting of the eligible area will be spaced over 30 years to permit evaluation and adaptation of harvest standards to new information.
- In order to be deemed eligible for harvest, designated OFC and OFWH are:
 - Located outside of PNA
 - Located outside of DWA that is ≤ 50 ha in size.
 - OFC and OFWH target levels that individually represent $> 0.5\%$ of the Crown forest (15,000ha) will be eligible for timber harvesting. The following OFC and OFWH meet this criteria:
 - OFC- RS, BSM, BF, BSP, THP, THSW.
 - OFWH- OTHH, OHWH, OSFH, OMWH and OFH.
 - Not an OFC or OFWH stand/patch designated as Exceptional Quality or having rare species.
- Designated OFC/OFWH stands are to be avoided when planning and constructing roads except as required to access harvestable areas within the OFC or OFWH patch.
- Roads and landings will not to be located in designated OFC/OFWH where the provincial target level is $< 0.5\%$ of Crown forest area; or at the Ecoregion level the identified area or target for an OFC/OFWH is < 1000 ha. The designated OFC and OFWH where roads and landings shall not be located are identified in Table 1.
- If a road is constructed within designated OFC/OFWH stands, the right-of-way width shall not normally exceed 20 meters and the area in roads will be deducted from the OFC/OFWH supply for the patch.

Table 1 Blue cells indicate those designated OFC/OFWH by ecoregion where roads shall not be located.

OFC/OFWH	Ecoregion						
	1	2	3	4	5	6	7
HE							
CE							
RS							
BSM							
WS							
BF							
SWTH							
RP							
WP							
THP							

	Ecoregion						
OFC/OFWH	1	2	3	4	5	6	7
THSW							
BSP							
JP							
TL							
OSFH							
OPIH							
OTHH							
OHWH							
OMWH							
OFH							

The Licensee is responsible for:

- Preparing and implementing OFC/OFWH harvest considering the objectives, standards and relevant best management practices.
- Ensuring forestry activities in designated OFC/OFWH comply with the objectives and that pre/post treatment stand conditions are consistent with minimum structural requirements.
- Proposing equivalent replacement OFC/OFWH to designate in cases where the required post-harvest structure was not achieved.

DNR is responsible for:

- Providing the spatial information specifying the location of designated OFC/OFWH on the License.
- Approving replacement designated OFC/OFWH that may be proposed by the Licensee.

Deer Wintering Area Management Policy

Objective :

- Deer Wintering Areas (DWA) are managed on Crown lands to ensure that the population of white-tailed deer is maintained at desired levels. In order to do so, stands that meet the required habitat structure to provide DWA habitat prior to harvest must continue to provide the required structure following harvest, both spatially and temporally.
- Winter deer habitat is described in two categories:
 - Moderate Deer Winter Habitat

- Severe Deer Winter Habitat

Moderate Winter Deer Habitat (MWDH) Stand Structure

Forest Type: Conifer, Conifer-Hardwood and Hardwood-Conifer stands excluding larch, pine, poor-site-spruce and most pure black spruce.

Conifer Crown Closure: $\geq 30\%$ (trees ≥ 10 m tall)

Note: Conifer basal area values less than $12 \text{ m}^2/\text{ha}$ (trees ≥ 10 cm dbh) are unlikely to provide 30 % crown closure.

Mean Conifer DBH: ≥ 18 cm

Understory: $\geq 30\%$ ground cover of available browse species. When not present, consider interventions that enhance browse.

Moderate Winter Deer Habitat (MWDH) Spatial Criteria

Patch Size: ≥ 5 ha of MWDH stands

$\geq 75\%$ of the area in MWDH stands

≥ 150 m minimum patch width

Severe Winter Deer Habitat (SWDH) Stand Structure

Forest Type: Conifer and Conifer-Hardwood stands excluding larch, pine, poor-site-spruce and most pure black spruce types.

Conifer Crown Closure: $\geq 50\%$ (trees ≥ 10 m tall)

Note: Conifer basal area values less than $20 \text{ m}^2/\text{ha}$ (trees ≥ 10 cm dbh) are unlikely to provide 50% crown closure.

Mean Conifer DBH: ≥ 18 cm

Understory: $\geq 10\%$ ground cover of available browse species. When not present, consider interventions that will enhance browse.

Severe Winter Deer Habitat (SWDH) Spatial Criteria

Patch Size: ≥ 10 ha of SWDH stands

$\geq 75\%$ of the area in SWDH stands

≥ 300 m minimum patch width

Connectivity: Patches should be connected by winter travel corridors: conifer crown closure $\geq 50\%$; development stage \geq immature; width ≥ 90 m.

Key Policy Elements:

- To be eligible for timber harvest operations, following conditions must be met:
 - DWA greater than 50 hectares in size, and
 - Less than 15% of the original DWA forest area was harvested between 1992 to 2010. DWA with $> 15\%$ harvested between 1992 and 2012 become eligible after 2027.
- Timber harvesting in DWA is restricted to forest stands that are:
 - Designated eligible OFC/OFWH stands, or DWA stands without OFC/OFWH designation.
 - Not Protected Natural Area.
- No more than 17% of the area of available forest types in a DWA can be harvested per period. When harvesting in selected designated Old Forest Community (OFC) and designated Old-Forest Wildlife Habitat (OFWH) stands, Licensee must ensure that such harvest is within the periodic License/ecoregion treatable quota for that OFC or OFWH.

- Biomass harvesting will not be permitted in DWA stands.
- DWA should be avoided when planning and constructing roads except as required to access harvestable areas within the DWA. At DNR request, Licensees must provide the site-specific rationale for why the DWA could not be avoided.
- Additionally, roads and landings shall not to be located in stands providing SWDH, or within DWA that are ≤ 50 hectares in size
- If a road is constructed within DWA the right-of-way width shall not normally exceed 20 meters and the area in roads will be deducted from the deer habitat supply for the DWA.

The Licensee is responsible for:

- Preparing and implementing DWA harvest considering the objectives, standards and BMPs.
- Ensuring forestry activities in DWA comply with the objectives and that pre/post treatment stand conditions meet minimum structural requirements.
- Proposing equivalent replacement in cases where the required post-harvest structure was not achieved.

DNR is responsible for:

- Providing the spatial information specifying the location of DWA on the License.
- Approving replacement area that may be proposed by the Licensee.

Watercourse and Wetland Buffer Zone Policy

Objective:

Watercourse and wetland buffer zones are one of the management tools used to protect water quality and aquatic habitat on Crown land. The buffer zone protects water quality and aquatic habitat in a number of ways. The trees and shrubs in the buffer zone help maintain the microclimate around the watercourse by providing shade and acting as an insulator against the extremes of temperature and humidity found in open areas. They also provide organic material (leaves and woody debris) to watercourses and wetlands that is a source of nutrients and habitat structures for animals. Larger trees with cavities may provide nesting sites for cavity nesting waterfowl and other species. The forest floor within the buffer functions as a deposition zone where sediment, originating from areas with exposed soil and transported via overland flow, may be deposited before reaching the watercourse. Buffer zones work to protect water quality and aquatic habitat both before and after operations have occurred. Watercourse buffer zones on Crown Angling Leases, Canadian Heritage Rivers, and other waterways of high-recreational use must also continue to provide aesthetic and recreational value before and after harvest operations.

Key Policy Elements:

- On-the-ground conditions will dictate appropriate action when working near water.
- Watercourse and wetland buffer zones will be applied to forestry operations as per Tables 1 & 2.
- Timber harvesting may occur within appropriate buffer zones as long as the partial harvest treatment maintains buffer zone function over time. All requirements of the *Clean Water Act*, its regulations, terms and conditions must be met.
- Mineral soil exposed through forestry operations with the potential to enter a natural watercourse will be stabilized immediately.
- No vehicle will travel through or in a natural watercourse.

Table 1. Standards applicable to all watercourse and wetland features

	Feature	Bank Slope	No Tracking Zone (m)	Buffer (m)	Buffer Zone Timber Harvesting
1	<i>Natural Watercourse</i> with <i>continuous flow</i> or with a discernible channel ≥ 0.5 metres wide	< 25%	15	30	Partial harvesting is permitted beyond 7 meters from the watercourse.
	<i>or</i>				
	<i>Wetlands</i> ≥ 1 ha (excluding forested wetlands) or wetlands (excluding forested wetlands) that are associated with a natural watercourse that meets the criteria in 1.	$\geq 25\%$	30	30	Timber harvesting is not permitted.
2	<i>Natural watercourse</i> < 0.5 metres wide and without continuous flow.		7	7	All merchantable trees can be harvested within the 7 meter buffer zone.

2b	Wetlands < 1 ha (excluding forested wetlands) and not associated with a natural watercourse meeting the criteria in 1. ***	7 ***	7	All merchantable trees can be harvested within the 7 meter buffer zone.
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*** **exception:** wetlands included in 2b that are < 0.5 ha and that are dominated by sphagnum, sparse stunted trees, and shrubs (associated with Black spruce sites) do not require a 7m no-tracking zone.

Table 2. Special Feature Buffers

	Special Feature	Bank Slope	No Tracking Zone (m)	Buffer (m)	Buffer Zone Timber Harvesting
4	Cold water inputs and refuge (DNR)	na	30	30	Timber harvesting is not permitted.
5	Provincially Significant Wetlands (DENV)	na	30	30	Timber harvesting is not permitted.
6	High-use Recreational Waters (DNR)	< 25%	15	60	Partial harvesting is permitted beyond 15 meters from the watercourse.
		≥ 25%	30	60	Partial harvesting is beyond 30 meters from the watercourse.
7	Waters of Special Interest (DNR)				
	• Significant vernal pools	na	15	30	Partial harvesting is permitted.
	• Significant spawning areas (DNR)	na	60	60	Partial harvesting is permitted beyond 60 meters from the watercourse.
	• Brook trout lakes (DNR)				
	• Arctic char and Lake trout lakes (DNR)	na	60	90	
8	Designated Watersheds (DENV)	< 25%	15	75	Timber harvesting is permitted as per DENV legislative framework.

Table 2. Special Feature Buffers

Special Feature	Bank Slope	No Tracking Zone (m)	Buffer (m)	Buffer Zone Timber Harvesting
	≥ 25%	30	75	Partial harvesting is permitted beyond 30 meters from the watercourse.
9 Crown Reserve Angling and Lease Waters (DNR)	na	30	90	Partial harvesting is permitted beyond 30 meters from the watercourse.
10 Canadian Heritage Rivers				
Restigouche River	na	60	150	Partial harvesting is permitted beyond 60 meters from the watercourse.
St. Croix River	na	60	75 & 100	
11 Special Agreement Waters (DNR)				
Peltoma Lake (designated section)	na	30	200	Partial harvesting is permitted beyond 30 meters from the watercourse.
Lower North Branch Little Southwest Miramichi River (designated section)	na	500	500	Timber harvesting is not permitted.

The Licensee is responsible for:

- Buffer zones adjacent to all qualifying natural watercourses and wetlands encountered during harvesting operations as per Tables 1 & 2, the requirements of the *Clean Water Act*, its regulations, terms and conditions.
- Recognizing the following situations during harvesting operations and adjusting buffer zones and/or forestry prescriptions as necessary to meet identified objectives:
 - Landform and forest conditions that could compromise the ability of the buffer zone to achieve the management outcomes.

- Situations where implementing forestry activities in the buffer zone will compromise the management outcomes.
- Obtaining DNR approval for adjustments to buffer zones that deviate from standards.

The Government is responsible for:

- Reviewing and approving adjustments to buffer zones that deviate from standards.

Management of Quality Tolerant Hardwood Forests

Objective:

Quality tolerant hardwood dominated stands in the general forest will be managed on Crown lands to maximize the long-term supply of high quality hardwood logs. High value potential trees in the over-story (*where present*) will be promoted as a primary objective. Regeneration of high quality tolerant hardwood species is the expectation for all these areas.

Key Policy Elements:

- Tolerant hardwood is considered dominant when > 50 % of stand volume. The species of focus for this policy include: sugar maple, yellow birch, oaks, and ashes; with consideration given to American beech and red maple. American beech is not favored for promotion or regeneration except where trees display clear resistance to the beech scale disease complex. Red maple is a ubiquitous species of intermediate shade tolerance and quality: its volume can be tabulated towards the total to a maximum of 10% and only when associated with other high quality species.
- Quality potential stands should receive a prescription unique to their development and condition.
- On-the-ground conditions should drive quality tolerant hardwood management.

Targeted Outcomes:

- Immature crop trees and regeneration of potential high-quality have been promoted wherever possible and are growing in an improved stand.
- The composition of focus species is improved in the post-harvest regeneration.
- At the landscape level, a variety of treatments are matched to appropriate conditions.
- At the landscape level, a sustainable supply of high-quality saw-material is being achieved.
- The area of the quality tolerant hardwood forest is being maintained.

The Government is responsible for:

- Verifying accurate reporting of completed treatments in the Annual Report.

The Licensee is responsible for:

- Formulating prescriptions.
- Controlling harvest operations to ensure treatments are appropriate and are implemented properly.
- Submitting treatment results as required in the annual report.

Scale and Utilization

Objective:

- Accurate and consistent measurement of primary forest products harvested from Crown land.
- Accounting of wood measurement and movement of harvested primary forest products from Crown land.
- Accurate and timely reporting of harvested primary forest products from Crown land.
- Products are produced so that timber of a specific size and quality is directed to allocated mills in a fair and equitable manner.

Key Policy Elements:

Adherence to the Scaling and Utilization Policy will:

- Ensure that appropriate methods are used to measure primary forest products.
- Ensure that product and volume information is accurately reported for wood harvested from Crown Lands.
- Accurately describe the movement of primary forest products from Crown land to the final mill destination to enable an accurate accounting of all wood harvested from Crown land.
- Minimize the amount of waste wood fibre in harvesting and processing operations.

The Licensee is responsible for:

- Reporting species/product volume, origin, destination and transportation details according to appropriate standards.
- Ensuring that operators understand and follow DNR utilization standards.

The DNR is responsible for:

- Approval of scaling arrangements.
- Auditing the Licensee reporting of measurement, movement, and delivery of Crown timber.

Operations – Roads

Objective:

The objective for forest roads is to provide safe access to Crown Land while maintaining water quality and aquatic habitat. Primarily, forest roads are built and maintained to access and transport Crown timber and to facilitate other forest management and forest protection activities. Forest roads also provide access for private woodlot owners, recreational users and other industrial users.

Key Policy Elements:

- Forest roads and watercourse crossings are constructed, installed and maintained to accepted safety and environmental standards.
- A portion of the forest road network on each License has been “designated”, mutually by the Licensee and DNR, to provide the primary access to Crown Land on each License.
- Designated Roads provide the basic forest road network for accessing Crown Land and will be built, maintained and kept passable to mutually agreeable standards.
- The Designated Road database will be reviewed annually.

The Licensee is responsible for:

- Ensuring that construction, maintenance and watercourse crossing installation activities comply with all pertinent Acts and Regulations.
- Designing and constructing roads and watercourse crossings to meet requirements and recognize hazards, sensitive terrain and forest resource values.
- Designing and adapting measures to minimize potential environmental impacts.

- Monitoring the construction to ensure the objectives are being met.
- Creating and maintaining a prioritized database of environmental, safety and/or liability issues associated with forest roads.
- Submitting road construction, maintenance and watercourse crossing installation information as required in the Annual Report, or as agreed mutually by the Licensee and DNR.

The Government is responsible for:

- Verifying accurate reporting of completed treatments in the Annual Report.

Operations – Silviculture

Objective:

Growth rates in plantations, pre-commercial thinnings, and commercial thinnings (collectively termed ‘managed stands’) are a critical component to the wood supply, and more broadly the FMP. The Licensee is accountable for the silviculture area reimbursed and performance expectations set forth in the FMP.

Key Policy Elements:

- Silviculture on the License must be carried out in a way that will provide the volume and products of wood that are expected to contribute to the sustainable wood supply outlined in the forest management plan.
- Average growth rates (by stand type) must be on track over a five year period to providing the product and volume expectations set forth in the forest management plan.
- Silviculturally treated areas (plantations, pre-commercial thinnings, and plantation cleanings) on the License must be assessed in accordance with defined performance expectations.

The Licensee is responsible for:

- Carrying out silviculture on the License in a way that will achieve the volume and products expected in the forest management plan.
- Implementing corrective and preventive actions where major discrepancies are found during the assessment.

- Providing DNR with a 5-Year Silviculture Performance Assessment Report that includes the results of annual performance assessments along with all corrective and preventive action plans that were developed during the 5 year period.

The Government is responsible for:

- Setting annual reimbursement rates and the License silviculture budget.

Annual Report

The Annual Report provides a summary of activities that were carried out on the License during the previous year and is the basis for updating the spatial forest database. The Annual Report serves as a status report on implementation of the FMP and is used by DNR and third party auditors as part of the evaluation of Licensee performance.

Key Policy Elements:

- The Annual Report describes activities that occur each operating year between April 1 and March 31 inclusively and must be submitted by June 1st each year.
- Maps and attributes may be submitted to DNR periodically through the year on an interim-basis. The end-of-year submission will be considered authoritative for the purposes of Licensee performance evaluation.
- The Annual Report will contain the following sections:
 - Roads and Watercourse Crossings
 - Harvest
 - Silviculture
 - Fish and Wildlife (including site-specific habitats)
 - Third Party Forest Certification Reports
 - Report on relevant Annual Crown Forest Management Indicators (Schedule “G”)
 - Financial Accountability Report

The Licensee is responsible for:

- The compilation and submission of the Annual Report for forestry activities on Crown Land.

The Government is responsible for:

- Ensuring that the Provincial forest database is updated to reflect reported forestry activities in a timely fashion.
- Verifying that the reported activities are consistent with the FMP objectives.
- Summarizing information for Provincial policy decision making and National reporting requirements.

Financial Report

Forest management activity on a Crown Timber License between DNR and the Licensee occurs in three broad classes of transactions:

- **Royalty** – the fair market value of the timber harvested as determined through periodic survey of the private marketplace for equivalent products.
- **Silviculture Expenses** - reimbursement to Licensees for conducting basic silviculture treatments in accordance with the FMP, the annual silviculture budget, and DNR’s schedule of reimbursement rates.
- **License Forest Management Service Fees** – reimbursement to Licensees for specific requested management services undertaken at the request of, and on behalf of DNR.

On an annual basis the Licensee will report on and reconcile these revenues, costs, and services.

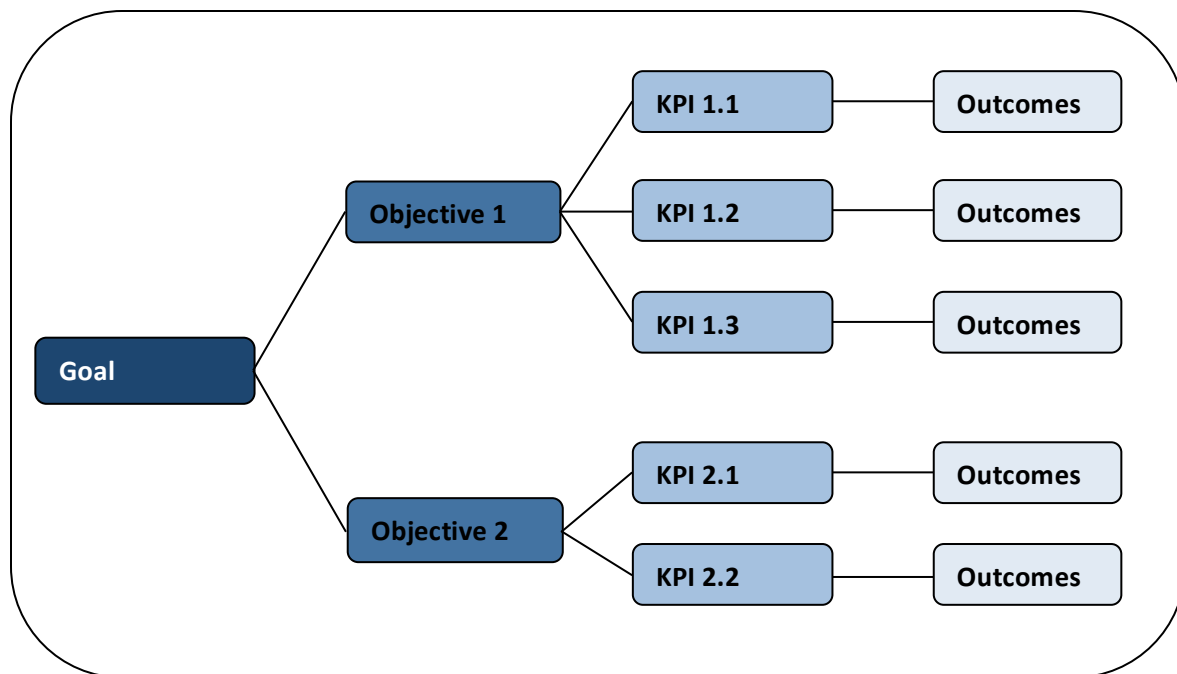
Accountability

Under the Act DNR evaluates Licensee forest management performance at five-year intervals. The evaluation results are used in DNR’s decision to extend the length of the FMA. The evaluation is based on a predetermined set of goals, objectives, indicators and outcomes revised every five years.

The document, entitled Performance Evaluation Standards forms Schedule “G” of the FMA.

Objective:

To put in place a strengthened framework that holds Licensees to account for delivering upon key commitments set forth in the FMP. The forest-level outcomes of their management efforts will be evaluated against key performance indicators (KPIs) that span environmental, economic, and societal themes. These KPIs are the basis for Licensee performance evaluation; with significant deterrence for non-compliance to DNR’s expected outcomes.



Key Principles:

- This new framework for industrial forest management operations on Crown lands still requires full conformance with all Federal and Provincial legislation.
- Oversight of industry compliance is a core Government function. Direct and fair measurement of Licensee success in delivering sustainable forest management (SFM) outcomes is a key element of the Forest Management Agreement.
- Licensees must maintain in good standing third party SFM certification from either the Sustainable Forestry Initiative (SFI), or the Forest Stewardship Council (FSC) in addition to certification from the International Standards Organization’s (ISO) environmental management standard – 14001.
- The body conducting the certification must be accredited and mutually agreed-upon by both the Licensee and DNR.
- Designated DNR staff will be embedded into all internal and external SFM audit process – in the field audits being conducted for both ISO and SFI. These staff will become part of license management reviews, and will be involved in development of action plans related to Crown land management.
- The third party audit process will identify and report on non-compliances to outcomes based on:
 - History of previous occurrences
 - Frequency
 - Severity (impact on environment and / or wood supply)
 - Permanence of damage

- Negligence or performance management issues
- Process of determination (self-reporting or other)
- Findings of the third party auditors will be used to measure success against many (but not all) of DNR's goals, objectives, and outcomes.
- Audit reports will be accessible on the DNR and Licensee websites and will clearly indicate the status of each KPI, and any other pertinent information.

Opportunities for Improvement and Non-Conformances:

Opportunities for improvement - issues the third party auditors recommend that the Licensee consider improving in their management processes.

Failure to meet DNR's SFM outcomes can occur at varying levels within a Licensee organization's processes.

- **Minor non-conformance** – incidents of process failure that have led to unfulfilled outcomes. Compliance action plans required to better control process. Environmental or economic damage incurred subject to corrective action within a reasonable time period.
- **Major non-conformance** – lack of process control related to an expected SFM outcome or lack of progress on a compliance action plan from a previously issued minor non-conformance.

While process improvement is a viable option for pursuing all SFM outcomes, certain instances of failure to achieve intended outcomes will also require corrective action and environmental remediation. Licensees will be required to address all known incidents. Mutually agreeable corrective action plans will be developed by Licensees. Corrective action plans will provide a reasonable time period to address the issue. The Licensee will bear the financial burden of corrective action plans.

Security:

The Licensee will be required to provide security ensuring that the minimum performance thresholds agreed upon for each KPI outlined in the Performance Evaluation Standards are achieved. This is not intended to be a punitive financial mechanism for automatically "fining" minor non-conformances. A claim may be made against the security by the Minister only in the event a Licensee fails to address a non-conformance or fails to implement an agreed upon corrective action plan within the prescribed timelines, and fails to pay the Minister any corresponding amount owing as a result of such failure.

Licensees are required to furnish a bond, irrevocable letter of credit or other equivalent cash security acceptable to the Minister, acting reasonably, which security will be in an amount calculated based on \$3.00 per hectare of License area. The requirement for the security will be reviewed every 5-year period during the term of the FMA. The Minister may reduce the value of required security in the event that during the preceding 5-year period: (i) there has been no change in control of the Licensee,

and (ii) the Licensee has demonstrated, to the satisfaction of the Minister, their compliance with the requirements under their operating plan, management plan and industrial plan. The Minister may increase the value of required security in the event that during the preceding 5-year period the Licensee has not demonstrated, to the satisfaction of the Minister, their compliance with the requirements under their operating plan, management plan and industrial plan.

Within 60 days after the end of the applicable reporting period (usually five years, but in some instances the reporting period may be one year for some KPIs), the Minister will review the Licensee's performance and advise the Licensee in writing (with a KPI Notice) if it believes the Licensee failed to satisfy the minimum performance threshold for each applicable KPI; failing which the Licensee will be deemed to have satisfied the applicable KPI. Within 60 days following receipt of a KPI Notice, the parties will meet and agree on the specific failure(s) and the Licensee's corrective action plan to mitigate the effect of any such failure(s). The Licensee will have until the end of the next reporting pertaining to that KPI to successfully implement the corrective action plan. In the event the Licensee fails to use reasonable efforts to implement the corrective action plan, the Minister may, upon providing the Licensee with at least 60 days prior written notice, require the Licensee to pay the Minister an amount equal to the direct loss resulting from the Licensee's failure to satisfy the minimum performance threshold for the applicable KPI (the "Claim Amount"); provided such failure remains outstanding at the end of such 60-day period. Subject to a dispute made in good faith, if the Licensee fails to make payment of the Claim Amount within 30 days, the Minister may make a claim under the security, as applicable, as the Minister's sole and exclusive remedy for such failure.

The Claim Amount will be determined by the Minister, acting reasonably. All reasonable back-up information and calculations will be provided by the Minister to the Licensee in support of such claim. In the event the Licensee disputes the Claim Amount and such dispute cannot be settled by the parties themselves, the parties shall, unless otherwise agreed, subject the matter to arbitration by a single arbitrator. The arbitration will be seated in the City of Fredericton, New Brunswick under the laws of New Brunswick in accordance with the *Arbitration Act* (NB). The language of the arbitration will be English. The cost of the arbitration will be shared equally between the parties.

Breach of Results-Based Forestry Option:

Results-based forestry is a critical element the overall FMA. Subject to all applicable cure periods, the Licensee will be considered in material breach of their obligations under the results-based forestry option in any of the following circumstances:

- Failure to use reasonable efforts to implement a mitigation plan to remedy a third party audit finding indicating a major non-conformance related to a KPI or outcome; or
- The loss of third party SFM certification under either the SFI or FSC, and failure to use reasonable efforts to regain such third party SFM certification within a reasonable period of time.

Commitment to Continuous Improvement

Forest management practices on Crown lands will evolve over time through efficiency and quality improvements and through development of new technologies. A Licensee's commitment to process improvement is a pre-requisite for participation in results-based License management. Process improvement will be the model for the development and evolution of best-management practices, standard operating procedures, and regulatory oversight. Over time, land management costs to Government and industry must decrease; productivity must increase; all while environmental values are maintained.

Key Policy Elements:

- The Licensee will maintain an environmental management system, audited independently, to which DNR has complete access and transparency of information.
- The Licensee and DNR will undertake joint process improvement initiatives as needed to achieve mutually beneficial cost savings and to better achieve desired outcomes for Crown forest management.

The Licensee is responsible for:

- Development of best management practices and standard operating procedures for Crown forest management in co-operation with DNR.
- Exercising process control over all operations that could significantly impact Crown forest management objectives.
- Integration of best management practices into operations on Crown land.

The Government is responsible for:

- Development of best management practices and standard operating procedures for Crown forest management in cooperation with the Licensee.