ALGONQUIN PARK FOREST

Independent Forest Audit April 1, 2012-March 31, 2017

Final Report

ArborVitae Environmental Services Ltd.

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CONTENTS

1.0	EXECUTIVE SUMMARY	1
2.0	TABLE OF AUDIT FINDINGS	3
3.0	INTRODUCTION	4
3.1 3.2	AUDIT PROCESS MANAGEMENT UNIT DESCRIPTION	4 5
4.0	AUDIT FINDINGS	7
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9	COMMITMENT PUBLIC CONSULTATION AND ABORIGINAL INVOLVEMENT FOREST MANAGEMENT PLANNING PLAN ASSESSMENT AND IMPLEMENTATION SYSTEM SUPPORT MONITORING ACHIEVEMENT OF MANAGEMENT OBJECTIVES & FOREST SUSTAINABILITY CONTRACTUAL OBLIGATIONS CONCLUSIONS AND LICENCE EXTENSION RECOMMENDATION	7 7 9 12 12 13 15 15
APPE	NDIX 1 – AUDIT FINDINGS	17
APPE	NDIX 2 – ACHIEVEMENT OF FMP MANAGEMENT OBJECTIVES	33
APPEN	IDIX 3 - COMPLIANCE WITH CONTRACTUAL OBLIGATIONS	48
APPE	NDIX 4 – AUDIT PROCESS	51
APPE	NDIX 5 – LIST OF ACRONYMS	58
APPE	NDIX 6 – AUDIT TEAM MEMBERS AND QUALIFICATIONS	59

1.0 EXECUTIVE SUMMARY

This Independent Forest Audit (IFA) assessed the management of the Algonquin Park Forest during the period April 1, 2012 to March 31, 2017, which encompasses years three through seven of operations under the 2010-2020 FMP, as well as the development of the Phase II Planned Operations that came into effect April 1, 2015. This audit reviewed the performance of the Algonquin Forestry Authority (AFA), which manages the Forest under the Algonquin Park Forestry Agreement, and the Ontario Parks Algonquin Zone of the Ministry of Natural Resources and Forestry (MNRF). The audit was carried out by a team of five professionals, each with a wealth of experience in forest management.

The auditors conducted two days worth of site inspections and interviewed members of the Local Citizens Committee (LCC), staff members of the AFA and Ontario Parks, and representatives of the 10 Algonquins of Ontario communities and staff from the Algonquins of Ontario (AOO) consultation office. Members of the AFA Board also participated in the audit. Approximately 15% of the harvest operations were viewed, as well as 11% of the planted area and 10% of the area assessed as free-to-grow (FTG). The quality of the operations was high and the compliance monitoring system that the AFA and Ontario Parks have in place has been effective at maintaining this quality. In general, the operations were well conducted, and only two of the findings concerned operational matters.

A number of the findings were indicative of significant concerns. One finding relates to the concerns regarding the impacts of species at risk (SAR) buffers and timing restrictions on forest operations. While no one is suggesting that SAR should not be protected, the stringency of protection should be assessed to consider whether it might be overly stringent – as was recommended in the previous IFA. This was the topic of the Issue Resolution request initiated during Phase II planning by one of the companies that is a major user of wood from the Park. The finding points to a need for a calibration of the protective measures that are in place.

The audit team has also developed a finding related to the persistent underharvest compared to the planned level of activity. The situation described in the finding is widespread in Ontario since the 2008-09 recession, which resulted in numerous mill closures that we now know are permanent. The auditors are of the opinion that the production of an FMP, which costs more than \$1 million, would be better served if the planned levels of operations were more in keeping with what is realistic. In the auditors' view, it reflects on the credibility and the utility of Forest Management Plans.

It is noted that the plan and the assessment of many of its objectives are based on the Forest Resource Inventory, which was quite old (based on 1987 photography and updated for forest operations) when it was used in developing the 2010 FMP and the Phase II Planned Operations. The new FRI that has been prepared by MNRF has many problems associated with it and the AFA is working very hard to correct them, as MNRF's quality control system was unable to fix many of the issues. This situation led to a finding. Another finding reflects a concern that was voiced to the audit team by MNRF staff – that the level of collection of values information is not commensurate with the MNRF's responsibilities to maintain the Park's ecological integrity, as articulated in the Park Management Plan.

The overall results of this audit are favourable and the level of performance by the MNRF and the AFA was high during the audit period. The AFA has substantially met the obligations in its

Agreement and is adhering to the direction in the FMPM. Management of the Algonquin Park Forest, as implemented by Algonquin Forestry Authority and Ontario Parks, is found by this audit to be sustainable and in compliance with the Crown Forest Sustainability Act.

The audit team concludes that management of the Algonquin Park Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Algonquin Park Forestry Agreement (APFA) held by the Algonquin Forestry Authority. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of APFA for a further five years.



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2.0 TABLE OF AUDIT FINDINGS

Concluding Statement on Licence Extension

The audit team concludes that management of the Algonquin Park Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Algonquin Park Forestry Agreement (APFA) held by the Algonquin Forestry Authority. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of APFA for a further five years.

Findings

1. The LCC Terms of Reference is missing some of the elements required by the FMPM.

- 2. The actual harvest areas in the last five FMP periods have been well below planned levels which has significant implications for the AFA's ability to meet plan objectives.
- 3. Monitoring to examine the effectiveness and risk associated with SAR AOC prescriptions is required to validate the prescriptions.
- 4. The on-going level of values collection by MNRF in the Algonquin Forest appears to be below that in neighbouring Districts and not consistent with the mandate for managing ecological integrity in the Park, as expressed in the Algonquin Park Management Plan and related MNRF commitments..
- 5. The APMP is highly prescriptive in some places and the science, or more broadly, general conditions have changed to make some of such direction obsolete.
- 6. a) Corporate MNRF's quality control processes for the new FRI allowed many errors and discrepancies to pass through.

b) The inventory production and quality control processes used by MNRF and its contractors did not make use of information and data provided by the AFA intended to strengthen the quality of the inventory.

- 7. Non-conformances with the direction of FMPM Appendix VII (Operational Standards for Forestry Aggregate Pits) were identified during the audit at two aggregate pits.
- 8. During the audit, certain planted sites were viewed with intensive competition and resultant high levels of mortality of planted stock.
- 9. Table AR-10 (Summary of Harvest and Regeneration Trends), which is part of the Trend Analysis Report, has not been completed correctly; the MNRF does not provide clear instructions for preparing this table.
- 10. Corporate MNRF has not met its obligation to produce the provincial status report for the 2012 IFAs within two years of the approval of the Action Plan.

3.0 INTRODUCTION

3.1 AUDIT PROCESS

The Crown Forest Sustainability Act (CFSA), and one of its Regulations (160/04), directs the Minister of Natural Resources and Forestry (MNRF) to conduct regular audits of each of the province's managed forests. This Independent Forest Audit (IFA) was undertaken by ArborVitae Environmental Services Ltd. using a five-person team. Profiles of the team members, their qualifications and responsibilities, are provided in Appendix 6.

The IFAs assess compliance with the CFSA, the Forest Management Planning Manual (FMPM) and the forest management plan (FMP). This audit also considers whether the Algonquin Forestry Authority (AFA) has complied with the terms and conditions of the Algonquin Park Forestry Agreement (APFA), which is between the AFA and the Minister of Natural Resources and Forestry. At the beginning of the audit period, the term of the agreement was from April 1, 2007 until March 31, 2027. The agreement was revised in 2012 to accommodate the effects of the Lighten the Footprint (LTF) exercise, and then was re-issued in 2016, with a term starting April 1, 2015 and running until March 31, 2035.

An important characteristic of the IFAs is that they review the performance of both the AFA and MNRF (in this case, Ontario Parks). Ontario Parks has many responsibilities related to forest management in the Park, including review and approval of key documents such as the FMP, annual reports, and annual work schedules, overseeing management of non-timber resources, undertaking compliance inspections, etc. In sum, the activities and accomplishments of both parties with forest management responsibilities are covered by the audit. The audit also assesses how effectively operations met plan objectives and the improvements made in response to prior IFA results. Consistent with the CFSA, the audit team provides a conclusion regarding the sustainability of the Crown forest and a recommendation regarding extension of the APFA term.

The Independent Forest Audit Process and Protocol (IFAPP) provides direction regarding the scope and process of the audit. This year the IFA process was modified to include a screening of the risk associated with approximately 75 of the 170 audit procedures. Risk is considered as a composite of the likelihood that a procedure would have a finding associated with it and the impact of a non-conformance on the sustainability of the forest. As a result of this screening, eight of the optional procedures were selected to be audited. Greater detail regarding how the audit process was followed, the risk assessment approach and results, and the operational sampling intensity can be found in Appendix 4.

This audit covers the period April 1, 2012 – March 31, 2017, which spans years three through seven of the 2010 FMP and includes the development of the Phase II Planned Operations that came into force April 1, 2015. The audit examined all forest operations that occurred within that period as well as the process of developing the Phase II Planned Operations. The auditors solicited public input using newspaper advertisements, an on-line questionnaire and by asking the Local Citizens Committee (LCC) members to encourage their constituencies to comment. Seven comments were received, as described further in Appendix 4.

The auditors interviewed more than half of the LCC membership and staff of the Algonquins of Ontario (AOO) Consultation Office, which is located in Pembroke. The audit team presented its

draft findings to the LCC and to the AOO, and members of the AFA Board, LCC, and the AOO and associated communities accompanied the audit team during its ground-based field inspections. Appendix 4 provides more a detailed listing of the comments and discussion points submitted by various stakeholders and raised by the members of the LCC and Aboriginal people during interviews.

3.2 MANAGEMENT UNIT DESCRIPTION

Algonquin Park is located in mid-central Ontario, approx 300 km northeast of Toronto, 250 km west of Ottawa and just southeast of North Bay. The Park has been in existence since 1893 (the original area has been increased since its establishment, most recently in 1993), and it is

the only provincial park in Ontario where commercial timber harvesting is permitted. There are no permanent settlements inside the Park however there is a constellation of towns and small cities surrounding the Park, many of which have vibrant forest sectors that depend on timber from Algonguin Park and tourism sectors which benefit from proximity to the Park. On the east side. there are timber mills in Pembroke, Whitney, Eganville and Madawaska. To the south lie Bancroft and Haliburton (not shown), to the east is Huntsville and North Bay is just to the north west of the Park (Figure 1).



Algonquin Park is classified as a Natural Environment Park and is divided into seven zone types, based on use. The Recreation /Utilization Zone, which is the only zone in which commercial timber operations can occur, is the largest zone and makes up the Algonquin Park Management Unit. This management unit is managed according to an FMP prepared under the FMPM, as any Forest Management Unit (FMU) would be in the province. Where Algonquin differs from other FMUs is that the entire Park is subject to the Algonquin Park Management Plan (APMP), which addresses the broad range of uses and values present. The FMP is required to be consistent with the APMP, which was last prepared in 1998. The APMP can be amended, it may be periodically revised – there is an option for Ontario Parks to review and revise the APMP starting in 2018 but it is not known if the review process will be initiated.

The area of the entire Park is 763,555 ha, which is almost all Crown land. At the start of the 2010 FMP term, the managed forest landbase was 536,632 ha, of which 47,750 ha was non-productive land such as muskeg and alder swamp, and a further 7,404 ha was inoperable, usually because of steep slopes. The remaining 481,478 ha was classed as production forest, and was in theory available for timber harvesting. During the audit term, the results of the

Lighten the Footprint (LTF) initiative were settled and in 2013 the APMP and FMP were amended to reflect these changes.

The LTF initiative originated in 2005, when the Minister of Natural Resources asked the Ontario Parks Board and the AFA Board to advise on how the ecological footprint of logging could be reduced in the Park and protection could be enhanced for brook trout lakes, canoe routes, portages, camp sites, old growth forests and representative ecological areas. The process of analysis and review involved numerous steps and much discussion between Ontario Parks Board, MNRF, the AFA and its Board, and the Algonquins of Ontario. The LTF ended up reclassifying 96,089 ha from the R/U zone into other use zones where forestry is not permitted. Post-LTF, the production forest area available for timber is 437,264 ha, a reduction of 9.2%. The breakdown of the Crown managed land, after implementation of LTF, is shown in Table 1.

Table 1. Managed Crown Land in the Algonquin Park Management Unit (From Revised)	Table
FMP-1, Year 3 Annual Report)	

Land Class	Managed Crown Land (ha)		
Non-forested Land	2,771		
Non-productive Forest ^a	41,315		
Protection Forest ^b	6,352		
Production Forest ^c	437,264		
Total	487,702		

a – areas incapable of growing commercial trees, such as muskeg, rock, etc.

b - forest on islands and steep slopes that cannot be harvested

c – forest areas capable of growing commercial trees.

Algonquin Park is located on a height of land known as the Algonquin Dome; the western side of the Park area is dominated by tolerant hardwoods and hemlock forests on the Precambrian Uplands, while the east side, part of the Ottawa Lowlands, is drier and characterized by red and white pine and poplar. Numerous other tree species characteristic of the Great Lakes- St, Lawrence Forest are present, including red oak, white and black ash, beech, yellow birch, black cherry, basswood and others. Red, white and black spruce are also present, as are jack pine, balsam fir, eastern white cedar and larch. Moose, marten, beaver, wolf and black bear are prominent mammals, with many other species also present (e.g. lynx, deer and fisher).

Algonquin Park is an iconic landscape that draws upwards of one million visitors per year. It offers outstanding recreational opportunities located within ready access of large urban areas, and the areas surrounding it include high-end recreational regions such as Muskoka and Haliburton. The Park receives a very high level of interest from a wide range of stakeholders and events involving the Park attract intense scrutiny.

The Forest is the ancestral home of the Algonquins and the Algonquins of Ontario represent ten separate Algonquin communities who were included in the development of the 2010 FMP. Negotiations are underway regarding an extensive land claim with the Algonquins which may have an impact on the Park in the future. There are additional Aboriginal communities whose interests in the Forest have more recently been recognized and these communities have been invited to participate in the development of the 2020 FMP.

4.0 AUDIT FINDINGS

This section of the report provides an overview of the main conclusions and a series of findings regarding issues of non-compliance and/or the need to improve the effectiveness of forest management. The findings are described in detail in Appendix 1.

4.1 COMMITMENT

The commitment principle is deemed to be met since the Algonquin Provincial Park Forest is certified under the Canadian Standard Association's Council's CAN/CSA - Z809 2008 standard. The audit team had extensive engagement with AFA and MNRF staff throughout the audit and found them to be highly committed and knowledgeable regarding provincial forest management requirements in general and management of the Algonquin Park Forest in particular.

4.2 PUBLIC CONSULTATION AND ABORIGINAL INVOLVEMENT

Local Citizens Committee and Public Consultation

The LCC has twelve members representing a range of interests as required by the FMPM. Some members are local, while others reside a significant distance from Algonquin Park, making regular in-person meetings challenging. Over the audit term, the LCC met in person approximately once a year, with other communications occurring via email or telephone. Only half or less of the members were present at the 2014 and 2015 annual face-to-face meetings. Those interviewed felt that the Committee was functioning well, in that it was meeting its core mandate to participate in forest management planning and provide advice to Ontario Parks.

The LCC's meetings included a review of the Annual Work Schedule and presentation of the most recent Annual Report, as well as a discussion of other current forest management issues. The provision of advice to Ontario Parks on categorization of plan amendments was delegated to the LCC Chair. While permitted, this is not reflected in the LCC Terms of Reference. The Terms of Reference are further lacking some of the required content (**Finding # 1**, Appendix 1).

Ontario Parks followed the FMPM requirements in seeking public input to the development of the 2015 Phase II Planned Operations. Ontario Parks provided notice to the public regarding the option to pursue an Individual Environmental Assessment (IEA) via the approved plan notice. The option was also provided in the Regional Director's decision letter related to an issue resolution raised. No IEAs were requested prior to the finalization of the Phase II plan.

Engagement with Indigenous Communities

Ten Algonquin communities were identified as having interests in Algonquin Park during the audit term (see Appendix 4 for a complete list). All of these communities were invited to participate in developing the Phase II Planned Operations - seven communities and a representative from the Algonquins of Ontario (AOO) Consultation Office participated on the Planning Team. The Algonquin communities were consulted about some, but not all, of the thirteen administrative plan amendments during the audit term. While this is not a requirement for administrative amendments, community representatives indicated an interest in receiving information about all proposed amendments in future.

Interviews and documents suggest that productive working relationships have been established between the Algonquins, Ontario Parks, and the AFA. The voluntary participation of the Algonquins on the AFA's forest certification advisory committee speaks to ongoing engagement and interest in forest management issues. While there is always room for growth, progress was made over the audit term to address key concerns within the sphere of influence of both the

AFA and Ontario Parks (e.g., road closures that conflict with hunting interests, forestry employment, cultural values collection and protection).

Provincial models are used to predict areas of high potential for Indigenous cultural values. Efforts to supplement this general information are made through the provision of funding to Indigenous communities (or in this case the AOO Consultation Office) to collect values information as part of an "Aboriginal Background Information Report (ABIR)." This amounted to approximately \$50,000 for the last planning cycle. Operationally, protection of known values occurs through either Area of Concern prescriptions, Conditions on Regular Operations or discussion at the AWS stage. Overall, the procedures to collect values information have been implemented as required over the audit term. There are several hundred registered (Borden) sites documented, as well as many other cultural values depicted on values maps (e.g., traditional hunting, fishing and gathering areas). However, according to the AOO, the funding provided is not enough to undertake a meaningful and comprehensive community-level values collection exercise for the ten Algonquin communities.¹

The nature of the Algonquin interests in forestry activities in Algonquin Park is complex and evolving. These are being addressed in part through an Algonquin land claim. Some ongoing concerns identified at the planning tables are outside the scope of forest management planning. The audit team concludes that regular and sincere efforts are being made by all parties to work through issues and engage productively in planning and plan implementation.

4.3 FOREST MANAGEMENT PLANNING

As discussed above, the FMP was amended in 2013 to reflect the outcome from the LTF initiative. The Year 3 AR provides an excellent analysis of the impact of the LTF outcome on the projected future harvest and achievement of plan objectives, based on re-running the Strategic Forest Management Model with the revised landbase. Because the harvest planned during the 2010 plan period was based on deferred harvesting of the areas proposed for removal from the R/U zone, the impact of the LTF initiative was minimal on the achievement of 2010 FMP objectives and in the year 3 AR, the Long Term Management Direction (LTMD) was declared to remain valid. Beyond 2020, however, the reduction in available landbase due to LTF will reduce the degree of achievement of the socio-economic objectives (due to a reduced level of forest operations). On the other hand, the ecological objectives were assessed over the entire Park landbase so LTF has a subdued impact on the achievement of those objectives.

During the audit period, the Phase II Planned Operations was developed using the post-LTF landbase. The total area available for harvest in Phase II equals 119,037 ha, which consists of the area initially planned for harvest in Phase II (i.e. 63,956 ha) plus the planned area from Phase I that is not expected to be harvested by the end of Phase I (i.e. 55,081 ha). While carrying forward the unharvested Phase I area into Phase II is legitimate and does not impinge on sustainability, the available harvest for Phase II represents 16 years worth of harvesting at the rate of 7,500 ha/year, which was attained in 2016-17. This is not an unexpected situation; Table AR-7 shows that since 1990, the actual harvest has ranged from 37 to 67% of planned over a five-year plan period, averaging about 50%. In the absence of any catalyst for a higher harvest, **Finding # 2** is presented.

While preparing the Phase II Planned Operations, the AFA increased the number of Silvicultural Ground Rules (SGRs), primarily to reflect the full suite of post-harvest succession pathways that were modeled in the Phase I plan. The SGRs were prepared in accordance with the 2009

¹ Now that there is no longer a mid-term operations; planning process under the 2017 FMPM, values collection may take place once every decade as a new plan is prepared.

FMPM and followed the approved forest management guides. It was noted that the text of the Phase II plan (and the Phase I FMP) does not describe the silvicultural ground rules that will most commonly be used to regenerate each forest unit, as required by the 2009 FMPM.

Table FMP-17 (Planned Renewal and Tending Operations) in the Phase II plan summarizes the types and planned levels of renewal and tending operations for the term. The table is informative, reporting the area of planned renewal (regeneration and site preparation) and tending by disturbance type (i.e., harvest or natural) and by treatment method. Application of the harvest, renewal, and tending treatment packages viewed by the auditors in the field was consistent and in conformance with the prescriptions / SGRs described in the FMP.

The Phase II FMP contains 58 Areas of Concern (AOCs) - an increase of 14 compared to the Phase I plan. The increase is due mostly to the continuing evolution of the breadth of AOCs covered in the forest management planning process, mostly attributable to values addressed by the Stand and Site Guide (SSG)². Thirteen of the new AOCs are associated with wildlife. The audit team reviewed the AOC prescriptions and found them to be appropriate for the values they intend to protect, with the exception of concerns expressed in **Finding # 3**. A number of them are very complex, largely owing to the level of detail and precaution built into SSG prescriptions. The previous IFA recommended that risk-benefit assessments be factored into AOC prescriptions for species at risk (SAR). The audit team could find no evidence of progress in this regard and identified **Finding # 3**.

During implementation of the Phase II plan, and in anticipation of the next FMP, MNRF Southern Region spearheaded a values collection blitz. While the effort provided useful information, it highlighted the need for more definitive planning for values collection in the Forest. This is addressed in **Finding # 4**.

As mentioned earlier, the FMP must be consistent with the Algonquin Park Management Plan (APMP), which dates from 1998. Although it has been amended a number of times, the timber management direction in the APMP has not changed much since it came into effect, with the result that some of the direction in the APMP is out of step with current direction. **Finding # 5** resulted from this situation.

All Annual Work Schedules (AWSs) prepared during the audit period included the required sections and tables. AWS summary maps were revised at the beginning of Phase II (2015-2016 AWS, onward) to include decommissioned roads and access controls, which were not previously included on the public maps. Over the audit period, 48 AWS revisions were made. Most revisions were related to harvest blocks that were not harvested in the previous year but already approved for harvest, or related to water-crossing construction and/or removal. These were considered minor revisions. Where more significant revisions were requested, the MNRF confirmed that more detailed information was provided by AFA. Overall, the MNRF was satisfied with the level of information sharing by AFA regarding AWS changes.

4.4 PLAN ASSESSMENT AND IMPLEMENTATION

The AFA received the new Forest Resource Inventory (FRI) for the forest in 2015, which provided sufficient lead time for planning, or so the AFA thought. Unfortunately there have been many errors and inconsistencies in the FRI, leading to **Finding # 6**.

²MNR. 2010. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. Toronto: Queen's Printer for Ontario. 211 pp.

The AFA is the sole licensee for timber harvesting in the Algonquin Park Forest Management Unit. During the first four years of the audit period, the AFA harvested approximately 5,700 ha/year, and during 2016-17, the harvest area increased to 7,417 ha as demand for forest products increased. Overall, during the audit period, the harvest area was approximately 44% of the planned level. The implications of this shortfall were discussed in **Finding # 2**.

Harvesting intensity was variable throughout the Park, with the majority of allocated area being harvested in the south, approximately 80% of allocated area in the east being harvested, and much less in the central zone. There is almost no harvesting in the northwest quadrant of the Park, owing to the lack of nearby contractors and distance to mill. During the audit period, the AFA tried to support harvest contractors in this part of the Park but the economics combined with the complexity of operating in the Park led contractors to give up after a year or two.

Typically, between 50 - 55% of the harvest area is cut using the selection method, which is suited to good quality stands of tolerant hardwoods and hemlock found mostly in the west side of the Park. Group selection was occasionally used in hemlock; the auditors viewed at least two sites where hemlock had been successfully managed in this way. This is notable since hemlock is an ecologically valuable species whose abundance has declined due to historic over-harvesting and sustained heavy browsing pressure. The reduction in the white-tailed deer population in the Park since the 1970's seems to have led to a reduction in browsing pressure which is enabling the regular recruitment of young hemlock. The auditors observed that hemlock regeneration has been very successful following group selection cuts.

In any year, between 40-50% of the harvest is conducted using the shelterwood system, and there is a small amount of clearcutting (generally 3-4% of the total harvest area). Lower quality tolerant hardwood stands are cut under the shelterwood system, as is the white pine forest unit. Mid-tolerant hardwoods (e.g. red oak, black cherry and yellow birch) may also be harvested under the shelterwood system, or the group selection approach. Individual clearcuts are very small, averaging 11 ha; the largest clearcut was 87 ha. In all, harvest operations were conducted to a high standard, with appropriate prescriptions for the forest types viewed. The utilization was good, and there was negligible damage to the site or to the residual trees.

During the first four years of the audit period, the AFA regenerated 17,483 ha, which is consistent with the area harvested during this period (i.e. 17,015 ha) after adjustments for operations that are not intended to be followed by renewal. Approximately 90% of the harvest is renewed by natural regeneration, although the AFA has begun to move away from the use of the classic red pine seed tree harvest due to challenges with natural red pine regeneration to avoid issues with diplodia (a fungus disease) damaging or killing young red pine. The AFA's revised approach on these sites is to favour removing the mature red pine and plantng red pine instead of relying on natural renewal.

Tree marking is the most critical aspect of the renewal program in the Park, particularly for the selection and shelterwood systems, which primarily depend on natural renewal. Provincially certified and trained tree markers must adhere to the tree-marking guidelines and standards that have been developed by the AFA and ensure that marking achieves the objectives set out in the SGRs. Training workshops for the marking crews are conducted annually. Marking is generally carried out a year in advance of harvesting, which allows time to check the work and to make any adjustments to the prescriptions. AFA staff regularly audit a sample of tree marking work.

Natural renewal was prevalent where the shelterwood system was employed; when it failed to materialize as expected or site characteristics were not conducive for it, the AFA took steps to treat the area artificially (by planting or assisting natural renewal by scarifying, for example). Excellent examples of white pine shelterwood renewal were observed. Competition from species such as red maple, balsam fir, and poplar was an issue on some sites, moreso since chemical tending is not employed in the Park. The auditors noted that none of the container stock, which is used almost exclusively on the Forest, is derived from improved seed or treated in any way to enhance performance. Using improved / enhanced planting stock may be a tactic for addressing situations where excessive competition can be expected.

The renewal prescriptions applied during the audit period were in conformance with the silvicultural ground rules and the treatments applied appeared to be generally effective. The silvicultural systems employed were suitable and should maintain forest productivity. In general, the audit team witnessed an effective renewal program, where sites are treated promptly and appropriately. The auditors note that the access and timing restrictions required on renewal and tending activities in SAR AOC's tend to increase renewal costs and reduce effectiveness, especially in the pine areas. Restrictions on the ability to manage pine in the frost-free period are resulting in reduced natural regeneration success, thereby compelling the use of more artificial regeneration at higher cost.

A total of 16,914 ha were tended during the audit term, which included 10,946 ha of stand improvement cutting in uneven-aged (selection) managed stands, 4,246 ha of stand improvement and pre-commercial thinning in even-aged stands, and 1,722 ha of manual tending. Tending was undertaken on 51% of the planned area in the 2010 FMP. On an individual treatment type basis, manual tending targets for the full ten-year plan period have already been exceeded (121%), along with targets for stand improvement and pre-commercial thinning in even-aged stands (1199%). These high levels of achievement were supported in part by funding provided to the AFA from the Forestry Futures Trust Fund.

Because the renewal program in Algonquin Park relies heavily on natural regeneration, the support program for artificial renewal is relatively small. Seed required for nursery stock production is primarily being collected by contractors working in stands within the Algonquin Park Forest. The auditors' review of the seed inventory confirmed that there was sufficient seed stored to meet the anticipated needs for all species, except for red spruce. Current red spruce seed quantities are insufficient to meet AFA's projected 5-year requirements, however there is no finding since red spruce is a very minor component of the AFA's planting program.

During the audit period, the AFA constructed 68.3 km of primary and branch road, 73% of which was the re-opening of old roads. Similarly, in Phase I, a total of 76 km of primary and branch roads were constructed; this is 30% of the total planned amount indicated in Table FMP-22 of the Phase I plan. With this level of activity to date, it is doubtful that the Phase II planned total of 250.9 km will be constructed/reconstructed as indicated in Table FMP-18 of the Phase II plan. (See **Finding # 2** which concerns the need for more credible levels of planned activities.)

The AFA reported decommissioning of 234.6 km of road (all grades) during Phase I of the FMP, indicative of a concerted effort to address some of the non-timber objectives in the plan. Since approximately 487 km of road (all grades) was constructed/reconstructed in Phase I, access management did not completely address the aspiration stated in the Phase I plan that "the total 'driveable' area within the park should remain relatively static over time".

During the audit, the audit team travelled on approximately 300 km of primary, branch, and operational road. In general the roads were maintained in a manner consistent with their intended use, although the auditors observed one steep and deep (approx 1.5 m) washout on an operational road off the South Cauliflower Lake Road. The road is gated and so has minimal use, however at the time of viewing the road was open and there was some recreational traffic. There were no ecological impacts associated with the washout however it should be fixed soon as it presents a safety hazard. Comparing a sample of roads against relevant invoices verified that activities occurred consistent with the Road Construction and Maintenance Agreement in place. During the audit, two aggregate pits were observed whose condition was not consistent with that prescribed in FMPM Appendix VII. This is addressed in **Finding # 7**.

The audit team inspected a variety of AOCs of different types and found them to be wellimplemented. A small number of non-compliances (5) regarding AOC boundaries occurred during the audit period, representing a minor proportion of the total number of inspections (606). The number of non-compliances related to AOC's is considerably fewer than in the previous audit terms (30 in the 2002-06 period and 29 in the 2007-11 audit term).

The 2012 IFA identified that management of old growth has been a contentious issue in the Park. That IFA (which reviewed the Phase I plan) characterized the approach to managing old growth as 'relatively cautious'. In response to stakeholder input for this audit, the audit team reviewed the manner in which old growth targets are set. The MNRF's 'Old Growth Calculator Tool' uses information on the relative abundance of forest units within site classes to set appropriate targets for old growth levels. Just as significantly, the tool identifies an appropriate end-age of old growth. This is important not just to facilitate an objective calculation of the extent of old growth, but also to recognize the longevity of old-growth ecosystems.

The extent of old growth in the R/U zone and unmanaged forest (wilderness zones, nature reserves and AOCs), was projected in the 2010 FMP to increase from approx. 96,000 ha in 2010 to 125,000 ha by 2020, a 30% increase. The audit team believes that the low level of harvesting, compared with the planned amount, will result in there being more old forest than anticipated in most of the forest units. The audit team is satisfied that the approaches used to manage old growth in the Park are sound.

4.5 SYSTEM SUPPORT

The human resources component of the System Support criterion is deemed to be met since the Algonquin Provincial Park Forest is certified under the Canadian Standard Association's CAN/CSA - Z809 2008 standard. The document and record control component of this criterion was assessed as being below the risk threshold that would lead to its inclusion in the audit.

4.6 MONITORING

The operational compliance program on the Forest delivered by the AFA and Ontario Parks was robust and generally effective during the audit period. The AFA conducted an average of 92 inspections each year and had an average compliance rate of 97%, while Ontario Parks conducted an average of almost 30 inspections per year, reporting an average compliance rate of 94%. Overall, there were 22 FOIP reports identifying non-compliances during the audit period; for a compliance rate of 96.4%. This represents a significant improvement over the past 20 years – in the 2002-06 audit periods, there were 121 reports with non-compliances identified, and 60 in the 2007-2012 intervals. The previous IFA issued two recommendations regarding compliance, and both were acted on satisfactorily.

Planted sites are assessed for stock survival 2 years following establishment through a system of sample plots. The results and other observations at that time form the basis for decision-making or recommendations in subsequent annual work schedules, where assessed areas may be earmarked for additional treatment (e.g., tending, fill-in planting) or free-to-grow assessment. The auditors believe that the AFA should consider checking these plots sooner in areas where heavy competition may be expected (See **Finding # 8**).

The AFA undertook an average of 1,245 ha/year of FTG surveys in the audit period, handily exceeding the average planned survey level of 924 ha. For the 2010-20 FMP to date (i.e. for the six years of data that is available), FTG surveys of the renewal areas have reached 6,144 ha, which is 66% of the planned ten-year level of 9,244 ha, again on track to exceed planned levels. Note that areas harvested using the selection system are not assessed for FTG status, since the validation of the marking prescription provides the basis for declaring post-selection harvest blocks to be immediately FTG.

Of the 4,980 ha surveyed for FTG status during the audit term, 4,492 ha (90.2%) met free-togrow standards. The level of silviculture success reported was 75%, which is a good result. The audit team's field visits, along with examination of the documentation, confirmed that the boundaries of the sampled Free-to-Grow (FTG) field locations had been properly mapped and accurately recorded in the AFA's reporting system. Observations in the field supported the AFA's assessments of free-growing status and generally agreed with the new stand descriptors and other stand attribute information. The surveyed area that was not assessed as FTG (488 ha, representing 9.8% of the surveyed area) generally needed more time for the trees to reach the required minimum height, while some sites were in need of tending. When the area harvested under the selection system is included, the renewal success rate rises to 97% and the silvicultural success rate is 92%.

The auditors are satisfied that the AFA's SEM system is generating the information needed to evaluate the overall success of its silviculture program. Appropriate levels of assessment are undertaken to monitor the progress of renewal, evaluate stand conditions, and determine if remedial action is required to ensure areas are successfully regenerated. The FTG areas examined in the field appeared to have met the FTG parameters stipulated in the relevant SGR. Most encouraging is the high level of communication now occurring between the AFA and Ontario Parks on SEM matters and AFA taking action in situations where matters of concern have been noted in the Ontario Parks SEM audits.

The annual reports prepared during the audit period included all required sections, text and tables, as well as additional summary tables in the Appendix, which were very informative. All annual reports included discussions of forest operations, the rationale for reduced harvest activity as well as the impact of reduced harvesting levels on FMP targets. Overall, all annual reports were found to adequately reflect the 'on-the-ground' realities and conditions with respect to harvest levels, renewal and tending, and compliance.

4.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES & FOREST SUSTAINABILITY

The 2010 FMP contains 39 objectives and many indicators – it is among the most detailed set of objectives and indicators that the auditors have encountered in a forest management plan. In part, this reflects the CSA certification system under which the AFA is certified, and in part it reflects the complexity of the forest and the need for monitoring numerous components of performance. During the audit period, the LTF initiative reduced the area available for forestry

in the Park, which had the potential to affect the ability of the AFA to meet its plan objectives. However, because the plan deferred areas that were expected to be re-zoned as a result of LTF, the impact on objective achievement has been limited.

A comparison of objective achievement between the original FMP and the post-LTF landbase showed an overall 6% reduction in objective achievement as a result of the LTF. There was no change in the level of objective achievement for the ecological indicators in the FMP, but a 13% reduction in the achievement of the original wood supply objectives. However, when the reductions in the wood supply commitments were factored in, there was only a 2% reduction in wood supply objective achievement and a 1% achievement reduction overall compared to the original FMP. As a result, LTF was considered not to have affected the validity of the LTMD.

Of the 39 objectives in the FMP, the audit team concluded that the AFA was meeting, or likely to meet, 28 of them. Five objectives were considered to have been partially met, two could not be assessed due to lack of information, and four were considered not to have been achieved. This result is very similar to the assessment found in the Trend Analysis, which was a well-written and informative document, although the author was challenged to prepare AR-10 as intended due to poor direction in the FMPM (**Finding # 9**). Interestingly, because of the manner in which the objectives were constructed, the low level of harvest compared to planned levels did not significantly affect achievement levels. However, the low level of harvest has certainly affected the condition of the forest, the social benefits produced by the forest, and a number of the ecological characteristics of the forest.

The FMP contained many objectives related to ecological values. In general these can be categorized as those related to achievement of 'natural' forest structure, desirable levels of wildlife habitat, access management, and protection of values (primarily through AOCs). Of the 16 objectives reviewed, ten were assessed by the audit team as achieved, or likely to be achieved, four as not achieved or unlikely to be achieved, and there was insufficient information to assess the other two. On the surface, therefore it could be interpreted that achievement was poor (i.e. 10 of 16 objectives either achieved or likely to be achieved). However, the audit team believes that such a conclusion would be too harsh. The lack of achievement of some objectives related to provision of young forest habitat is not believed to be a serious detriment to the state of the forest. For other objectives, the use of targets set to full compliance, while admirable, puts the very good (and improved) compliance performance in a misleading light. The audit team urges AFA to develop more perceptive indicators of performance rather than those based on compliance levels, and to use realistic levels of habitat quality based on probable, rather than aspirational, levels of forest operations.

The assessment of indicators and objectives related to access reflects a somewhat equivocal performance. The audit team observes that the main metric (km of road/km² of forest) lacks ecological context (i.e. how much road is 'too much' based on measured or known impacts?), and the use of compliance levels is likely too coarse an indicator to really portray performance or give a sense of meaningful detriments should they exist. The audit team urges AFA to develop more meaningful indicators, perhaps with density being based on ecologically-based benchmarks, so that ecological considerations are more clearly taken into account.

The auditors' overall conclusion is that the forest has been managed sustainably during the audit period.

4.8 CONTRACTUAL OBLIGATIONS

The APFA imposes a number of requirements on the AFA, which was found to have met all of its contractual obligations. The AFA's compliance is described in detail in Appendix 3.

The AFA has performed well financially, maintaining a significant surplus of funds in its Forest Renewal account and being up to date on the payment of all of its Crown charges. During the audit, the AFA pointed out that the residual value rates being charged on SPF used for composite material are excessively high, resulting in this wood being sold as pulp to be processed in Quebec, rather than at the Pembroke MDF facility. This situation is an anomaly, due to the high prices of Oriented Strandboard (OSB), which is predominantly made out of poplar. The Pembroke MDF mill is the only mill of its kind left in Ontario and it produces a product very unlike OSB; the mill has struggled and the SPF composite element of the pricing matrix is producing an unreasonable dues value that is restricting fibre supply to this mill that is adjacent to the Park.

The AFA also met all of its planning and reporting obligations, the obligations related to compliance, and also those related to Aboriginal engagement. As described elsewhere, the AFA, as well as Ontario Parks, have developed good working relationships with the Algonquins.

The AFA and Ontario Parks prepared the Action Plan and Status Report associated with the previous IFA within the required timelines; Corporate MNRF produced an Action Plan for recommendations from all 2012 IFA's directed at the corporate level, however the Status Report is more than 20 months late and is not yet produced (**Finding # 10**).

4.9 CONCLUSIONS AND LICENCE EXTENSION RECOMMENDATION

This audit of the Algonquin Park Forest for the period from April 1, 2012 – March 31, 2017 period resulted in 10 findings. A number of the findings were indicative of significant concerns associated with MNRF.

It is noted that the plan and the assessment of many of its objectives are based on the Forest Resource Inventory, which was quite old when it was used in developing the 2010 FMP and the Phase II Planned Operations. The new FRI that has been prepared by MNRF has many problems associated with it and the AFA is working very hard to correct them, as MNRF's quality control system was unable to fix many of the issues. As a result, **Finding # 6** was issued. **Finding # 4** reflects a concern with the level of values collection by MNRF in the Algonquin Park Forest. Values collection is the responsibility of the MNRF, but AFA staff contribute too by reporting values as they are encountered – most often by tree markers – and the MNRF conducts assessment for other values, such as SAR. Both of these findings are intended to identify concerns that are evident now and may affect future management.

The previous IFA included a recommendation to conduct risk-benefit assessments of AOC prescriptions for species at risk. The audit team found no evidence of progress in this regard and has identified **Finding # 3**. This was the topic of the Issue Resolution request initiated during Phase II planning by one of the companies that is a major user of wood from the Park. The finding points to a need for a calibration of the protective measures that are in place.

Lastly, **Finding # 2** is important because in the auditors' view, it reflects on the credibility and the utility of Forest Management Plans. The situation described in the finding is widespread in Ontario since the 2008-09 recession, which resulted in numerous mill closures that we now

know are permanent. The auditors are of the opinion that the production of an FMP, which costs more than \$1 million, would be better served if the planned levels of operations were more in keeping with what is realistic.

Very few o findings indicate problems with forest operations – there was a finding regarding non-conformance with aggregate pit management requirements and there were issues with very intense competition on several renewal sites. In conclusion, the audit was very favourable and indicated that the Forest is being managed well and sustainably by the AFA and Ontario Parks.

The audit team concludes that management of the Algonquin Park Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Algonquin Park Forestry Agreement (APFA) held by the Algonquin Forestry Authority. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of APFA for a further five years.

APPENDIX 1 – AUDIT FINDINGS

Finding # 1

Principle 2: Public Consultation and Aboriginal Involvement

Procedure 2.1.2.1 Review and assess whether the LCC met the purposes and conducted its activities in accordance with the applicable FMPM.

Background Information and Summary of Evidence: The LCC has 12 members representing a range of interests as required by the FMPM. Members are solicited through local interest groups and appointed by the District Manager (in this case, the Park Superintendent). Some members are local, while others live a significant distance from Algonquin Park, making regular in-person meetings challenging.

The LCC Terms of Reference indicate that frequency of meetings will be "as desired by the committee with meetings held at all critical stages in the forest management planning process and meetings to review annual operations at a minimum." They also indicate that "email will be the primary method of communication for the Committee."

According to the meeting minutes and discussions with members, the LCC generally meets face-to-face once a year with some additional field trips noted (e.g., Aug. 2013) according to the level of interest from the group. Additional conference calls and email communications occur as required. These are documented in the LCC report for the Phase II FMP. There are calls to the LCC Chair for advice regarding plan amendments, when amendment requests do not coincide with a scheduled LCC meeting.

Evidence of email communications to the LCC were provided by Ontario Parks (e.g., LCC review of Independent Roads Review (2012), cultural heritage discussion with LCC (2013), Year 3 Annual Report review conference call (2014), update for LCC ToR (2015) and others). The LCC produced reports of its activities, as outlined in pages A-93 and A-94 of the FMPM. The annual meeting agenda includes a review of the AWS for upcoming year and a presentation of the Annual Report by the AFA.

As per a review of the LCC meeting minutes from 2012-2017, attendance of meetings by LCC members was variable over the audit term; attendance at the annual meetings from 2013 to 2017 inclusive was 7, 6, 5, 11, and 8 members, respectively, out of a total membership of 12 in all years.

An appointed LCC member (the LCC Chair) participated on the planning team for the preparation of the 2015 Phase II FMP as required. The LCC participated in the last IFA (e.g., presentation to the LCC on 2012 Independent Forest Audit via conference call).

The LCC did have an opportunity to provide feedback and recommendations in relation to the updated background information for Phase II FMP, in addition to their continued input to the overall forest management planning process to the planning team and the Park Superintendent. LCC members also participated in Phase II FMP Open Houses.

A formal request for issue resolution was submitted to the MNRF Regional Director in the 30 days following the completion of the period for public review of the Draft Planned Operations for Phase II. The LCC Chairman participated in a meeting to discuss the concerns identified in the request and proposed solutions.

Regarding amendments, the FMPM states that "The MNRF district manager, in consultation with the plan author and the local citizens' committee (LCC), will decide if preparation of the requested amendment should proceed, and the appropriate categorization of the amendment as administrative, minor or major."

All 11 plan amendments over the audit period were classified as administrative in nature. When amendments coincided with scheduled LCC meetings, the group reviewed the proposed amendment (e.g., 2012 Lake Traverse Road salvage). Otherwise, the Chair of the LCC was consulted by Ontario Parks to review proposed plan amendments and provide advice – this is a delegated responsibility of the Chair, which is permitted as per the FMPM but not reflected in the LCC Terms of Reference (As per FMPM Part C, Section 2.2.1: "When the MNRF district manager has made a preliminary determination that an amendment should be categorized as administrative, and the LCC is not readily available for consultation on the categorization of the amendment, the MNRF district manager may instead consult the chair of the LCC, or

his/her alternate, for the purpose of deciding on the categorization of the amendment.")

The LCC Terms of Reference include most but not all of the required content as per the FMPM. For example, the ToR do not:

- indicate how each committee member will report back to and/or obtain input from the constituency he or she represents;
- include attendance requirements at meetings to maintain membership on the LCC; or
- document the delegation for advice on plan amendments to the Chair, though this is permitted by the FMPM as outlined above.

Furthermore, while not a requirement *per se*, the Terms of Reference do not indicate how many members are required to reach a quorum for meetings and decision-making.

Discussion: The Committee meets once a year in person, with other communications occurring via conference calls or email as necessary, according to those interviewed and email evidence provided. Those interviewed felt the current meeting frequency was sufficient to meet the Committee's mandate as per the LCC Terms of Reference. It was also noted that the LCC meets more frequently during active planning. According to interviews with Ontario Parks staff and 7 of 12 LCC members, the group is cohesive and operates on a basis of mutual respect for the opinions and interests represented.

Evidence suggests consistent engagement of individual members but not the group as a whole. Given the profile of Algonquin Park and the infrequency of formal face-to-face meetings and the somewhat inconsistent attendance of some members, it seems appropriate to include in the ToR some reference to attendance requirements at these meetings. Furthermore, the ToR should indicate what constitutes a quorum for the purposes of any decision-making by the group. Attendance and quorum have implications for the Committee's effectiveness. The LCC and/or Chair were consulted on all 11 plan amendments. However, the delegation of this responsibility to the Chair is not described in the ToR. Given the LCC's responsibility to communicate information to constituent groups, the agreement of the group to delegate this responsibility to the Chair should be documented.

Conclusion: The LCC is meeting its core mandate as laid out in the FMPM and its ToR, however its ToR do not include all required elements specified in the FMPM. Omissions include topics such as attendance, communication of information to constituent groups, and delegation of recommendations regarding the classification of amendments to the Chair. Considering the variable level of attendance at annual in-person LCC meetings, the auditors suggest including a discussion of the requirements for quorum. These omissions have the potential to reduce the effectiveness of the Committee.

Finding: The LCC Terms of Reference is missing some of the elements required by the FMPM.

Finding # 2

Principle 3: Forest Management Planning

Procedure 3.4.5.3: FMP Achievement of Checkpoint "Preliminary Endorsement of LTMD: 3. For the preliminary determination of sustainability ... assess:....whether it provides for the collective achievement of management objectives and progress towards the desired forest and benefits ...

Principle 4: Plan Assessment and Implementation

Procedure 4.1.1: In the conduct of the field audit, examine areas of the FMP that can be assessed in the field and assess whether the FMP was appropriate in the circumstances, Including consideration ofmodeling assumptions ...

Principle 7: Achievement of Management Objectives and Forest Sustainability

Procedure 7.2.2: In the audit report document the following... [evaluate attainment of objectives] and consider progress towards achievement of the selected management alternative/management strategy/LTMD ...

Background Information and Summary of Evidence: The Trend Analysis illustrates that since 1990, the actual harvest area in the Algonquin Park Forest has averaged 50% of the planned area. During Phase I of the 2010 FMP, it has been 37% of planned. Realized harvest volumes have consistently been about 20-25% higher, as a proportion to the planned volume. In some years, there has been salvage harvesting which is not included in the normal harvest area but the salvaged volume was included with the normal harvest volume; the Trend Analysis also mentions that planned volumes have been conservative.

During the five plan periods from 1990 to 2015, the average annual harvest volume was 427,000 m³/yr, ranging from a high of 543,000 m³/year during the 2000 FMP period to a low of 325,000 m³/year during the 2005 FMP.

The planning team for the 2010 FMP undertook a scoping analysis as required by the FMPM. Harvest levels were among the factors that were varied in the scoping analysis, and the planning team decided to maintain the planned harvest at roughly 800,000 m³/yr in the 2010 FMP. The historic data, combined with recent mill closures in the area, suggest that the industrial demand is unlikely to exceed 500,000 m³/year anytime soon. Given this lengthy record of harvesting, the 2010 FMP's planned volume of 800,000 m³/yr is decidedly optimistic.

The underachievement of harvest targets is common throughout Ontario's tenured forests (data available in the MNRF 2012 State of the Forests Report and annual reports on forest management), hence MNRF has been actively seeking mechanisms to make unused portions of the harvest more widely available.

Almost all planning teams in the province set the planned harvest within a percentage point or two of the AHA level and the FMPM permits this. One advantage of this approach is that it provides flexibility for the AFA to respond to markets, weather, and other events that could require shifts in harvest location. The audit team recognizes the value of having flexibility; in the view of the audit team, setting a planned harvest level at 75-80% of the AHA would provide a reasonable balance between flexibility and realism.

Discussion: The issue of underachieving the planned harvest affects many aspects of forest management, ranging from planning activity levels, budgets and renewal rates to achieving many of the FMP objectives. In particular, the future forest is unlikely to be as predicted according to the LTMD in the FMP. There is also an opportunity cost associated with not planning in such a way that will optimize the values and services provided by the forest. Lastly, planning for a more realistic harvest will enable the forest manager to defer harvesting in areas of the forest that are expensive to harvest and that host lower valued stands. To a large extent this already happens – explicitly acknowledging it and planning for it would benefit the AFA.

It is difficult to argue that lower-than-planned harvests will detrimentally affect the sustainability of the forest. However, in the case of the 2010 FMP, the low harvest means that the socio-economic objectives related to the benefits from the timber harvest will not be met. Efforts to create a range of disturbance patch sizes and patches of young forest are also unlikely to be met, and future levels of old growth are likely to be higher than forecast.

The audit team was informed that the actual harvest as a proportion of planned varied within the Park. In the Park panhandle and area near the east gate, almost all of the allocated timber is harvested, while lesser amounts are harvested in the central part of the Park and there is almost no cutting in the northwest and central west parts of the Park, due to a preponderance of pulpwood and long distance to mill in those areas. This creates an opportunity for the planned harvest to be scaled down most in the northwest, while it would be very close to full use of the AHA in the south and southeast. The auditors recognize that a certain amount of flexibility associated with the planned harvest is desirable; a planned harvest level in the range of 70-80% of the AHA would seem to provide a reasonable balance between providing flexibility and creating more realistic plans.

MNRF released a revised version of the FMPM, in March 2017. The revised FMPM speaks to the need to develop realistic and feasible levels of objective indicators, and also requires the planning team to undertake a risk assessment, which includes an investigation of recent wood utilization (i.e. the last ten years) and the implications for objective achievement. However, the FMPM does not discuss how the results of these scenarios are to be incorporated in the decision on the planned harvest level One suggested option is that the objectives and targets can be modified to some extent, based on the results of the risk assessment. This is a very helpful suggestion which would go a long way towards addressing a key concern of the auditors.

Conclusion: Presenting an 'optimistic' scenario of the future, as current plans do, has some utility in that it provides a planning benchmark. However, in the opinion of the audit team, FMP's such as the 2010 Algonquin Park FMP would be more credible if they were based on realistic future harvests, especially when the actual harvest area has been consistently well below the planned levels over the past 25 years. This situation is not confined to the Algonquin Park Forest; rather this approach to forest planning is followed across Ontario.

Finding: The actual harvest areas in the last five FMP periods have been well below planned levels which has significant implications for the AFA's ability to meet plan objectives.

Finding # 3

Principle 3. Forest Management Planning

Procedure 3.9.1. Review whether any AOC prescriptions were added, modified, or deleted for the second five-year term and assess whether...specific prescriptions for planned harvest, renewal and tending activities are appropriate to protect the values....

Principle 4. Plan Assessment and Implementation

Procedure 4.2.1: Review and assess in the field the implementation of approved AOC operational prescriptions. Include the following....provide an assessment as to whether the AOC prescription was appropriate in the circumstances....

Background Information and Summary of Evidence: Recommendation #7 of the previous IFA directed Corporate MNRF to "*develop a plan for coordinated long-term monitoring of specific risk benefit analysis projects for species at risk in Algonquin Provincial Park*". As noted in **Finding # 10**, the Provincial Status Report for 2012 IFAs has not been produced, so there is no official response from MNRF on the status of this recommendation.

The recommendation from the 2012 IFA noted a striking weakness in the absence of a risk-benefit analyses for SAR AOCs noting that "the assessment of risk factors to the species-at-risk caused by operations was weak or non-existent", and that "The Species at Risk Branch and the Inventory, Monitoring and Assessment Section of OMNR has been absent in providing advice or broad coordination of monitoring despite having a clear mandate to do so through Environmental Assessment Condition 81".

In the absence of the Status Report, the Provincial Action Plan could in theory be a source of information on how the recommendation is being actioned. The Action Plan States that "*The ESA panel report provided MNR with recommendations regarding implementation of the Endangered Species Act. MNR will respond to some of those recommendations with a closer investigation of the linkages between the Crown Forest Sustainability Act and the Endangered Species Act.*" MNRF staff reported that the Ministry's efforts to harmonize direction from the CFSA and ESA have been put on hold based largely on input from stakeholders and Indigenous communities, and so it seems that the intended actions referenced in the Provincial Action Plan may address this recommendation.

The previous audit report noted that the Provincial Wildlife Population Monitoring Program Plan (PWPMPP) (Version 2.0, June 2010) contained almost no information on the subject of reptiles and the 2015 update did not address this gap. This is a concern in the context of Algonquin Park where SAR AOC prescriptions are the subject of considerable consternation within the AFA and local forest industry (SAR AOCs were one of the subjects of an Issue Resolution during the Phase II planning process).

AFA and industry staff continue to be frustrated at the lack of effectiveness monitoring, noting in particular that very (overly?) cautious AOC prescriptions for turtles prohibit habitat disturbance, when some previously disturbed areas are now recognized as prime turtle habitat. In addition, there are requirements to manage access (by removal of bridges) to SAR habitat in parts of the park where public access is already restricted.

Discussion: There does not appear to have been progress made in dealing with this recommendation of the previous IFA, and the topic continues to be a valid concern. Effectiveness monitoring and the concomitant risk assessment are recognized as important components in MNRF's framework of adaptive management that is intended to provide basis for direction in the Stand and Site Guide.

Conclusion: This important issue remains unaddressed by the MNRF.

Finding: Monitoring to examine the effectiveness and risk associated with SAR AOC prescriptions is required to validate the prescriptions.

Finding #4

Principle 3: Forest Management Planning

Procedure 3.9.1. Review whether any AOC prescriptions were added, modified, or deleted for the second five-year term and assess whether:

• Adequate information was available for AOC planning....

Background Information and Summary of Evidence: Collection of values information in the Forest is the responsibility of MNRF. MNRF staff note that values collection occurs by highly trained staff on an ongoing basis. AFA staff contribute significantly by finding and recording values in the course of tree marking. These points are not disputed by the audit team.

In two years of the audit period (2015 & 2016) Southern Region undertook a 'SWAT' team approach to values collection in the region. Teams of biologists and assessors surveyed portions of forests intensively in Pembroke, Kemptville, Bancroft and Parry Sound Districts and Algonquin Park. Survey areas were selected based on a risk/priority ranking system. A number of different types of values were identified through these efforts, including cultural heritage sites, stick nests, and SAR habitat and nests.

Although the SWAT team contributed significantly to values collection, MNRF District staff expressed a fervent concern regarding the level of values collection in the Park – noting that it was not on par with that in the surrounding Districts, even considering the contributions of the SWAT team.

Unfortunately the audit team has no data (e.g. annual values collection budgets, level of effort etc) upon which to assess the contention of MNRF staff, but the fact that the same opinion was expressed by several knowledgeable individuals provides considerable credibility to the assertion.

Discussion: Accepting the contention of MNRF staff regarding the level of values collection, the efforts do not seem consistent with MNRF's responsibility under the Provincial Parks and Conservation Reserves Act for ensuring the maintenance of ecological integrity in the Park³,⁴. Although some AOC prescriptions are more precautionary for the Park than in neighbouring MNRF Districts, it is difficult to rationalize the more stringent protective measures with the lower level of values collection.

A considerable number of values, particularly raptor nests and streams, are identified by tree markers. AFA has designed and implemented an effective AOC Revision Management System (ARMS) that supports the ongoing collection, communication and management of values and AOCs related to forestry operations in Algonquin Park. While these activities are very valuable, they are not intended to, or conducive to identifying all values that need to be taken into account in planning and implementation of forest management activities.

Conclusion: The audit team's concern, which is shared by MNRF staff, is that levels of values collection are low in the Park relative to MNRFs' responsibilities and may be insufficient to provide informed protection of the values addressed in AOCs and CROs.

Finding: The on-going level of values collection by MNRF in the Algonquin Forest appears to be below that in neighbouring Districts and not consistent with the mandate for managing ecological integrity in the Park, as expressed in the Algonquin Park Management Plan and related MNRF commitments.

³ Ontario Ministry of Natural Resources. 1998. Algonquin Park Management Plan. Queen's Printer for Ontario. 86 p.

⁴ Memo to AP Superintendent and AFA General Manager from Director of Ontario Parks and Director of MNR Forest Management Branch Oct 7, 2008

Finding # 5

Principle 3. Forest Management Planning

Procedure 3.9.2. Review whether any SGR's were added or revised for the second five-year term and assess whether...SGR's have been updated to reflect changes in practice gained from experience and forestry research

Background Information and Summary of Evidence: While the portion of Algonquin Park that is available for timber harvesting is managed under a Forest Management Plan, which is developed using the same process and guidance documents as the other Crown forests in Ontario, the Park is unique in that a land use plan, the Algonquin Park Management Plan (APMP) takes precedence over the FMP. The current APMP was prepared in 1998 and covers a wider range of resources and values than the FMP.

The APMP has been amended a number of times since it was prepared, most recently and notably to reflect changes in the designation of parts of the landbase under the Lighten the Footprint exercise. Under Section 10, Paragraph 7 of the Provincial Parks and Conservation Reserves Act, the Ministry shall examine management directions that have been in place for 20 years or more to determine the need for amendment or replacement. Thus, the time when the APMP should be considered for amendment is approaching.

The AMPM contains some very prescriptive direction that may no longer be the best science or the most appropriate for the Park. Some examples of measures that may no longer be best or most appropriate include:

- No timber marking or harvesting within a minimum of 30 m of any water body and modified cutting areas beyond the no harvest reserves;
- No timber marking or harvesting within 15 m of the boundary of Algonquin Park;
- All slash within 120 m of publicly used waters, public roads, railway rights of way, portages and trails must have tops removed from the reserve or lopped to within one metre of the ground;

Discussion: The Stand and Site Guide, released by MNRF in 2010, allows for some harvesting within shoreline AOC's, depending on the context. This represents a shift in direction that was brought about by recognition that some disturbance in some shoreline buffers was desirable and consistent with emulating natural disturbance.

It is not clear that there is a purpose served by placing a buffer on the inside of the Park boundary, and GPS and other systems allow for a much more precise identification of locations which should greatly lower the risk of boundary trespass.

The slash treatment requirement is intended to improve aesthetics where there is public traffic and seems unnecessarily onerous.

If the APMP is revised after its 20-year anniversary date, the audit team feels that these and other highly prescriptive directions should be considered for elimination from the plan, or at least be updated. The team that prepares the next APMP should be cautious about providing too much highly prescriptive direction in the revised APMP.

Conclusion: There are some very prescriptive requirements in the APMP that should be reviewed for revision, if not removal, during the next review of the APMP. Because it is quite difficult to amend the APMP, it would be preferable to be less prescriptive in the next APMP.

Finding: The APMP is highly prescriptive in some places and the science, or more broadly, general conditions have changed to make some of such direction obsolete.

Finding # 6

Principle 4: Plan Assessment and Implementation

Procedure 4.1.1: ... assess whether the FRI was appropriate in the circumstances. Include consideration of:

- FRI e.g. stand descriptions, FRI types,
- Other parameters of current stand condition

Background Information and Summary of Evidence: The planning inventory used to develop the 2010 FMP was based on 1987 photography. The inventory had been updated regularly to account for harvesting and renewal, as well as natural stand replacing disturbances, however the composition of the other stands was not updated, since imagery is required for this. MNRF hired contractors to obtain new imagery in 2007 however the production of a new inventory took eight years. This long time to prepare the inventory prompted a recommendation in the 2012 IFA, directed to Corporate MNRF, to ensure that the new forest resource inventory for Algonquin Park is delivered in time for it to be useful in the development of the next FMP. This recommendation was addressed in one sense, since the new FRI was delivered to the AFA in 2015, before planning for the 2020 FMP got started. However, the new FRI had so many problems associated with it that the AFA sent it back to MNRF twice for better quality control /correction of errors. After receiving the FRI the third time, the AFA decided to try to correct the numerous remaining issues itself.

The new FRI has additional fields in it and this has posed some challenges for the interpreters, for example identifying incidental species. And so the AFA has found instances where a species identified as part of the stand (i.e. identified as being 10% or more of the canopy) is also classed as incidental in the same stand. Problems have also been found with the treatment of multi-cohort stands (e.g. stand harvested using the shelterwood system with renewal present beneath the remaining elements of the canopy), where the two cohorts have been averaged to provide the stand information. (One of the cohorts should be identified as the main stand and the stand values should apply to that cohort only.) Stocking factors have also been mis-calculated, with some stands being assessed as having a stocking of 9.0 – well above the theoretical upper limit of 2.5 and above the normal range of stocking values (0.7 - 1.0). Ages and site productivity assessments are also of uneven quality.

The AFA also reports problems with inventory attributes such as FORMOD (productive forest modifier), Development Stages, Management Consideration and Ecosite identification. The interpretation of road right-of-ways (ROW) is problematic in the GLSL forest and in the new inventory, road right-of-ways (ROWs) have been inconsistently mapped, including for operational summer and winter roads. Road ROWs have been inconsistently embedded into the FRI, and many roads are not even connected with the rest of the road network, and so are classified as Unclassified Land uses. This designation creates problems for forest managers as many of these roads are temporary in nature and should not be assigned to a permanent land use class in the FRI. It is not possible to easily rectify this issue, and costs will be incurred to manage/remove these obsolete polygons in the future. Operational roads should be managed as a separate layer, as they have in the past, providing flexibility that is needed.

There are also very evident differences in the standards and approaches used by individual interpreters, which show up as a checkerboard of different value levels across the forest.

The AFA provided silvicultural records, marking data and other information it thought would help the inventory developer prepare a more accurate inventory, however evidently this information was not used.

Discussion: The production of the current round of new FRI's is a large undertaking that MNRF assumed responsibility for, and with the use of a new inventory system, some issues are to be expected. However the scale of issues and the inability of the MNRF quality control process to pick up and correct many of the problems described above is creating very significant difficulties; for the AFA, there is a risk that plan quality or scheduling will be jeopardized if the AFA cannot get the inventory into a condition suitable for use in the 2020 FMP.

Conclusion: The FRI is the backbone of Forest Management Planning in Ontario. Ontario has an extremely detailed and rigorous planning process that is only as good as the quality of the inventories. The new eFRI has become a major stumbling block for the production of the new FMP for Algonquin Park. The MNRF's inventory production process needs to be improved to save both the MNRF and the AFA the costs of fixing the problems with the new inventories.

Finding: a) Corporate MNRF's quality control processes for the new FRI allowed many errors and discrepancies to pass through.

b) The inventory production and quality control processes used by MNRF and its contractors did not make use of information and data provided by the AFA intended to strengthen the quality of the inventory.

Finding # 7

Principle 4: Plan Assessment and Implementation

Procedure 4.7.1 Review and assess in the field the implementation of approved access activities. Include the following:

- select a representative sample of each type of access activity... include category 14 aggregate pits for new roads and existing roads;
- · determine whether the operations implemented were consistent with the approved FMP, AWS,
- assess whether roads have been constructed, maintained, decommissioned and reclaimed to minimize environmental impacts and provide for public and operator safety....

Background Information and Summary of Evidence: Two aggregate pits inspected during the audit were found to be in a state inconsistent with the direction in FMPM Appendix VII: Operational Standards for Forestry Aggregate Pits. The unsafe angle of repose of the side of a pit in Block 375-2 had been reported as an operational issue in Sept. 2013 in FOIP Report 641740 and AFA staff reported that the issue had been addressed. Upon inspection, the audit team found that (based on ocular inspection), the final rehabilitation was not at a 3:1 slope as required by the FMPM Appendix.

Another pit (Pit 7122-5098, at the east end of Radiant Lake) was found to have a small number of mature standing trees within 5 m of the excavation face, also contrary to the direction in the FMPM Appendix.

Discussion: While neither instance represents an imminent nor dire threat to the safety of operations, both instances described above are contrary to the direction provided in the FMPM. The fact that two instances occurred within the relatively small sample size of pits inspected during the audit, suggests that some measures may be needed to reinforce the direction for safe operation and decommissioning of pits.

Conclusion: An assessment may be needed of the extent to which the aggregate pit issues viewed during the audit represent isolated or systemic problems.

Finding: Non-conformances with the direction of FMPM Appendix VII (Operational Standards for Forestry Aggregate Pits) were identified during the audit at two aggregate pits.

Finding # 8

Principle 6: Monitoring

Procedure 6.3.2: Assess whether the management unit assessment program is sufficient and is being used to provide the required silviculture effectiveness monitoring information, including whether it ... determines the need for and the type of remedial action required if an area is not successfully regenerating (e.g., infill plant, tending).

Background Information and Summary of Evidence: The AFA maintains a silviculture effectiveness monitoring (SEM) program which includes monitoring activities and surveys covering forest stand progression from tree-marking operations (which are essentially a form of pre-harvest surveys) through harvest monitoring, regeneration condition monitoring, to free-growing declaration. Three types of surveys are employed for which written instructions are available: (1) tree-marking audits, (2) stocking assessments, and (3) free-to-grow assessments. The AFA also employs one additional silvicultural monitoring survey for areas that are tree-planted, referred to as "survival assessments" or PSPs (Plantation Survival Plots). However, no written instructions for establishing or conducting the survival assessments are available.

The AFA explained that its PSPs (survival plots) are designed to monitor specific conditions and/or stock and the survival associated therein. The AFA adds that PSP's are not meant to be statistically sound and are currently implemented in a simple cost effective manner, to be used as a check-in and/or early warning system prior to the stocking surveys.

The AFA inspects both artificial and natural renewal areas after they are-treated to assess their status and determine if further follow-up treatment such as tending is required to control unwanted competition. The timing of these assessments depends on the type of renewal treatment applied. While the AFA's timing guidance is appropriate in most cases, the auditors believe that the survival / stocking assessment timing interval of two years post-treatment may be too long in competitive situations.

Discussion: The AFA felt that its schedule of assessment was appropriate because it does not tend stands younger than three years of age since, in the absence of herbicide, brushsaw operators often don't see the trees, especially if they are working in the summer while all the herbaceous competition is green. The AFA has found that manual tending is most effective 4-6 years after planting on competitive sites (with possible 2nd treatment) and 5-7 years on a less competitive site.

While the schedule that the AFA outlined above is suitable for most planted sites, competition conditions observed by the auditors at some of the field locations suggested that the AFA might benefit from an earlier examination of the survival plots, e.g., at one year following planting, so that remedial measures such as fill planting or tending could be implemented on very competitive sites in a more timely fashion.

The auditors observed that PSPs tended to be located near the road, which was not always representative of conditions on the majority of the block. In general, the roadside conditions tended to be less competitive and therefore the PSP's did not provide an accurate assessment of survival on most of the block.

Conclusion: Effective monitoring is critical to the successful survival and establishment of forest regeneration. When highly competitive sites are planted, early detection of situations where the survival of the planted stock is threatened by competition may help the AFA to implement remedial measures in a more timely fashion, increase the chances of plantation success, and provide other benefits. Locating the survival plots in a manner that removes some of the subjectivity would also assist in rendering a more accurate indication of stand conditions over the progression of time.

Finding: During the audit, certain planted sites were viewed with intensive competition and resultant high levels of mortality of planted stock.

Finding # 9

Principle 6: Monitoring

Procedure 6.3.3: Assess the actual level of the overall monitoring program including whether ... the amount of area eligible for survey is consistent with past levels of harvest and whether all areas are being addressed.

Background Information and Summary of Evidence: Table AR-10 (Summary of Harvest and Regeneration Trends) is the key table for the harvest and regeneration analysis in the Trend Analysis Report. AR-10 is difficult to complete and the author discusses the difficulty of doing so. A review of the table and associated text suggests that this table is not filled out as intended in the FMPM, leading to challenges in reaching rational conclusions about the state of harvest and regeneration on the Forest, as encountered by the report author.

The 2009 FMPM (Part D Instructions for Completing AR-10) states that "The total harvest and salvage area [in each applicable term] should equate to the total area surveyed, regenerated, unavailable for regeneration and unsurveyed." The implied equivalence is not a truism, leading to confusion. For example, when area is surveyed and found to be regenerated, the text seems to imply the same area figure should be reported under both headings, and the areas under both headings should contribute to a total area which equates to the area harvested and salvaged.

The problems with Table AR-10 in the Trend Analysis are no fault of the report author; similar circumstances have plagued other AR-10 tables that have been reviewed by the auditors on other IFAs.

Discussion: Although the auditors recognize that a significant level of effort was expended in compiling the data, in its present form, Table AR-10 in the Trend Analysis Report cannot provide the basis for a truly meaningful analysis and thus serves limited utility. This is not the first time the auditors have run across this problem during an audit; the instructions in the 2009 FMPM for completing this table are ambiguous at best. In the opinion of the auditors, Table AR-10 is a key table that enables forest managers to examine long-term harvest and regeneration trends, which is an important aspect of assessing forest sustainability.

This table is also required for the Year 7 and Year 10 annual reports. The auditors discussed Table AR-10 with AFA staff who acknowledged the challenges encountered in completing the table. AFA's current databases are likely capable of generating the appropriate information for properly completing this table, at least for the past 10 years. Assembling the data for earlier planning terms may prove more daunting. The AFA has prepared its draft Year 7 Annual Report covering the 2016-17 reporting period, which must also include Table AR-10. The auditors would encourage the AFA to consider producing a more accurate and tenable version of Table AR-10 for the Annual Report. Clear and unequivocal guidance and direction should be sought from MNRF for properly completing this table.

Interestingly, in 2012 MNRF produced a document (*Annual Report Preparation and Review Protocol, 2012*) that provided instructive supplementary guidance to plan authors how to complete many of the required Annual Report tables, including Table AR-10, and other helpful direction. This document had been made available to plan authors through the Forest Information Portal, but this is no longer the case. The direction in this document for Table AR-10 clearly states that "The purpose of this table is to allow comparison of the harvest/salvage area for a five year term with the results of regeneration efforts on the same area."

Conclusion: Assessing for forest sustainability is a primary tenet of the Crown Forest Sustainability Act and forest managers should have access to appropriate tools to assist them in conducting a proper long-term sustainability analysis. Providing clear direction that describes how to properly complete the Annual Report tables would assist tremendously in achieving this goal. The FMPM does not contain a clear set of instructions explaining how the Table AR-10 should be filled out or how various challenges to preparing he table should be addressed; e.g. how to accommodate the situations when forest unit definitions change between planning terms or situations where areas available for forest management are reduced (which is

the case for Algonquin Park). Examples of correctly completed tables would be useful for plan authors.

Finding: Table AR-10 (Summary of Harvest and Regeneration Trends), which is part of the Trend Analysis Report, has not been completed correctly; the MNRF does not provide clear instructions for preparing this table.

Finding # 10

Principle 8: Contractual Obligations

Procedure 8.1.9.2: Review the audit action plan status report and assess whether:

- the status report was prepared in accordance with requirements
- it was prepared within 2 years following approval of the action plan, unless otherwise directed by the Minister (e.g. an interim status report may have also been required) ...

Background Information and Summary of Evidence: The Status Report related to MNRF's corporate responsibility for addressing recommendations from the 2012 IFA has not yet been produced. The Action Plan, which identifies the intended manner in which the recommendations will be addressed, was originally approved in late 2013 and revised in April 2014. The Status Report is to be provided within 2 years of approval of the Action Plan, therefore the Status Report should have been provided by April of 2016. As of the time of writing, the report is 1.75 years late. Recommendations from the previous IFA that were addressed to the Corporate level of MNRF are:

- Corporate OMNR shall re-evaluate the scheduled implementation of new forest resource inventories so that they are delivered on time to be used for the development of the applicable forest management plans.
- Corporate OMNR must ensure that the requirements in the Forest Management Planning Manual define planning objectives that are credible, measurable, and predictable, and that targets associated with each are understandable and feasible. Further, the planning process should also recognize the quality and accuracy of the information supporting each objective.
- Corporate OMNR must take responsibility for reviewing the process for development of species atrisk area of concern prescriptions, including the use of Section 18 of the Endangered Species Act, and provide appropriate guidance to planning teams.
- Corporate OMNR must act to have Independent Forest Audit reports released publicly in a more timely fashion.
- Corporate OMNR must develop a plan for coordinated long term monitoring of specific risk benefit analysis projects for species at risk in Algonquin Provincial Park.
- Corporate OMNR shall review the process for issuing Authority to Haul permits to ensure they meet the demands of the current timber markets.
- Corporate OMNR shall review the resource complement for Algonquin Provincial Park to ensure that the administration of forestry is providing cohesive and timely direction to forestry operations inside the Park and to ensure operational approvals, such as area of concern timing restrictions, are coordinated and consistent with surrounding OMNR Districts.
- Corporate OMNR shall ensure that the Algonquin Park Forestry Agreement is extended as expeditiously as possible.

Some of the issues identified in these recommendations have been addressed (the APFA has been renewed) or were no longer issues in this IFA (i.e. authority to haul recommendation). However, this audit found that many of the topics identified in the 2012 recommendations remained contentious. This audit made recommendations regarding the sufficiency of values collection/surveys in the Park (**Finding # 4**), the need for a benefit-cost analysis associated with SAR prescriptions (**Finding # 3**), the quality problems with the new Forest Resource Inventory (which was initially delivered before planning started) (**Finding # 6**), the appropriateness of the planned harvest levels (**Finding # 9**.). In addition, it still takes approximately two years for the IFA reports to become publicly available.

Discussion: MNRF's Transformation, which began in 2012, led to creation of new branches, considerable shuffling of staff, creation of new positions and some confusion about how various existing responsibilities would be addressed. The production of the Status Report was caught up in this milieu and not completed. There are some significant issues that were flagged with recommendations in the 2012 IFA that have not

been addressed.

Conclusion: The Corporate MNRF Status Report is 1.5 years late and counting. It seems to be delayed due to the large amount of organizational turbulence created a result of the MNRF's Transformation.

Finding: Corporate MNRF has not met its obligation to produce the provincial status report for the 2012 IFAs within two years of the approval of the Action Plan.

APPENDIX 2 – ACHIEVEMENT OF FMP MANAGEMENT OBJECTIVES

Achievement to date of 2010 Algonquin Forest FMP Objectives

No.	Objectives& Indicators	Achievement	Explanation/Comments
	CFSA Criterion	: Conserving biological diversity in Onta	ario's Forests
	CFSA Objective Categor	y: Forest Diversity - natural landscape p	attern and distribution
1	Move toward a distribution of disturbances that more closely resembles the expected natural disturbance pattern. Indicator 1.1 Harvested and natural forest disturbance area (by size class) Indicator 1.2 Frequency distribution of planned harvest areas Indicator 1.3 Separation distance of harvested and natural disturbance areas.	It is not possible to assess achievement of this objective without GIS analysis; the Trend Analysis did not discuss this objective since it was identified for assessment at year 2020 and is in fact a much longer term objective. Changes in the frequency of disturbances and area over time depend on extent and location of new disturbances as well as how quickly existing disturbed areas transition to "Not disturbed" status. One area of windthrow occurred during the audit period that was 550 ha and produced a patch in the largest size class; however the AR's report that the largest clearcut area during the audit period was 87 ha and the average size was 11 ha.	Indicator 1.2 was achieved during the development of the 2010 FMP.
		Due to the much lower level of harvesting than planned, it is most likely that the forest is moving in the planned direction for the two smaller size classes (1-10 ha and 11-70 ha), and away from the planned direction in the larger size classes (i.e. 71-130 ha and greater). The objective is likely being partially attained.	
2	Maintain a landscape pattern that provides for moose feeding, growing and dormant season habitats. Indicator 2.1 Spatial (OWHAM) habitat assessment of moose carrying capacity	The Trend Analysis reports that the desired and target levels will be achieved by 2020 (based on the OWHAM model). However given that harvest levels (by area) for the first plan term were only 46% of planned and only 50% of planned for the portion of the second term covered in the Trend Analysis, the audit team believes there is insufficient information to support this	Both the extent of FU harvest and the spatial distribution of the harvest, factors upon which the OWHAM model is based, will be significantly different through to the completion of the plan than that used to assess the objective in the Phase I FMP. Moose use both young and old forests at different times of year. Given that the

No.	Objectives& Indicators	Achievement	Explanation/Comments
		conclusion (beyond the use of OWHAM).	same assessment is provided in the Trend Analysis there is not sufficient basis to conclude that the objective will be attained.
3	Maintain a landscape pattern for pileated woodpecker nesting territory. Indicator 3.1 to maintain relative trend of non-spatial SFMM habitat.	The Trend Analysis reports that the desired and target levels will be achieved by 2020 based on non-spatial modeling). This assessment is complicated by the fact that harvest levels (by area) for the first plan term were only 46% of planned and only 50% of planned for the portion of the second term covered in the Trend Analysis. However, given that the harvest activity has not impacted old forest to the extent predicted, the audit team believes that the targets will likely be attained .	Pileated woodpeckers are old forest specialists. Therefore the lower-than- planned harvest has likely not had the same impact on their habitat as anticipated in setting the desired and target levels.
4	Maintain a landscape pattern for Red-shouldered hawk preferred nesting habitat in Bruton, Clyde and Eyre townships. Indicator 4.1 Spatial (OWHAM) habitat projections over the next 10 years	The Trend Analysis reports that the desired and target levels will be achieved by 2020. The lower-than-anticipated harvest has likely not affected red-shouldered hawk habitat to the extent anticipated in the FMP. However the Trend Analysis notes that a 555 ha wind event occurred in Clyde Township. Windstorms tend to have disproportionate impacts on old forest (preferred RSH habitat), so there is uncertainty in the assessment. However, given that the harvest activity has not impacted old forest to the extent predicted, the audit team believes that the targets will likely be attained .	Red-shouldered hawks prefer old forest habitat, and their range in the Park is believed to be limited to the townships in the southern panhandle. Lower-than- planned harvesting occurred in these townships, so in spite of possible impacts from the wind event, it is likely that the objective was attained.
5	Maintain a landscape pattern and distribution of old growth forest, consistent with the requirements of the Old Growth Policy, MNR 2003. Indicator 5.1 Spatial projections and assessments of landscape metrics.	The extent of old growth in the R/U zone and unmanaged forest (wilderness zones, nature reserves and AOCs), was projected in the 2010 FMP to increase from approx. 96,000 ha to 125,000 ha from 2010 to 2020, a 30% increase. The audit team believes that the low level of harvesting, compared with the planned amount, will result in there being more old forest than anticipated in most of the forest units. This	The audit team is satisfied that the approaches used to manage old-growth in the Park are sound.

No.	Objectives& Indicators	Achievement	Explanation/Comments
		objective is being met.	-
	CFSA Objective Category	: Forest Diversity - forest structure, com	position and abundance
6	Provide young forest (presapling stage) over time to provide an early successional forest condition for wildlife species over 100 year term. Indicator 6.1 Total area (ha) for all clearcut forest units.	The desired level for this indicator is 'to achieve a level greater than or equal to the current level by each term'. The 'current level' refers to the 2005-2010 level. In that period the actual annual harvest in clearcut forest units was 248 ha. In 2010-15 the annual level was 161 ha, and in the portion of the 2015-20 covered by the trend analysis the level was 225 ha. Therefore, although current levels are lower than the 'current level' it is possible that the target will be achieved if harvest levels increase over the remainder of the Phase II term.	The creation of young pre-sapling forest is dependent on the extent of clearcutting, attainment of this goal. The goal is clearly an aspirational goal related to modelling as it refers to the 100 year term. The level may be attained for the plan term if harvest levels increase.
7	Provide young forest (presapling, sapling and T-stage) over time to provide an early successional forest condition for wildlife species over 100 year term. Objective 7.1 Total area (ha) for all clearcut and shelterwood forest units.	Harvesting in shelterwood and clearcutting forest units is less than planned (31% and 17% of planned levels, respectively, have been achieved in the first seven years of the 2010 plan term). Therefore the objective will likely not be attained for the present plan period.	The creation of young forest types is partly dependent on the extent of clearcut and shelterwood harvesting. The goal is clearly an aspirational goal related to modelling as it refers to the 100 year term. The level may be attained for the plan term if harvest levels increase.
8	Provide for mature and older forest areas that provide cover, feed and nesting conditions to wildlife species through non-spatial projections over 100 yrs. Indicator 8.1 Total area (ha) by landscape class in the mature and older development stages.	The Trend Analysis reports that the desired and target levels will be achieved (based on modelled outcomes). This assessment is complicated by the fact that harvest levels (by area) for the first plan term were only 46% of planned and only 50% of planned for the portion of the second term covered in the Trend Analysis. However, given that the harvest activity has not impacted old forest to the extent predicted, the audit team believes that the targets will likely be	Lower-than-planned harvest levels should not affect attainment of this objective.
9	To provide for even-aged old forest	attained. Even-aged forest units averaged ~35% harvest	Lower-than-planned harvest levels should

No.	Objectives& Indicators	Achievement	Explanation/Comments
	or over-mature areas that provides habitat for species that prefer the old growth condition, provide for the social value placed on old forests and to provide old forest areas consistent with the Old Growth Policy, MNR 2003 Indicator 9.1 Total area (ha) by even- aged forest unit in the old growth	compared to planned for 2010-15 and 2015-20. Therefore this objective will likely be attained .	not affect attainment of this objective.
	development stage.		
10	Provide red and white pine forest area not less than 2000 levels, consistent with Conservation Strategy for Old Growth Red and White Pine Forests Ecosystems for Ontario, 1996. Indicator 10.1 Area of combined PWUS and PRCC available forest unit area.	The 2000 area of these two forest units was 78,656 ha, and in 2010, this area had increased to 83,176 ha. During Phase I of the 2010 FMP term, harvesting in the PRCC FU exceeded planned levels (however remains below the allowable harvest area) and it was averaging 52% in the PWUS FU. The Year 3 AR shows that the LTF outcome reduced the available area of these two FU's by just over 3%, and the assessment of this objective indicates that the AFA continues to have more area available in these two FUs than the 2000 level. This objective is being achieved.	The AFA continues to plant red and white pine as needed and the auditors found that the AFA's renewal was generally successful.
11	To maintain tree species diversity that would occur naturally, similar to the expected natural landscape dynamics, for tree species native to the Algonquin Park forest	This objective is in effect based on the conformance of tree marking with the prescriptions and the conformance of harvesting to the marking work. In both cases, the audit team observed good conformance and the Trend	
	Indicator 11.1 "Species Priority" evaluations in tree marking inspections.	species were running at 0.16%, comfortably below the 1% target. This objective is being achieved.	
12	Maintain or increase the mid-tolerant hardwood component in stands with suitable conditions.	Indicator 12.1: As of 2015-16, 332 mid-tolerant hardwood group openings have been established. T arget has been met .	With both targets being met, the objective is being achieved.

No.	Objectives& Indicators	Achievement	Explanation/Comments
	Indicator 12.1 Establishment of group openings or implementation of hardwood uniform shelterwood.	Indicator 12.2: 129.7 ha have been successfully regenerated to the HESEL-MID FU/SGR; approximately 13.7 ha of ORUS area	
	Indicator 12.2 SEM results for mid- tolerant regeneration.	transitioned from other FUs. Yellow birch and red oak group openings that were surveyed are showing encouraging results, although wildlife browsing pressure is an impacting factor. Target has been met, however, monitoring is continuing.	
13	Conserve genetic diversity by maintaining the variation of genes within the species.	Indicator 13.1: The target is to ensure that "species priority" evaluations conducted during tree marking inspections limit the proportion of	With both targets being met, the objective is being achieved.
	Indicator 13.1 "Species Priority" evaluations in tree marking inspections.	infractions to less than 1%. Over the first six years of the current FMP, infractions have only reached 0.16%. T arget has been met .	
	Indicator 13.2 Proportion of seed used in artificial renewal derived from appropriate seed zone.	Indicator 13.2: As of 2016, 100% of seed used for artificial regeneration was collected from the appropriate seed zone and/or within transfer guidelines. Target has been met.	
14	Protect areas and sites of special biological significance as represented by the four land use categories defined by the Algonquin Provincial Park Management Plan.	The Trend Analysis reports a 99% compliance rate with zone boundaries, hence the target associated with this objective has been missed. The AFA has generally achieved this objective despite not meeting the target of a perfect	
	Indicator 14.1 Identification and protection of zone boundaries.	compliance record.	
	CFSA Objective Category: Fore	st Diversity - habitat for animal life / valu	les dependent on forest cover
15	To maintain wildlife habitat for species dependent on over-mature forest conditions on the Algonquin Park Forest.	The Trend Analysis reports that the desired and target levels will be achieved by 2020. The lower- than-anticipated harvest levels have likely not affected the projected attainment of this objective	Lower-than-anticipated harvest levels have likely not impacted old forest as much as assumed in setting target levels.
	Indicator 15.1 Area (ha) of over- mature-forest- dependent preferred wildlife habitat.	The audit team believes that the targets will likely be attained.	
16	To maintain wildlife habitat for forest-	The Trend Analysis reports that the desired and	The lower-than-anticipated harvest levels

No.	Objectives& Indicators	Achievement	Explanation/Comments
	dependent provincially and locally featured species on the Algonquin Park Forest. Indicator 16.1 Area (ha) of preferred wildlife habitat for the selected species.	target levels will be achieved for most species by 2020. Many of the species included in this objective are affiliated with old forest habitat (e.g. broad-winged hawk, marten, bay-breasted warbler), however others are not (e.g. moose foraging habitat, black bear summer habitat). The conclusions for the old-forest affiliates are likely correct, but this may not be the case for the species that rely on younger forests.	will affect the species differently.
17	Protect the habitat of forest dependent species at risk. Indicator 17.1 Compliance reports through Forest Operations Inspection Program. Indicator 17.2 Road density within road-sensitive SAR AOCs.	The desirable level for compliance reports was 'zero non-compliance for SAR wildlife AOC prescriptions '. One NC occurred related to construction of a landing in SAR habitat, and another for opening a road within a Confidential value. This indicator is not achieved. The Trend Analysis reports that the road density in SAR AOCs was 0.552 km/km ² in 2008, and is1.19 km/km2 in 2016. The target level was to achieve a 5% reduction by 2015. Therefore this indicator is not achieved.	Road densities in AOCs have increased as a result of adjustment of AOC boundaries, and is not related to road construction activities. The lack of achievement of this objective is not a reflection of a management failure.
18	Retain ecological values and functions associated with sensitive brook trout riparian areas Indicator 18.1 Compliance reports through Forest Operations Inspection Program. Indicator 18.2 Road density within brook trout AOCs.	One NC occurred related to incursion into a brook trout stream, therefore the indicator is not achieved . The target for road density in brook trout AOCs was to have a 5-10% decrease. The density actually increased by 1.4%. The indicator is not achieved, and overall the objective is not achieved .	Neither objective associated with brook trout riparian areas was achieved.
19	To increase the amount of early successional shoreline forest habitat to enhance beaver habitat with resulting direct and indirect benefits to other species over time. Indicator 19.1 Number of beaver	The target of applying the beaver habitat AOC in suitable areas was achieved. The AOC was implemented in 79 instances as of 2016. The objective is achieved.	

No.	Objectives& Indicators	Achievement	Explanation/Comments
	ponds or potential beaver ponds on which the beaver habitat AOC prescription is applied.		
	CFSA Criterion: Maintaining an	d enhancing Ontario's framework for su	stainable forest management
	CFSA Objective	Category: Social and economic - commu	inity well-being
20	Make primary road access available (priority roads as identified by Algonquin communities and agreed to by Ontario Parks and AFA) for traditional Algonquin cultural activities. Indicator 20.1 Accessibility of priority roads identified by Algonquin communities.	The target and desirable levels are to have agreement regarding passable roads. The Trend analysis table considers this objective to have been achieved based on the success of quarterly meetings of Ontario Parks Forestry Working Group discussions on access. The objective is achieved .	
	CFSA O	bjective Category: Healthy Forest Ecosy	stems
21	Continually improve forest management operations in Algonquin Park Indicator 21.1 Non-compliance in forest operations inspections. Indicator 21.2 Forestry research funding and/or in-kind assistance.	Indicator 21.1: The target associated with this indicator is to achieve a compliance rate of 95% or higher based on compliance reporting. Over the first 6 years of the current FMP, 97% of the compliance reports submitted were fully compliant. This result is based on the 737 compliance reports filed by AFA and MNRF inspectors over the six year period (2010-16). Target has been met . Indicator 21.2: No specific money value was attached to this indicator. Records show that \$104,220 has been spent on research during the 2010-16 period. An additional \$20,210 was also spent in 2016/17. Target has been met .	With both targets being met, the objective is being achieved.
	CFSA Objective Categ	ory: Forest Diversity - values dependent	on the Crown forest
22	Complete operating unit forest management operations in the shortest time possible, and remove roads from active service following	The target level was to have <0.5 km of road/km ² of forest. Achieved level of the metric as of March 1, 2017 was 0.49. The objective is achieved.	The rationale for the choice of the value of the target is not apparent – it would be helpful if there was a link to some ecological benchmark related to road

No.	Objectives& Indicators	Achievement	Explanation/Comments
	the completion of forestry operations (harvest, renewal and tending). Implement access controls (water crossing removals, berms etc.) at strategic points in order to limit access to significant Park interior values. Indicator 22.1: Kilometers of passable road per km ² of forest.		density.
23	Minimize aggregate use during road construction and maintenance activities, Indicator 23.1: Tonnes of aggregate used per kilometres of road constructed/maintained (total).	The Trend Analysis reports that the amount of aggregate used has not consistently decreased as was the target and the target for gravel road density, which was < 1 km of gravel road/km ² of forest, has not been met. Objective is not achieved.	As with previous indicator, it would be helpful if there was a link to some ecological benchmark related to road density.
	Indicator 23.2: Road Density (km of gravel road/km ² of forest).		
	CFSA Criterion: Maintain	ing and enhancing forest ecosystem cor	ndition and productivity
- 1		CFSA Objective Category: Silviculture	
24	To ensure the successful renewal of harvested stands (naturally or artificially) to the most silviculturally appropriate species and tended until management standards or Free To Grow is met, using the most appropriate and cost effective methods to achieve	The target was to achieve 80% silvicultural success and 100% regeneration success. As of 2015-16, 92% silviculture success and 97% regeneration success has been achieved. 3% of the area surveyed did not meet FTG standards. Target and objective has been partially met.	
	Indicator 24.1 Percent of the harvest area assessed that meets management standards or is free-to- grow, by forest unit, as defined by the silvicultural ground rules.		
25	Identify opportunities to enhance	Indicator 25.1: The target is to implement stand	

No.	Objectives& Indicators	Achievement	Explanation/Comments
	productivity of unproductive forest areas and implement stand improvement where needed.	improvement on 100% of the HDUS area planned for such treatments. Planned treatment area is 59 ha/yr. 370 ha have been treated over six years (2010-16), which is equivalent to 61.6	
	Indicator 25.1 Amount of planned stand improvement area completed in the tolerant hardwood – uniform shelterwood (HDUS) forest unit.	hectares/year. Target has been met, and objective has been met.	
C	CFSA Criterion: Providing for a	continuous and predictable flow of econ Ontario's forests	omic and social benefits from
	CFSA Objective Categ	ory: Forest Diversity - values dependent	on the Crown forest
26	To maintain or improve the back- country qualities of recreation and tourism opportunities within the Algonquin Park Forest, through the minimization of sight and sound evidence of AFA operations. Indicator 26.1 Compliance with Area of Concern prescriptions. Indicator 26.2 Number of documented public complaints about forestry impacts on back-country recreation.	The AFA does an excellent job at minimizing the potential for conflict with recreational users of the Park. The compliance rate for AOC's regarding recreation and tourism was 99.6% during the audit period, as reported by the Trend Analysis, and there was an average of 2 complaints/year regarding logging. Some of these occurred during the off season when noise buffers are relaxed. The AFA met this objective.	
27	To protect natural and cultural heritage values found on the unit. This includes minimizing the impacts of forest access on self-sustaining brook trout lakes, and reducing opportunities for long term access to significant Park values. Indicator 27.1 Compliance with Area of Concern prescriptions.	The objective is full compliance. The trend analysis reports average of 99.2% compliance over the IFA review period. The objective is met.	Although absolute full compliance was not achieved, the achievement appears to have been close enough to consider achievement in effect.
	CFSA Objective Ca	tegory: Social and economic - healthy fo	Drest ecosystems
28	To maintain the quality of the cottage lease-hold experience within the RU	There are numerous cottage leases in the Park, many of which are not in the R/U zone.	

No.	Objectives& Indicators	Achievement	Explanation/Comments			
	zone of Algonquin Park.	Compliance with AOC prescriptions around				
	Objective 28.1 Compliance with the	lease areas has been 100%, thus the objective has been achieved				
	cottage lease AOC prescription.					
	CFSA Objective Category:	Social and economic - harvest levels and community well-being				
29	Provide a sustainable, continuous and predictable wood supply from the forest that will meet, as closely	The first seven indicators are planning indicators that were generally achieved during the development of the Phase I FMP (with some				
	as possible and for as long as possible, the current recognized industrial demand of the forest	very minor exceedances). The actual harvest area and volume have been				
	Indicator 29.1 Available (modelled) long-term projected volume, by species group (m3/yr)	well below planned as detailed in Finding #2 . The final indicator, related to the managed area of forest available for harvest was affected by the LTF results.				
	Indicator 29.2 Available (modelled) long-term projected volume by product (m3/yr)	This objective has been partially achieved – the planning components were largely				
	Indicator 29.3 Available (modelled) long-term projected annual harvest area by forest unit	components have not been.				
	Indicator 29.4 Forecast (allocated) harvest area by forest unit for the 10- year plan period.					
	Indicator 29.5 Forecast (allocated) harvest volume by species group (m3/yr) for the 10-year plan period.					
	Indicator 29.6 Planned harvest area for first 5-year term, by forest unit					
	Indicator 29.7 Planned harvest volume for first 5-year term, by species group					
	Indicator 29.8 Actual harvest area, by forest unit					
	Indicator 29.9 Actual harvest					

No.	Objectives& Indicators	Achievement	Explanation/Comments
	volume, by species group		
	Indicator 29.10 Percent of forecast volume utilized, by destination		
	Indicator 29.11 Managed forest area available for timber production.		
30	To maintain the Ministerial wood supply commitments from the Algonquin Park Forest.	The revised APFA contains eight wood supply commitments, one less than the previous Agreement. The reduction was due to the	
	Indicator 30.1 Number of mills receiving wood supply commitments from the Algonquin Park Forest.	closure of Pre Cut Hardwood Inc. The AFA's actions have met the intent of the objective – the closure of an unrelated mill is outside of the control of the AFA.	
	CFSA Criterion: Protect	ing and conserving Ontario's Forest Soil	and Water Resources
	CFSA Objective Ca	tegory: Social and economic - healthy fo	prest ecosystems
31	To protect the productive capacity of the soil and water in the management unit. Indicator 31.1 Rate of non- compliance for site disturbance/rutting (FOIP).	Indicator 31.1: Over the first 6 years of the current FMP, 97% of the compliance reports submitted were fully compliant. This result is based on the 737 compliance reports filed by AFA and MNRF inspectors from all forest management operations over the six year period (2010-16). The target and objective are being achieved.	Although the compliance rate is within target, evidence reveals that site disturbance and rutting are matters that require continual scrutiny. FOIP Inspection # 669152 describes rutting damage that was identified as an Operational Issue (#276953) which resulted in the issuance of an administrative penalty of \$5,000 to the AFA.
	CFSA Objective Category	y: habitat for animal life and values depe	ndent on Crown Forest
32	Conserve the quality and quantity of interior waterways, wetlands and catchment areas within Algonquin Park forest management areas.	The objectives for the first two indicators are related to near-full compliance, and these were achieved during the IFA period. These objectives have been met.	
	Indicator 32.1 Proportion of water crossings that are properly installed and removed	The objective for the third indicator relates to the phase-out of salt use on interior roads. A decrease of 69% was achieved by 2015,	
	Indicator 32.2 Compliance with prescriptions developed for the	exceeding the target of a 50% decrease. This objective has been met.	

No.	Objectives& Indicators	Achievement	Explanation/Comments
	protection of water quality and fish habitat.		
	Indicator 32.3 Use of salt for winter road maintenance on forest access roads.		
	CFSA Criterion: Ac	cepting social responsibility for sustaina	able development
	CFSA Objective Category:	Social and economic - harvest levels an	nd community well-being
33	Maintain the area of Managed Crown Productive Forest available for timber production at the highest possible level by minimizing the conversion of managed crown forest area to non-forest land. Indicator 33.1 Managed crown productive forest area available for timber production.	The conversion of forest to non-forest land generally occurs in forestry when new roads and landings are constructed. The AFA manages slash very well (most is left within the harvest block) so there is no loss of area due to slash piles in the Forest. The AFA tends to re-use roads rather than construct new ones, since most of the R/U has experienced some form of harvesting over the past two centuries, and even the old tote roads persist. The audit team concludes that this objective is being met.	
34	To provide opportunities for Aboriginal involvement in forest management planning activities. Indicator 34.1 Opportunities for involvement provided to, and involvement of, Algonquin communities. Indicator 34.2 Participation of Algonquin members on the Planning Team.	Algonquin communities, both individually and through the Algonquins of Ontario (AOO) Consultation Office, are extensively engaged in forest management planning activities in Algonquin Park. This includes participation on the Phase 2 Forest Management Planning Team, the AFA CSA Advisory Group, the Local Citizens' Committee, annual meetings to review the AWS, fall meetings to review planned operations and access related to hunting interests and many other formal and informal meetings and discussions related to forest management planning and plan implementation. The objective has been achieved.	The AOO Consultation Office is the organization that has been set up by the Algonquin First Nations in order to manage and engage in consultation in all resource sectors on behalf of the communities.
35	Encourage participation of local Algonquins and increase involvement of Algonquin Negotiation Representative (ANR) communities/people in the economic	Negotiations and discussions are ongoing with AFA. It is estimated that approximately 45 Algonquin community members, including harvest, tree marking and roads contractors, are actively working in Algonquin Park.	35.1 Harvest volumes have not increased over 4 years but remained more or less steady. AFA indicates they are always open for discussion with interested parties. Over the audit term, the forest

No.	Objectives& Indicators	Achievement	Explanation/Comments
	opportunities provided by forest management.	AFA has made efforts to support existing and	industry downturn continued to impact the overall level of forestry operations in the
	Indicator 35.1 Percentage of total volume harvested by Algonquin Aboriginal organizations/people.	new Indigenous businesses as well and facilitate capacity development through training opportunities (e.g., tree marking, compliance and other).	Annual Harvest Volumes (m3) - District Reports
	Indicator 35.2 Percentage of tree marking/silvicultural projects by Algonquin Aboriginal organizations/people.	The objective has been achieved.	60000 50000 40000 30000 20000
	Indicator 35.3 Birch bark trees and/or patches identified and communicated to Algonquins		¹⁰⁰⁰⁰ ⁰ 2012-2013 2013-2014 2014 2015 2015-2016 35.2 The amount of tree marking is
	Indicator 35.4 Opportunities for Algonquins to identify patches for future birch bark		variable over the years but increased substantially in 2015-2016.
	Indicator 35.5 Opportunities for Algonquins to participate in research and monitoring.		1000 900 700 600 400 400 0 2012-2013 2013-2014 2014-2015 2015-2016
			Other silvicultural activities remained relatively constant (e.g., stand improvement, cleaning)
			35.3 Birch bark trees and patches are regularly communicated to Algonquins,
			35.4 Identifying future areas of birch bark has been challenging to achieve in practice.
			35.5 Opportunities for Algonquins to participate in research and monitoring are communicated by Ontario Parks (moose

No.	Objectives& Indicators	Achievement	Explanation/Comments
			aerial survey, fish stocking, nursery creek surveys).
36	To increase knowledge of ecosystem processes and human interactions with forest ecosystems. Indicator 36.1 Forestry research projects supported by Ontario Parks, AFA and partners	The objective is "to support research projects by Ontario Parks, AFA and Partners". The trend analysis notes that more than \$120,000 had been spent by AFA on research by AFA up to 2016/17 and considers the target to be met.	AFA has spent a considerable amount of money on research. However, the target is not quantitative, making it difficult to determine whether the target has been met.
		The subjective wording of the target makes it not possible to determine if the objective has been met.	
37	To encourage and support the participation of the Local Citizens Committee in the development of the Forest Management Plan for the Algonquin Park Forest Indicator 37.1 Local citizens committee's self-evaluation of its effectiveness in plan development.	The LCC participated as required in the forest management planning Process for the Phase II FMP, including representation on the Planning Team, attendance at open houses, providing input to the Planning Team as required, review and update of the LCC's Terms of Reference and other activities including independent forest audits and amendment classification. The objective has been achieved.	The LCC representatives interviewed responded positively about the role of the Committee and the working relationships that have been established.
	CFSA Criterion	: Conserving biological diversity in Onta	ario's Forests
	CFSA Objective Category	: Forest Diversity - forest structure, com	position and abundance
38	To maintain tree species diversity that would occur naturally, similar to the expected natural landscape dynamics, for tree species native to the Algonquin Park forest. Indicator 38.1 Hemlock regeneration and recruitment status. Indicator 38.2 Status of red spruce	Indicator 38.1: The target associated with is indicator was to establish a committee by April 1, 2010 consisting of members from Ontario Parks, Algonquin Ecowatch, AFA, and others, to review and report on the status of hemlock in Algonquin Park, including regeneration and recruitment. This target was revised in 2012 to the following: <i>Review and report on the status of hemlock</i> <i>regeneration and recruitment in Algonquin Park</i>	The effort to meet this target resulted in the target being revised and an undergraduate thesis being undertaken by a Lakehead University student entitled "The Dynamics of Eastern Hemlock Regeneration in Algonquin Provincial Park". The thesis was completed over the winter of 2012 and was received by AFA and Ontario Parks in the summer of
	as documented in tree marking records.	<i>by June 1, 2013.</i> Target has been met.	2013.
		Indicator 38.2: The target associated with this indicator consisted of two parts:	(1) Direction for marking red spruce has been added to the AFA Tree Marking

No.	Objectives& Indicators	Achievement	Explanation/Comments
		 (1) Establishing/maintaining operational controls to ensure the identification and management of red spruce as encountered within the Recreation/Utilization Zone; (2) Producing a map showing known historic and present red spruce locations areas by March 31, 	 prescriptions and regular training is provided to tree markers. (2) A map showing known historic and present locations of red spruce has been produced and is being maintained by AFA. The new forest inventory has
		2012. Both parts of the target have been met. With both targets being met, the objective is being achieved.	identified several stands in the Algonquin Park Forest containing varying levels of red spruce.
39	Conserve genetic diversity by maintaining the variation of genes within the species. Indicator 39.1 Potential genetic gains associated with old growth white pine seedlings (grown from seeds extracted from old growth pine cones) planted in the Park.	The target associated with this indicator was to determine if genetic gains were possible from planting white pine "old growth seedlings". The target and objective have both been met.	This target represents the continuation of a planting trial that was established in 2003 that compared the performance of "old growth seedlings" to seedlings grown from the general bulk seed collections that AFA uses for all of their white pine planting stock. Measurements of stock performance were conducted up to Year 11 following planting. A summary report of the results was published in 2013. The results indicate that there is no potential genetic gains to be realized.

APPENDIX 3 - COMPLIANCE WITH CONTRACTUAL OBLIGATIONS

Licence Condition	Licence Holder Performance
1. Payment of Forestry Futures and Ontario Crown charges	The Forest Economics Section, MNRF Corporate Office, confirmed that the Algonquin Forest Authority is not in arrears with regard to its Crown stumpage or Forestry Futures accounts.
2.Wood supply commitments, MOAs, sharing arrangements, special conditions	The current version of the Algonquin Park Forestry Agreement (APFA), signed on October 17, 2016, contains eight wood supply commitments. This is reduction of one commitment since the previous APFA was signed, on October 6, 2012. A commitment to Precut Hardwood Inc was removed from the Agreement in the 2016 version, since that company is no longer in business. There are no special conditions in an Appendix of either the 2012 and 2016 versions of the APFA. During the audit period, there was a great variability in the extent to which commitment-holders fulfilled their commitments. For example, Dament and Charles tended to receive more than their committed volumes while Carson Lake received approximately 30% of their commitment. McRae Lumber, the largest individual user of Algonquin Timber, received a volume averaging approximately 90% of its committed volume.
3. Preparation of FMP, AWS and annual reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	AFA has prepared the Phase II Planned Operations document (2015-2020), Annual Work Schedules and Annual Reports as required, and have generally followed the intent of the 2010 FMP during the audit period. This condition has been upheld.
4. Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	The AFA employs surveys and data collection protocols in support of its forest management program on the Algonquin Park Forest. Mapping of operations (harvest, renewal, tending, etc.), assembly of related attribute data, and undertaking regeneration condition (survival and stocking assessments) / free-to-grow surveys / tree-marking audits / silvicultural effectiveness monitoring / compliance monitoring are conducted annually to support production of the annual reports. This data is accumulated annually and incrementally for the purposes of analyzing and measuring progress toward achieving FMP sustainability targets and related goals and objectives. Considerable volumes of data are derived from forest resource inventory datasets which have been consistently updated using the annual surveys and data collection programs, which are analyzed using contemporary GIS systems. The AFA's system of data collection and documentation processes meets the requirements of the FMPM and the FIM.
5. Wasteful practices not to be committed.	The auditors found that the harvesting operations made good use of the merchantable timber that was cut, so that no wasteful practices were observed. The compliance inspection reports filed during the audit period by the AFA and MNRF inspectors did not identify utilization issues.
6. Natural disturbance and salvage SFL conditions must be followed.	Salvage harvesting was undertaken in each year of the audit period. Salvage harvest typically followed wind events; the most significant salvage operations occurred in 2013, when a total windthrow area of 555 ha was salvaged, yielding almost 40,000 m ³ . Volumes salvaged in other years were less than 5,000 m ³ /year.
7. Protection of the licence area from pest damage, participation in pest control programs	No insect pest management was undertaken or required during the 2012-2017 audit period.

Licence Condition	Licence Holder Performance
8. Withdrawals from licence area	The Lighten the Footprint project initiated by the province resulted in 96,089 ha being shifted from the R/U zone (which is available for forestry) into protected zones. The auditors investigated whether the conditions in the APFA were met regarding compensation for withdrawals, and these seemed to be insofar as the silviculture conducted on areas removed from the R/U Zone had been reimbursed from the SPA.
9. Audit action plan and status report	The previous IFA was conducted in 2012 and the final audit report was accepted on June 26, 2013. The action plan prepared by the AFA and Ontario Parks, which identifies the intended manner in which the recommendations will be addressed, was signed August 21, 2013 by the plan author and his MNRF District counterpart, within the allowable two month timeframe after the approval of the audit report. The original version of the status report was signed August 13, 2015, within the prescribed window. In terms of submission timing, the action plan met the relevant terms of the APFA. Furthermore, the actions that were developed and implemented at the local level to address the five recommendations directed towards the AFA were appropriate and were completed, with effective results.
	The 2012 IFA made eight recommendations directed at the Corporate level of the MNRF. The Action Plan was originally approved in late 2013 and revised in April 2014. The Status Report is to be provided within 2 years of approval of the Action Plan, therefore the Status Report should have been provided by April of 2016. As of the time of writing, the report is 1.75 years late (See Finding # 10).
10. Payment of funds to Forest Renewal Trust	The Algonquin Park Forestry Agreement requires the AFA to maintain and manage its own Forest Renewal Account, rather than an account under the scrutiny of the MNRF. Being a Crown agency, the AFA Forest Renewal Account is subject to audit by the Office of Auditor General of Ontario.
11. Forest Renewal Trust eligible silviculture work	Reports from the Office of Auditor General of Ontario indicate that all funding is being expended on work that is considered eligible for reimbursement from the Forest Renewal Account.
12. Forest Renewal Trust forest renewal charge analysis	A review of renewal rates applicable to the Algonquin Park Forest has been undertaken every year during the audit term. Over the audit term there has been no change in the renewal rates charged by forest species / product category.
13. Forest Renewal Trust account minimum balance	The Algonquin Park Forestry Agreement requires the AFA to retain a minimum balance of \$1,500,000 in the Forest Renewal Account as of each March 31. The AFA Board of Directors' intent is to maintain a balance of \$2,500,000 in the Renewal Account, which reflects the Board's desire to sustain a sufficient balance to fund 2 years of renewal and silviculture activity. The AFA has maintained a balance for \$2.5 million in the Forest Renewal account at each March 31, which is well above the required minimum balance.
14. Silviculture standards and assessment program	Regeneration condition assessments (survival and stocking assessments) / free-to-grow surveys / tree- marking audits / silvicultural effectiveness monitoring are conducted annually to support production of the annual reports. During the first four years of the 2012-17 audit term, a combined total of 30,131 ha of stocking assessments, survival assessments, free-to-grow assessments, and tree-marking audits were completed by the AFA. This data is accumulated annually and incrementally for the purposes of analyzing and measuring progress toward achieving FMP sustainability targets, other related goals and objectives, and updating the forest inventory. The AFA's system of silviculture effectiveness monitoring, data collection, and documentation processes meet the requirements of the FMPM and the FIM.

Licence Condition	Licence Holder Performance
15. Aboriginal opportunities	There is evidence of AFA efforts to support Aboriginal opportunities on the forest. There were several Algonquin harvest contractors operating on the Forest during the audit term. Other contractors participated in road construction and hauling. Levels of contract value fluctuate from year to year but remain fairly steady over time. Opportunities on the Forest have been impacted by the forest industry downtown. Other Algonquin community members are employed by other local contractors on the Forest. Makwa Community Development Corporation also has tree marking contracts in Algonquin Park, and have provided tree-marking services consistently for the past 5 years. AFA has made offers to sponsor Algonquin community members in the tree marking training course. A portion of AFA's available wood supply is made available for tender through an open bid system. To date, there has been little uptake. Based on evidence provided and interviews, this obligation has been met
16. Preparation of compliance plan	The AFA prepared a compliance assessment plan each year as part of its AWS submission. The assessment plan met the requirements of the Forest Compliance Handbook and this requirement of the APFA.
17. Internal compliance prevention/ education program	The AFA has in place a rigorous internal program to prevent non-compliances, as well as accidents and other issues. The AFA's CSA certification is very supportive in this respect. In response to a recommendation in the previous IFA, the AFA worked with Ontario Parks to further strengthen its compliance system. The rate of compliance has increased significantly on the Forest over the past ten years, to an average rate of compliance of 97% on AFA inspections, and 94% on MNRF inspections. It is noted that a number of MNRF inspections are done to follow up on identified non-compliances – the auditors found that the AFA and MNRF had similar audit standards. This condition of the APFA has been met.
18. Compliance inspections and reporting; compliance with compliance plan	The AFA conducted an average of 92 compliance inspections each year of the audit period, which provided a suitable level of surveillance. The audit team notes that AFA staff are in the forest and monitoring operations much more frequently than the number of compliance reports might suggest. Inspection reports are filed on the FOIP system, In general, the AFA is in compliance with its compliance plans and with this term of the APFA.
19. SFL forestry operations on mining claims	This audit procedure is not applicable in Algonquin Park.
20. AFA maintenance of public access roads	Inspection of roads during field trip indicates that public roads are being appropriately maintained. Inspection of a sample of roads and examination of relevant invoices verified that activities occurred consistent with the Road Construction and Maintenance Agreement in place.

APPENDIX 4 – AUDIT PROCESS

Overview

The Crown Forest Sustainability Act (CFSA) directs the Minister of Natural Resources and Forestry to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit (IFA) contributes to this mandate, as well as complying with the direction to the Ministry laid out in the 1994 Class EA decision, subsequently confirmed in the 2003 Declaration Order⁵. Regulation 160/04 under the CFSA sets out direction related to the timing and conduct of IFA's, the audit process and reporting.

The Independent Forest Audit Process and Protocol (IFAPP) sets out in detail the scope and process requirements of an IFA, and contains approximately 170 individual audit procedures. The IFAPP, which is reviewed and updated annually by the MNRF, states that the purpose of the audits is to:

- "assess to what extent forest management planning activities comply with the CFSA [Crown Forest Sustainability Act] and the Forest Management Planning Manual;
- assess to what extent forest management activities comply with the CFSA and with the forest management plans, the manuals approved under the CFSA, and the applicable guides;
- assess, using the criteria established for the audit, the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan;
- compare the planned forest management activities with the activities actually carried out;
- assess the effectiveness of any action plans implemented to remedy shortcomings identified in a previous audit;
- review and assess a licensee's compliance with the terms and conditions of the forest resources licence; and
- provide a conclusion stating whether or not the forest is being managed consistently with the principles of sustainable forest management.

The audit team may develop findings and best practices. A finding may be described as the high level identification of [a] non-conformance or a situation where the auditors perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed.

Findings may be directed towards the AFA and/or at the appropriate administrative level of the Ministry of Natural Resources (District, Region or Corporate) or they may not be directed towards any party. Auditees must address all findings through follow-up actions.

If the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP states that "*Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices.*" In

⁵ Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

contrast, "situations in which forest management is simply meeting a good forest management standard" do not qualify.

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. The procedures, which are the basis for assessing the auditees' compliance and effectiveness, are organized according to eight principles. A positive assessment of the procedures under each principle results in the principle being achieved. A negative assessment of a procedure typically leads to a recommendation.

Risk-based Auditing Approach

In 2017, the auditing process was changed to incorporate some aspects of risk management; namely the auditors are asked to review evidence related to approx 75 of the total of 170 audit procedures to evaluate risk of negative impacts. The audit uses the widely-recognized concept that risk is a function of both the probability of an event occurring and the impact of the event should it occur. The 'event' in the analysis is that there will be a finding associated with an audit procedure.

The auditors ranked each of the optional procedures according the probability of a noncompliance occurring, and the likely impact of non-compliance should it occur. The probability of non-compliance was ranked as high, medium, or low based on preliminary review of the evidence for the Algonquin Park Forest, and the audit team's familiarity with the procedure and its general tendency to lead to non-compliance in previous IFA's. The likely impact of noncompliance for each procedure was evaluated as follows:

- 1. Little impact as the procedure is of insufficient gravity as to warrant a recommendation if compliance is not achieved;
- 2. Medium impact as the result of non-compliance could result in a recommendation that does not affect forest sustainability; and
- 3. Medium-high impact as the result of non-compliance, in combination with other instances of non-compliance, may have implications for forest sustainability.

High-impact procedures, for which non-compliance may raise concerns regarding sustainability, are categorized in the IFAPP as mandatory audit procedures.

Recognizing that there is some risk that any procedure will lead to an instance of noncompliance, a separate process identified the tolerance for risk for this exercise. Risk tolerance is defined as the level of risk that is acceptable for each procedure. If a procedure was considered to have an acceptable level of risk, it was not audited. The tolerance employed for this exercise is illustrated in the matrix below. Cells coloured red have a high level of risk and procedures that were graded as falling into those cells were selected to be audited. Cells coloured green have an acceptable level of risk and procedures falling into those cells were not audited.

Probability of	Impact of Non-Compliance					
Non-Compliance	Low (Category 1)	Medium (Cat 2)	Medium-High (Cat 3)			
High	A	В	С			
Medium	D	E	F			
Low	G	Н	1			

Using this process, it was identified that 8 of the 76 optional procedures should be audited. The assessment of risk was reviewed and approved by the Forestry Futures Committee. The optional procedures to be included in this audit are:

- 2.3.1 Issue Resolution
- 3.7.1.1 MNRF Endorsement of the recommendation in the Year 3 Annual Report
- 4.7.2 -Verification of road construction and maintenance activities
- 4.7.3 AFA maintenance of public roads
- 6.1.1 MNRF District compliance plan and associated monitoring
- 6.2.1.2 Quality of SFL compliance prevention /education program
- 6.2.1.4 SFL forest management oversight through compliance plans
- 8.1.8 Licence obligations related to withdrawals from licence area

Audit Implementation

The audit commenced with the preparation of a detailed audit plan⁶, which described the results of the risk assessment, set out the audit schedule, described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held on September 5 in Huntsville with the lead auditor and staff from the AFA, Ontario Parks, MNRF Southern Region and a member of the LCC. The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and make a preliminary selection of sites to inspect in the field during the audit. There were some adjustments were made to the selected sites due to access issues, long driving times, and to improve the balance of operations and sites.

⁶ ArborVitae Environmental Services Ltd. Plan for the Independent Forest Audit of the Algonquin Park Forest, September 8, 2017.

	Optional		Mandatory		
Principle	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	Comments
1. Commitment	2	0	0	0	The forest is certified to a third-party standard and procedures associated with the principle were determined to be low risk
2. Public Consultation and Aboriginal Involvement	5	1	20	3	Four optional procedures were determined to be low enough risk that they were not audited, however one related to individual environmental assessments was audited because there was a significant request for an IEA associated with the Phase II FMP.
3. Forest Management Planning	7	1	14	13	Of the 7 applicable optional procedures (excluding those related to Phase I planning, contingency plans and plan extensions); one regarding the endorsement of the Year 3 ARs was audited.
4. Plan Assessment & Implementation	2	2	100	9	The FFT expects the audit team to assess the spending under the Forest Roads Construction and Maintenance Agreement; the second optional procedure a unique feature of the AFA forestry agreement
5. System Support	2	0	0	0	The forest is certified to a third-party standard and procedures associated with the principle were determined to be low risk
6. Monitoring	12	3	25	6	AFA's improved compliance record during the audit term was balanced against there being two recommendations in the previous IFA related to compliance, and the higher level of compliance issues in earlier periods. The result was that several optional procedures were selected related to the AFA's compliance program.
7. Achievement of Objectives and Forest Sustainability	0	N/A	N/A	15	All procedures are mandatory and were audited.
8. Contractual Obligations	6	1	18	18	The optional procedure related to withdrawals was selected because withdrawals are uncommon and the LTF resulted in a significant loss of access to forest in Algonquin Park. The procedures related to other contractual obligations were either not applicable or for areas assessed as acceptable risk.
Totals	46	8	17	67	

Table 2. Audit procedures by principle and risk assessment outcome.

The focus of the audit was an intensive five-day site visit (October 30 – November 3, 2017), which included document review, interviews and ground-based and aerial inspections of a variety of sites throughout the Forest where activities had been undertaken during the audit period. There were many participants on the truck-based site tours, including members of the AFA Board of Directors, the LCC, Algonquin First Nation representatives, as well as AFA staff, Ontario Parks staff, Regional and Corporate level MNRF, and Forestry Futures Committee members. The audit schedule was thrown off a bit as inclement weather delayed helicopter inspections by one day. As a result one additional auditor day was spent viewing audit sites from the ground. The formal closing meeting for the audit took place on November 14 by teleconference. At the closing meeting draft audit findings were provided. In the two-week period following the closing meeting, the audit team received comments on the draft recommendations and those have been considered in preparing this draft final report.

Sampling and Sample Intensity

The IFAPP requires that at least 10% of each major activity be sampled. **Table 3** shows the total amount of each key activity that took place during the audit period, and the sample size and sampling intensity in the IFA. Most sites were pre-selected during the pre-audit meeting and some modifications were made to improve the balance between years and to improve the efficiency of the truck tours.

For some types of operations, only four years of data were available and some of the figures in **Table 3** represent an estimate of the level of operations in year five. The audit met or exceeded the minimum sample size specified in the IFAPP for all activities, with the overall level of sampling ranging from 10% to 23% for key activities.

Examples of operations were examined in each major forest unit present on the Forest, representing a range harvest years, season of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, seeded, planted, and tended, and those for which natural regeneration treatments were prescribed.

Feature	Total in Audit	Total Sampled	Sample			
	Period		Intensity %			
Harvest (ha) ¹	30,391	4,467	15%			
Mech Site Preparation (ha)	1,917	266	13%			
Cleaning/ Stand Imp (ha)	12,667	1,425	11%			
Planting (ha)	2,272	243	11%			
PCT (ha) ¹	4,245	973	23%			
Free-to-Grow Assess (ha) ¹	13,411	1,270	10%			

Table 3.	Sampling int	ensity of the	field operations.	by key feat	ure investigated.
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– estimates made from four years of data available from 2012-2015 and estimates for 2016/17.

The table is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although we viewed many individual harvest and/or treatment blocks during the field inspection portion of the audit, more than one aspect of forest management was inspected at some sites. For example, at sites where harvesting had taken place, harvest practices, compliance issues, road construction, site preparation, and regeneration activities may all have been inspected. Finally,

of the area figures shown above, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Input from Indigenous Communities

Communities identified within this audit term as having interests in Algonquin Park include:

- Mattawa/North Bay Algonquin First Nation
- Antoine First Nation
- Whitney and Area Algonquins
- Bonnechere Algonquin First Nation
- Algonquins of Greater Golden Lake First Nation
- Algonquins of Pikwakanagan First Nation
- Snimikobi Algonquin First Nation
- Algonquin Nation Kijicho-Manito Madaouskarini (Bancroft)
- Shabot Obaadjiwan First Nation
- Ottawa Algonquin First Nation

For the purposes of this audit, the Algonquins of Ontario (AOO) consultation office served as the main contact for Aboriginal consultation, as it is intended to do. The audit team contacted the AOO by e-mail, letter and telephone and was very pleased that the Algonquins decided to participate meaningfully in the audit. The AOO Forestry Resource Technician and two community representatives accompanied the audit team on its ground-based field inspections, and the lead auditor and consultation auditor provided a presentation and discussion of draft findings to the AOO. It should be noted that the Algonquin representatives who participated in a September 2017 IFA presentation indicated that they had found little value in past participation, and some declined to participate in the current audit.

Interviews with AOO staff suggest that there are some ongoing concerns about the identification and documentation of Algonquin values in the FMP, and how they may be impacted by operations. The AOO is in the process of developing a tool that will enhance the identification of high potential areas for cultural values by mapping relic shorelines. Discussions with the provincial Cultural Heritage Specialist involved in the current planning process suggest that any supplementary information provided by the AOO can be incorporated into the next FMP. This may not be clear to the AOO.

According to interviews with forest managers, opportunities for work in stand improvement or tending are available though one contractor cited issues with the level of payment available to do this work (e.g., not worth it). Other issues noted include lack of availability of good areas for harvesting. Estimated levels of participation and value of contracts are documented appropriately in District Condition 34/56 reports. Another Algonquin contractor responded that there was no issue accessing wood, and that his business had grown over the years from 8,000 tonnes up to 50-60,000 tonnes and that for the most part the allocations seemed fair.

Input to the Audit from LCC members

As part of the audit, auditors reached out to all 12 LCC members to obtain feedback regarding the functioning of the LCC over the audit period. Interviews were conducted with 7 of the LCC members, in person and via phone. LCC members participated in the pre-audit meeting and the ground-based site tour.

All LCC members generally were of the opinion that the LCC was functioning in accordance with its mandate.

Input through Public Comment

In an attempt to solicit public input into the audit, a notice inviting comment was placed in two local newspapers (Huntsville Forester and Eganville Leader). In addition, the auditors developed an on-line questionnaire and included the link in the newspaper notice. The link was also circulated to LCC members, who were asked to distribute it to their constituents. Seven responses were received by the audit team, most by people in the forest sector. These respondents felt that the AFA was doing an excellent job and that the forest was well managed; a number expressed concern with the amount of restrictions in place for species at risk and the impacts of these restrictions on the ability of the companies to access timber at a fair cost. Two of the respondents felt that the Park was not managed on an ecologically sound basis and identified a number of concerns ranging from sufficiency of old growth to the impact of acid deposition on soil and aquatic system characteristics.

APPENDIX 5 – LIST OF ACRONYMS

ACOP	Annual Compliance Operations Plan					
AEA	Aggregate Extraction Area					
AOC	Area of Concern					
AOO	Algonguins of Ontario (Consultation Office)					
APFA	Algonguin Park Forestry Agreement					
AR	Annual Report					
AWS	Annual Work Schedule					
BMP	Best Management Practice					
CFSA	Crown Forest Sustainability Act					
Class EA	Class Environmental Assessment for Timber Management on Crown					
Lands in Ontario						
CROs	Conditions on Regular Operations					
EA	Environmental Assessment					
FIM	Forest Information Manual					
FMP	Forest Management Plan					
FMPM	Forest Management Planning Manual					
FMU	Forest Management Unit					
FOIP	Forest Operations Inspection Program					
FOP	Forest Operations Prescription					
FTG	Free-to-Grow					
FRT	Forest Renewal Trust					
FSC	Forest Stewardship Council					
FU	Forest Unit					
GIS	Geographic Information System					
ha	hectares					
km	kilometres					
IFA	Individual Environmental Assessment					
IFA	Independent Forest Audit					
IFAPP	Independent Forest Audit Process and Protocol					
	Local Citizens Committee					
L TF	Lighten the Footprint					
	Long Term Management Direction					
m3	cubic meters					
MEA	Moose Emphasis Area					
MNRF	Ontario Ministry of Natural Resources and Forestry					
MOA	Memorandum of Agreement					
MNO	Métis Nation of Ontario					
ORB	Operational Road Boundary					
OSB	Oriented Strandboard					
RPF	Registered Professional Forester					
SAR	Species at Risk					
SEM	Silvicultural Effectiveness Monitoring					
SFL	Sustainable Forestry Licence					
SFM	Sustainable Forest Management					
SPF	Spruce-Pine-Fir					
SGR	Silvicultural Ground Rules					

APPENDIX 6 – AUDIT TEAM MEMBERS AND QUALIFICATIONS

Auditor	Role	Responsibilities	Credentials
Dr. Jeremy Williams, RPF	Lead Auditor, Harvest and Wood Supply and Compliance	 overall audit coordination; oversee activities of other team members; liaise with AFA, Ontario Parks & MNRF; review and inspect harvesting records and practices; review aspects of forest management related to forest economics and social impacts; reviews FMP modeling inputs and activities Assess the Aboriginal engagement 	B.Sc.F., Ph.D. (Forest Economics), RPF. More than 22 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in more than 40 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Chris Wedeles	Ecologist and Roads Auditor	 review and inspect Areas of Concern Documentation and Practices; review and inspect aspects of forest management related to environmental practices and wildlife management integration; review and inspect access and water crossings 	B.Sc., M.Sc. (Wildlife Biology); Associate member of the OPFA. 25 years wildlife and forest ecology and experience in Ontario; completed 40 previous independent forest audits; certified as an auditor by the Quality Management Institute.
Mr. Mark Leschishin, RPF.	Silvicultural Auditor	 Review and inspect silvicultural practices and related documentation; Review renewal /silvicultural success and FTG assessment; review and inspect selected environmental aspects of forest management. 	Hon. Dip. For, Tech., H.B.Sc.F., RPF. In addition, Mr. Leschishin is a certified lead forest assessor for SmartWood, and a certified EMS lead auditor (cert. # 254- 213) in accordance with the ISO 14001:2004 standards. Mark has extensive planning and auditing experience focused on northwestern Ontario, and has participated in some 30 IFAs.
Ms. Rike Burkhardt	Aboriginal Engagement and LCC Auditor	 Assess the Aboriginal engagement review the performance of the LCC 	B.Sc. (Biology). B.Sc.F. (Hon), and M.F.C. RPF. Rike is qualified as an Internal Auditor for ISO 14001 and she has participated in some 15 IFAs and 3 FSC audits.
Ms. Christine Korol	Planning Auditor	 review FMP and related documents to ensure compliance with FMPM and other regulations; review plan development process for conformity with FMPM. 	B.Sc., M.F.C. Approved lead forest management auditor under the FSC system, and has conducted over 30 FSC forest management audits and evaluations, including 20 as the lead auditor.