ALGONQUIN FORESTRY AUTHORITY

SUSTAINABLE FOREST MANAGEMENT PLAN

November 2007

CAN/CSA-Z809-02 CERTIFICATION
FOR SUSTAINABLE FOREST MANAGEMENT

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Executive Summary

Algonquin Provincial Park is 7,725 km^2 in size, and is comprised of all or parts of 40 townships. It is the headwater for five major rivers, provides significant recreational opportunities and wildlife habitat, and supplies forest products to the surrounding communities. The Park, which is located between Georgian Bay and the Ottawa River in south-central Ontario, is biologically diverse with more than 1,000 vascular plant species and more than 200 vertebrates. The entire Algonquin Park constitutes the defined forest area for this Sustainable Forest Management Plan.

The Algonquin Forestry Authority (AFA) is the Ontario Crown Agency responsible for sustainable forest management in Algonquin Provincial Park. Responsibilities also include the harvesting and distribution of wood products to mills in communities adjacent to the Park. AFA's vision is to achieve the highest standards of sustainable forest management practices, in order to maintain Park values for future generations, with the mission to ensure the long-term health of Algonquin's forests while producing a sustainable supply of forest products for the forest industry of the region.

AFA chose to seek registration to the CAN/CSA-Z809-02 Sustainable Forest Management Standard (SFM) to demonstrate to the public and its customers that the Algonquin Park Forest is being managed on a sustainable basis. The SFM Standard gives AFA the opportunity to continually improve their forest management performance while engaging interested parties in a focused public participation process.

This Sustainable Forest Management (SFM) Plan is required as part of the definition and implementation of a Sustainable Forest Management System under the CAN/CSA-Z809-02 standard.

The AFA is guided by six commitments and strategies, in addition to its own vision and mission:
1. Sustainable Forest Management
2. Compliance with Laws
3. Public Participation
4. Aboriginal Rights and Participation
5. Health and Safety
6. Continual Improvement

AFA has developed and will maintain and continually improve a public participation process that meets the requirements of the CAN/CSA-Z809-02 standard. The public participation process respects existing authority for decisions associated with the use and management of the Algonquin Park Forest and will not change existing public policies, laws, and regulations established by governments.

To ensure that all necessary stakeholders were involved, AFA selected 19 representatives from a comprehensive list of potential stakeholders to serve as the Forest Certification Advisory Group and liaise on a continuing basis with AFA. The Advisory Group consultation process included introductory training and facilitated workshops dealing with the identification and selection of values, objectives, indicators and targets for the DFA. Subsequent meetings involved the identification of values of specific importance to environmental, social and economic concerns and needs of members and stakeholder groups and the development of suitable objectives, indicators and targets for each.

Values, objectives and performance indicators included in this SFM Plan were also influenced by the public consultation process associated with the 2005-2025 Algonquin Park Forest Management Plan.

1.0 Introduction

1.1 Purpose of AFA SFM Plan

This Algonquin Forestry Authority (AFA) Sustainable Forest Management (SFM) Plan is required as part of the definition and implementation of a Sustainable Forest Management System under the CAN/CSA-Z809-02 standard. The SFM Plan describes the SFM System and includes specific values, objectives, indicators and targets (VOITs) for Algonquin Park, which constitutes the Defined Forest Area (DFA). The SFM Plan is a framework document that summarizes the key components of the management system used by AFA to manage the DFA.

Sustainable Forest Management (SFM) certification is a voluntary tool available to forestry organizations that wish to demonstrate corporate responsibility by having their forest management planning and practices independently certified against a sustainable forest management standard. Sustainable Forest Management refers to maintaining and enhancing the long-term health of forest ecosystems for current and future generations. Certification goes beyond regulatory requirements and takes environmental, economic and social values into consideration.

AFA chose to seek registration to the CAN/CSA-Z809-02 Sustainable Forest Management Standard (SFM) to demonstrate to the public and its customers that the Algonquin Park Forest is being managed on a sustainable basis. The SFM Standard gives AFA the opportunity to continually improve their forest management performance while engaging interested parties in a focused public participation process.

AFA is the Ontario Crown Agency responsible for sustainable forest management in Algonquin Provincial Park. Responsibilities also include the harvesting and distribution of wood products to mills in communities adjacent to the Park. AFA has offices in Huntsville and Pembroke and employs a regular staff of 23, which includes five foresters, nine forest technicians and a chartered accountant. The seasonal staff numbers up to 15.

Algonquin Park is 7,725 km^2 in size, and is comprised of all or parts of 40 townships. It is the headwater for five major rivers, provides significant recreational opportunities and wildlife habitat, and supplies forest products to the surrounding communities. The Park, which is located between Georgian Bay and the Ottawa River in south-central Ontario, is biologically diverse with more than 1,000 vascular plant species and more than 200 vertebrates.

The Park was established in 1893 when the Ontario Government of the day acted on a recommendation of the Royal Commission on Forest Reservation and National Parks in "reserving a portion of the ungranted Crown domain to be set apart as a Forest Reservation and National Park". At that time, logging had existed within the Park for about 60 years.

Algonquin Provincial Park is managed in accordance with an approved Park Management Plan. The park is divided into seven different zones including a Recreation-Utilization zone (RU Zone) where low intensity recreation and commercial timber harvesting are permitted. The Recreation-Utilization zone comprises approximately 75% of Algonquin Park and is managed as the Algonquin Park Forest Management Unit (the Forest).

Algonquin is a premier wilderness destination for canoeists. Each year about 300,000 people make interior canoe trips in Algonquin; the total number of park visitors is about 1 million people.

There are about 1,500 km of interconnected canoe routes with 1,950 interior campsites located along waterway corridors. In addition there are three overnight backpacking trails in the Park interior.

There are 305 cottages, three commercial lodges and six children's camps in Algonquin that operate under leases with the Province of Ontario. There are 65 temporary hunt camps located within Clyde and Bruton Townships, and the Algonquins of Ontario hunt within the eastern portion of the Park. Trapping is permitted on registered trap lines in the southern, eastern and central areas of the Park.

About 85% of all park visitors reside in the Province. Other countries including U.S.A, Great Britain, Germany and Japan are the most prominent origin of out of Province visitors. The economic impact generated by Park and visitor spending, is estimated to exceed $30 million and 451 full time person-years of employment.

The forest industry supplied by fibre from the Forest is comprised of sawmills, hardwood veneer mills, a pole plant and pulp mills, which are wholly or partly dependent on this vital source of raw material. The Algonquin Park Forest provides approximately 45% of the volume harvested annually from Crown forests in Central and Eastern Ontario. This wood supply supports mills in communities such as Huntsville, Whitney, Madawaska, Pembroke, Mattawa and Rutherglen. There are 13 mills receiving part or most of their supply from the Park on a regular basis while another 5-10 mills receive periodic supplies.

There are over 420 people employed in Algonquin woods activities and over 2,400 people employed in the mills. In 2005-2006, the value of forest product sold by the Algonquin Forestry Authority was $24.3 million. Contractors engaged from communities in the region were paid over $20.6 million, and the AFA had a net income of $251,383 in its General Account. The AFA is financially self-sufficient with no cost to Ontario taxpayers.

A number of forest products are produced because of the wide variety of tree species available in the Forest. These include:

- Hardwood lumber for furniture, flooring and crating
- Softwood lumber for construction, paneling and finishing
- Utility poles
- Pulp and paper and packaging products
- Oriented strandboard
- Fuelwood

1.2 The CSA standard

In 1993, the Canadian Standards Association (CSA) began working with a diverse range of stakeholders interested in Sustainable Forest Management in Canada to develop a Sustainable Forest Management (SFM) program. The resulting standard was first published in 1996 and then revised in 2002. The CAN/CSA-Z809-02 Standard is now a well recognized national standard for ensuring that a forest is being managed in a sustainable manner.

Use of this voluntary standard requires continual improvement in forest management performance, broad public participation and regular and rigorous independent third-party audits. System components include performance requirements, public participation requirements and system requirements.

1.3 Relation to forest management planning in Ontario

The CAN/CSA-Z809-02 standard recognizes that each province has rigorous legislation and policies for the protection, conservation and sustainable management of forests and is therefore designed to complement, not replace, the existing forest management planning process. Figure 2 in section 5.3 provides a schematic of the link between the SFM Plan, the FMP process and forest management in Algonquin Park.

1.4 Relation to Forest Management in the Algonquin Park Forest

The Algonquin Provincial Park Management Plan (1998) establishes the framework for all activities within Algonquin Park. The Plan specifies land use planning by zones, including forest management in a Recreation-Utilization Zone.

Forest management on Crown land is the responsibility of the Minister of Natural Resources. Crown forests in Ontario are subdivided into management units and forests for management. Forest management activities in the Algonquin Park Forest are governed by the 2005-2025 Forest Management Plan (FMP) which was written in accordance with relevant provincial guidelines and manuals and the Algonquin Provincial Park Management Plan.

Algonquin Forestry Authority (AFA) is a Crown agency established by the authority of Bill 155 "An Act to Incorporate the Algonquin Forestry Authority". This act vested in AFA the responsibility of licensee and:

a) Subject to the *Crown Forest Sustainability Act* (1994), to harvest Crown timber and produce logs therefrom and to sort, sell, supply and deliver the logs.
b) To perform, undertake and carry out such forestry, land management and other programs and projects as the Minister may authorize and to advise the Minister on forestry and land management programs and projects of general advantage to Ontario.

The objective of forest management on Crown land in Ontario is "to ensure the long-term health of our forest ecosystems for the benefit of the local and global environments, while enabling present and future generations to meet their material and social needs". Since forested land provides a range of values and opportunities to the public, its management must be planned in a manner that recognizes the requirements of other uses. This aspect of planning is accomplished by the Park Superintendent and District Manager of Algonquin Park who establishes a team of resource managers to provide input and review during the planning process. The planning team ensures that all resources are considered. A local citizens committee (LCC) assisted the plan author (AFA) and the planning team in the preparation of the 2005-2025 Algonquin Park Forest Management Plan. Figure 2 in section 5.3 provides a schematic of the link between the SFM Plan, the FMP process and forest management in Algonquin Park.

2.0 Guiding Principles

2.1 AFA's Sustainable Forest Management Principles

As noted previously, the AFA is the Ontario Crown Agency responsible for sustainable forest management in Algonquin Provincial Park. AFA responsibilities also include the harvesting and

distribution of wood products to mills in communities within the region. The AFA's vision is to achieve the highest standards of sustainable forest management practices, in order to maintain Park values for future generations, with the mission to ensure the long-term health of Algonquin's forests while producing a sustainable supply of forest products for the forest industry of the region.

The AFA is also guided by six commitments and strategies:

1. Sustainable Forest Management:
The AFA is committed to conform with the requirements of the international standards for environmental management (ISO 14001:2004) and for sustainable forest management (CAN/CSA-Z809-02), and to managing Algonquin's forests in a sustainable manner consistent with requirements of the sustainable forest management plan. This includes:

1. Conserving biological diversity;
2. Conserving forest ecosystem condition and productivity by maintaining the health, vitality and rates of biological production;
3. Conserving soil and water resources;
4. Maintaining forest conditions and management activities that contribute to the health of global ecological cycles;
5. Providing multiple benefits to society; and
6. Accepting society's responsibility for sustainable development.

Other commitments include locating forest operations away from recreational features (campgrounds, canoe routes, portages, and hiking trails) during peak periods of usage; maintaining aesthetic qualities of the forest landscape; and avoiding insecticide and herbicide use whenever possible.

2. Compliance with Laws:
The AFA will meet or exceed all applicable laws, regulations, policies, standards and other requirements to which AFA subscribes. In addition, the AFA will prevent pollution using processes, practices, materials or products that avoid, reduce or control pollution, and will continuously evaluate compliance with current laws and regulations, and the prevention of pollution. Periodic independent audits shall ensure that operations are consistent with established policies and objectives.

3. Public Participation:
The AFA will provide opportunities for public consultation on sustainable forest management practices in Algonquin Park, including a public advisory committee to provide input on sustainable forest management. The AFA will also facilitate public review and input on the forest management plan and work schedules and will respond to comments in a timely fashion. These strategies and others will help to effectively communicate forest management practices in the Park to the public. Finally, the AFA will make public the results of independent audits and ongoing assessments in annual reports.

4. Aboriginal Rights and Participation:
The AFA will respect Aboriginal and treaty rights, provide participation opportunities for Aboriginal peoples with respect to their rights and interests in sustainable forest management, and will work co-operatively with local Aboriginal communities to identify and implement ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management planning in Algonquin Park.

5. Health and Safety:

The AFA will provide conditions and safeguards for the health and safety of workers and the public. In order to achieve this, the AFA will establish and communicate safe working habits to employees of the Authority and its contractors, will organize training programs for AFA employees and assist contractors in their training programs, and will maintain and communicate emergency response plans and procedures.

6. Continual Improvement:
The AFA will work towards improving knowledge about the forest and about sustainable forest management, will monitor advances in sustainable forest management science and technology, and incorporate these advances where applicable. In addition, the AFA will participate in research projects that contribute to the health of the forest ecosystem and productivity of the forest.

3.0 The Plan Area and Ownership Rights and Responsibilities

3.1 Defined Forest Area

Algonquin Park constitutes the Defined Forest Area (DFA) as shown in Figure 1. Forest management activities occur only within the Recreation and Utilization Zone (R/U zone) of the Park, mapped in white.

The Algonquin Provincial Park Management Plan (1998) establishes the framework for all activities within the Park. This SFM Plan is written in accordance with said plan and other relevant provincial guidelines and manuals.

A major mechanism to control land use is the zoning of the Park into land use categories. The categories are access, development, historic, nature reserve, natural environment, wilderness, and recreation/utilization. A description of the purpose for each zone is found in the Algonquin Park Management Plan.

While the R/U zone is the only zone of the Park where forest management operations are permitted, the other zones of the Park fall within the management unit boundary and contribute to non-timber objectives identified in this SFM Plan (i.e. wildlife, forest diversity, old growth). As a result, these other zones are included in the DFA. This approach to planning is consistent with the 2005-2025 Forest Management Plan for the Algonquin Park Forest.

The DFA is 763,316 ha in size and contains two basic forest complexes - the tolerant hardwoods and hemlock, which primarily occupy the Precambrian Uplands on the west and the white and red pine, poplar and white birch found mainly in the eastern Ottawa Lowlands. These forest types were described in the 1974 Master Plan for Algonquin Provincial Park as the ‘meeting of northern and southern ecosystems in transition’.

The Park Master Plan refers to three major topographic systems: the Western Uplands, Central Lakes and Eastern Ridges. Other references have recognized two: the Precambrian Uplands on the west, and the Ottawa Lowlands on the east. The division between the Precambrian Uplands and Ottawa Lowlands roughly coincides with the boundary between Site Districts 5E-9 and 5E-10 respectively.

Site District 5E-9 sits on the Algonquin dome, a Precambrian upland area. The highest elevations occur east of Opeongo Lake where the elevation reaches 580 metres. Elevations decrease in all directions from this point. These uplands represent some of the highest elevations in Ontario.

The Ottawa lowlands of Site District 5E-10 are situated on the east side of Algonquin Provincial Park. It features generally lower elevations, in the range of 180 - 380 metres, and less relief, but is also the location of the only major bedrock dislocation in Southern Ontario. This is the Ottawa-Bonnechere fault system, a series of downfaults extending northwesterly as far as Lake Lavieille.

These two topographic systems support distinctly different forests. The Ottawa lowlands are occupied by a forest comprised primarily of white and red pine, poplar, and white birch. The Precambrian uplands support a tolerant hardwood forest of hard maple, beech, yellow birch and hemlock.

Soils, vegetation and climate form the basis for describing forest ecosites. The “Field Guide to Forest Ecosystems of Central Ontario” is based on these items and should be referenced for further detail on individual ecosites (ES).

The Petawawa land type is predominantly sandy, but includes a range of mixtures from sand and coarse gravel to sand and silt. The silty sands support good stands of white pine, red pine and poplar. Lower slopes where the moisture content is higher, support a component of white and black spruce. On the higher and drier slopes and ridges, oak, poplar and white birch are found. Fresh, silty sand tills occur in Fitzgerald Township, the Forbes Creek area and the Lake Lavieille-Dickson Lake area. These soils have a lower sand content and tend to be loamier in texture. They support white and red pine, poplar and tolerant hardwoods (ES 27). Soil depths are similar to the silty sands described above.

Fresh, deep soils on upper slopes support good tolerant hardwoods such as maple and beech (ES 25, 28 and 29). Where moisture increases, the yellow birch, spruce and hemlock component increases and maple-beech decreases (ES 29 and 30). On very wet lower slopes, black spruce, cedar and tamarack occur (ES 31 to 34). Lower slope situations are also influenced by a telluric water table which increases the productive ability of the site. As groundwater moves down the slope, it is enriched by picking up oxygen and dissolved chemicals. These added nutrients improve the site for species such as yellow birch (ES 30.2). Upper slopes and hilltops with drier and shallow soils tend to exclude yellow birch, discourage maple and beech, and favour pine and spruce (ES 20).

There are upper slopes and hilltop sites which support good quality maple and yellow birch (ES 29). These are the moulded till (drumlinoid) landforms which retain moisture very well because the compressed material reduces moisture percolation by virtue of its finer pore space. This produces fresh moisture conditions even on hilltops. These sites are highly productive and often support uniform stands of good quality hardwood.

There are limited areas of organic soils, most being found along some lakes and streams and in low lying areas occupied by black spruce, tamarack or cedar (ES 31 and 32).

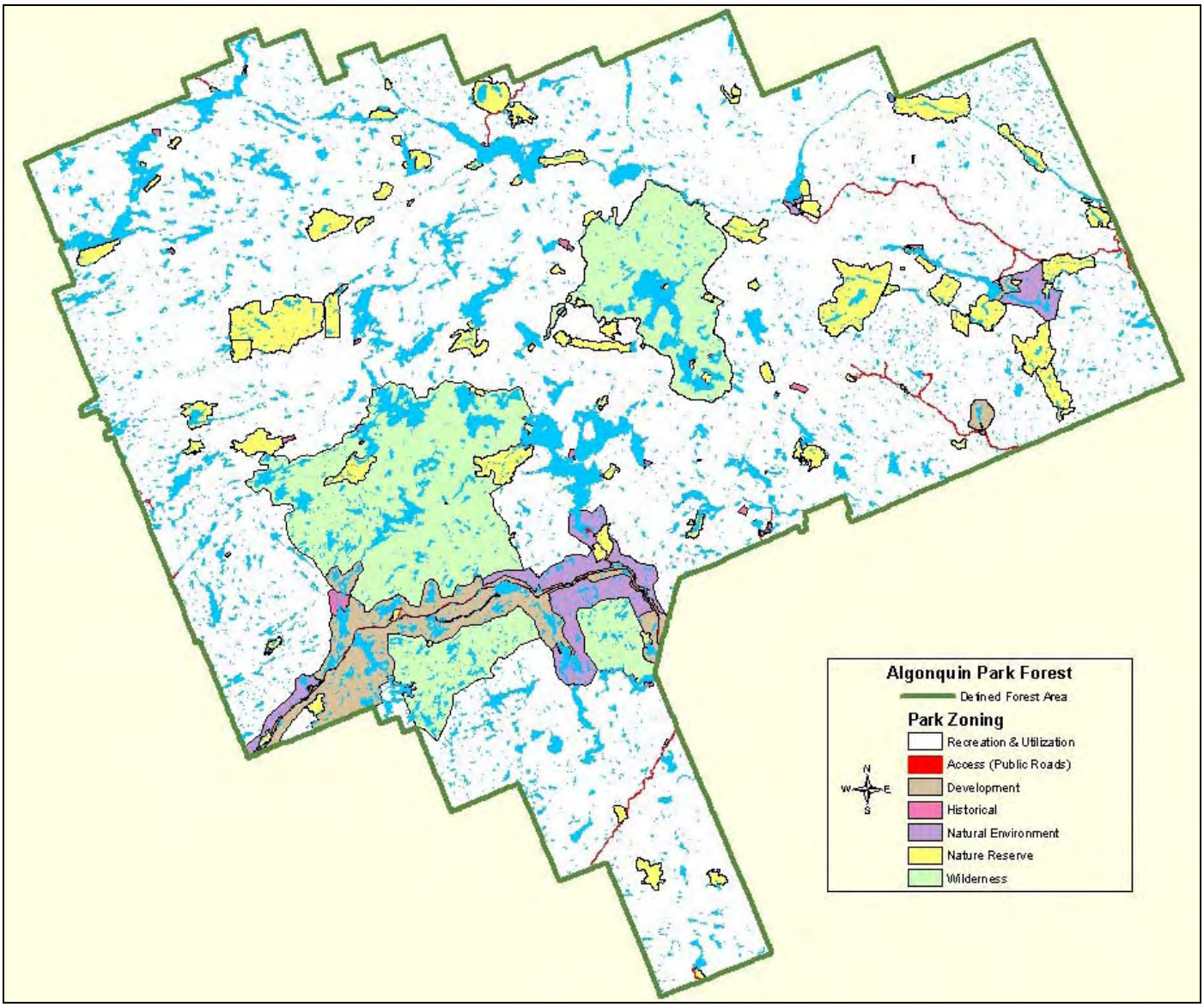

Figure 1. Map of the Defined Forest Area

Algonquin Provincial Park has 2,456 lakes in 19 principle watersheds (Algonquin Provincial Park Management Plan, 1998). Since Algonquin is situated on some of the highest land in the region, it serves as the headwaters for all of the watersheds except, the Tim River, Amable du Fond, Hurdman Creek, North River and York River which originate outside the Park. Five major rivers drain the Park; the Oxtongue, Petawawa, Barron, Madawaska and Bonnechere.

Section 3 of the 2005-2025 Forest Management Plan for Algonquin Park contains a detailed description of the DFA.

3.2 Ownership Rights and Responsibilities

The DFA is part of the Southern Region Administrative Unit of the Ontario Ministry of Natural Resources (MNR), and is administered by Ontario Parks, a branch of the Natural Resources Management Division.

One of the major provisions of the 1974 Master Plan relative to forest management, was establishment of the AFA which is a Crown agency established by the authority of Bill 155 *"An Act to Incorporate the Algonquin Forestry Authority"*. This act terminated Order-In-Council timber licences held by fourteen companies and vested in AFA the responsibility of licensee. The objectives of the AFA as defined in its governing legislation are:

a) Subject to the Crown Forest Sustainability Act (1994), to harvest Crown timber and produce logs there from and to sort, sell, supply and deliver the logs.
b) To perform, undertake and carry out such forestry, land management and other programs and projects as the Minister may authorize and to advise the Minister on forestry and land management programs and projects of general advantage to Ontario.

As also stated in this Act that "the Authority shall conduct its operations in conformity and harmony with the provisions and true intent and spirit of the park management plan and all amendments thereof, and shall ensure that such operations are conducted, so far as it is practicable so to do, with full regard at all times for the aesthetics, ecology and all other qualities of the environment".

The AFA has offices in Huntsville and Pembroke and day-to-day relationship with the Ministry is with the Ministry's Ontario Parks' Office at Whitney. The General Manager of the AFA reports to the AFA Board of Directors, whose Chair reports to the Minister of Natural Resources.

The AFA is party to the Algonquin Park Forestry Agreement (previously referred to as Forest Management Undertaking Agreement) with the Minister of Natural Resources, which specifies that the Minister agrees to offer five year licences to the AFA for a twenty-year period commencing April 1, 1997. The Forestry Agreement is similar to a Sustainable Forest Licence (SFL) arrangement that spells out the roles and responsibilities and financial structure for forest management activities. The agreement further specifies the companies to which the AFA will sell Crown timber produced from the tract. These wood supply commitments are reviewed every five years in conjunction with a new FMP and are based on what the Algonquin Park forest can sustainably supply. The Minister of Natural Resources approves in writing the volume for each company.

In developing this SFM Plan, AFA has endeavoured to respect the legal rights and responsibilities of other parties in the DFA that are not part of the registration applicant.

There are 305 cottages, three commercial lodges and six children's camps in Algonquin that operate under leases with the Province of Ontario. There are 65 temporary hunt camps located within Clyde and Bruton Townships, and the Algonquins of Ontario hunt within the eastern portion of the Park. Trapping is permitted on registered trap lines in the southern, eastern and central areas of the Park.

3.3 Shared Responsibilities

As the Crown Agency responsible for sustainable forest management in Algonquin Provincial Park, AFA assumed lead responsibility for developing and implementing the SFM System for the DFA. AFA has an environmental management system (EMS) registered to the ISO14001: 2004 standard, which provides a framework for planning, implementing and monitoring sustainable forestry operations in the Forest. AFA has appointed an SFM/EMS Coordinator, who, irrespective of other responsibilities, has defined roles, authority and responsibilities for:

- ensuring that the SFM requirements are established and maintained in accordance with this Standard; and
- reporting on the SFM requirements to top management for review and as a basis for continual improvement.

In developing the SFM Plan, AFA has endeavored to ensure that all parties necessary to address the CSA SFM elements for the DFA were involved in the process. The roles and responsibilities of the parties involved in the development of the Plan are presented in Table 1.

To ensure that all necessary stakeholders were involved, AFA selected 19 representatives from a comprehensive list of potential stakeholders to serve as the Forest Certification Advisory Group (herein referred to as the Advisory Group) and liaise on a continuing basis with AFA. The selection included key representative(s) for each of the parties listed in Table 1 (Sustainable Forest Management System Responsibilities on the Algonquin Park Forest), with the exception of Suppliers. The list of potential stakeholders was developed through a review of values, issues and interest groups and a stakeholder analysis completed by KBM Forestry Consultants.

The Advisory Group consultation process included introductory training and facilitated workshops dealing with the identification and selection of values, objectives, indicators and targets for the SFM. Subsequent meetings involved the identification of values of specific importance to environmental, social and economic concerns and needs of members and stakeholder groups and the development of suitable objectives, indicators and targets for each. Refer to Appendix E for the minutes of the Advisory Group meetings held during preparation of this SFM Plan.

Table 1: Sustainable Forest Management System Responsibilities on the Algonquin Park Forest

SFM Responsibility	ORGANIZATION					
	AFA	Ontario Parks (Algonquin Park)	Contractor	Board of Directors	Advisory Group	Suppliers
Maintenance and documentation of the SFM	Responsible for the SFM System. Available to others through internet/intranet website.		Access to EMS through AFA intranet site			
Development of policy statements	Responsible for policy statements			Assists in the development and approves Policy statements		
Awareness and training of SFM requirements, responsibilities, and benefits	AFA responsible. Requirements and responsibilities outlined in EMS MSP 4.4.2 and Training Matrix	Responsible to inform Ontario Parks staff and interested public regarding SFM status and benefits	Requirements defined in EMS MSP 4.4.2 and Training Matrix	Requirements defined in EMS MSP 4.4.2 and Training Matrix	Responsible to inform their stakeholders of SFM status and benefits	Requirements defined in EMS MSP 4.4.2 and Training Matrix
Development and planning of VOITs	Responsible for the development and planning of VOITs.	Assists with the development and planning of VOITs (through Advisory Group)	Assists with the development and planning of VOITs (through Advisory Group)	Assists with the development and planning of VOITs (through Advisory Group)	Assists with the development and planning of VOITs	
Communication with public participants	Responsible for communication with the public	Responsible to inform interested public of SFM Policy and CSA certification status	Responsible to inform interested public of SFM Policy and CSA certification status	Responsible to inform interested public of SFM Policy and CSA certification status	Responsibilities outlined in Advisory Group Terms of Reference	
Implementation of VOITs and SOPs	Responsible for implementation of VOITs and SOPs	Assists with implementation/records provision of some VOITs	Responsibilities outlined in SOPs and MSPs		Involved in the implementation of some VOITs	Responsibilities outlined in SOPs

SFM Responsibility	ORGANIZATION					
	AFA	Ontario Parks (Algonquin Park)	Contractor	Board of Directors	Advisory Group	Suppliers
Legal compliance	Responsible for legal compliance. Details outlined in EMS MSP 4.5.2	Involved in the auditing of licensee for legal compliance to CFSA and FMP	Responsible for legal compliance as defined in SOPs and contracts	Responsible to ensure AFA can meet its legal requirements		Responsible for legal compliance as defined in SOPs
Corrective and preventive action	Responsible for assigning corrective and preventive action. Details outlined in EMS MSP 4.5.3	Responsible to assign corrective/preventive action as required in FOIP	Contractor has responsibilities to implement corrective/preventive action, as assigned in FOIP or CPPA.			Responsible for taking preventive action as outlined in applicable SOPs
Monitoring, reporting, and continual improvement	Responsible for monitoring, reporting and continual improvement. Details outlined in EMS MSP 4.5.1 and VOITs	Responsible for compliance auditing and reporting (FOIP)	Responsible for reporting EMS non-conformities and legal non-compliances to the AFA Supervisor	Responsible to review the EMS Management Review Summary and Action Plan (MSP 4.6)	Responsible to review SFM Plan annual report and VOITs	

3.4 Rights and Obligations

3.4.1 Legislation and Regulatory Requirements

A list of all relevant legislation and regulatory requirements that relate to the DFA is maintained within section 4.3.2 of the Algonquin Forestry Authority's EMS, as per MSP 4.3.2 (Legal and Other Requirements).

AFA's SFM Policy lists four Commitments or Strategies for Compliance with Laws:

1. Meet or exceed all applicable laws, regulations, policies, standards and other requirements to which AFA subscribes
2. Prevent pollution using processes, practices, materials or products that avoid, reduce or control pollution
3. Continuously evaluate compliance with current laws and regulations, and the prevention of pollution
4. Periodic independent audits shall ensure that operations are consistent with established policies and objectives

3.4.2 Aboriginal and Treaty Rights

As stated in the SFM Policy, AFA is committed to:

- Respecting Aboriginal and treaty rights
- Providing participation opportunities for Aboriginal peoples with respect to their rights and interests in sustainable forest management
- Working co-operatively with local aboriginal communities to identify and implement ways of achieving a more equal participation by aboriginal communities in the benefits provided through forest management planning in Algonquin Park

Negotiations are ongoing with respect to an Aboriginal land claim that affects a portion of the DFA. AFA is committed to monitoring the progress of the land claim and recognizing associated treaty rights once finalized. It is understood by AFA and Aboriginal community members that participation in the CSA consultation process will not prejudice those rights.

3.4.3 DFA Related Workers

AFA promotes the legal, constitutional rights and health and safety of DFA related workers (i.e. employees and contractors to AFA). The Ministry of Natural Resources (Ontario Parks) has this responsibility for other DFA related workers.

AFA's commitment to health and safety includes:

- Providing conditions and safeguards for the health and safety of workers and the public
- Establishing and communicating safe working habits to employees of the Authority and its contractors
- Organizing training programs for AFA employees and assist contractors in their training programs
- Maintaining and communicating emergency response plans and procedures

DFA related workers contributions to SFM are encouraged through training and SFM awareness programs.

3.5 Legal Requirements

MSP 4.3.2 (Legal and Other Requirements) of the Authority's EMS includes methodologies and responsibilities for identifying, accessing, reviewing, monitoring and maintaining Legal and Other Requirements documentation.

4.0 Planning and Public Participation Processes

4.1 Public Consultation Process Approach

Public participation is a vital component of sustainable forest management. It provides an opportunity for stakeholders and interested parties to be involved proactively in the management of a Defined Forest Area (DFA) and to enhance their knowledge of Sustainable Forest Management (SFM) and of other interests and values related to the forest.

AFA has developed and will maintain and continually improve a public participation process that meets the requirements of the CAN/CSA-Z809-02 standard. The public participation process respects existing authority for decisions associated with the use and management of the Algonquin Park Forest and will not change existing public policies, laws, and regulations established by governments.

The public participation process began with a thorough stakeholder analysis to identify persons/organizations affected by or interested in forest management in the Algonquin Park Forest. The stakeholder analysis formed the basis for the public involvement process and was used to ensure representation from a broad range of interested parties, including DFA-related workers.

AFA then developed a Public Participation Plan (Appendix C), which included:

- Goals
- Timelines
- Strategy for identifying issues, values and potential stakeholders and the results of the stakeholder analysis
- Commitment to Aboriginal consultation
- Strategy for greater public consultation
- Strategy and draft terms of reference for Advisory Group consultation
- Strategy for internal and external communication
- Consultation schedule

Implementation of the Public Participation Plan began in June of 2006 with an invitation to participate in the Advisory Group being sent to Aboriginal communities and the selection of Advisory Group members from the list of identified stakeholders. An Advisory Group consisting of 19 members was established in September 2006 and eight meetings were held between October 23, 2006 and September 11, 2007.

4.1.1 Internal and External Communication

Internal and external communications were achieved through presentations to DFA workers and Advisory Group members, public notices in local newspapers, SFM information on the AFA

website, a public survey and letters to key environmental groups. Samples of communications are included in the Appendices.

4.1.2 Representation from Across the DFA

Due to the unique nature of Algonquin Park and the diverse range of values of importance to local stakeholders and recreational visitors, AFA focused considerable effort on the identification of stakeholders, interests and values for the DFA in order to seek representation from a broad range of interested parties during development of the SFM Plan.

AFA staff, with the assistance of KBM Forestry Consultants, conducted a preliminary review of the values, issues and stakeholders associated with forest management activities within the DFA. This exercise resulted in an initial list of issues, potential interest groups and stakeholders. A further review of the Algonquin Provincial Park Management Plan, the Algonquin Park Forest Management Plan and the consultation summary from the planning process resulted in the identification of an expanded list of potential issues and stakeholders and served to confirm the list provided in discussions with AFA. Finally, a review of recent issues in the media surrounding logging activity in the Park resulted in the further confirmation of the expanded list of issues, potential interest groups and stakeholders and resulted in additional potential stakeholders

The combined lists of values, issues and potential stakeholders were assembled into a Stakeholder Analysis Chart (refer to the Public Participation Plan in Appendix C) to facilitate the selection of representatives for the public consultation process. The stakeholder analysis represents an objective and transparent identification of stakeholder interests and ensures representation from a broad range of interested parties from across the DFA, including DFA-related workers.

AFA selected nineteen key individuals from the list of identified stakeholders to serve as the Advisory Group. The resulting group represented all of the key stakeholders on the DFA and was highly effective in provided balanced representation across the forest. Participation and attendance at Advisory Group meetings was exemplary.

4.1.3 Advisory Committee Terms of Reference

An Advisory Group was formed to provide input into sustainable forest management, and to offer input, advice and recommendations to the AFA regarding certification. Membership to the Advisory Group was on an invitation basis and does not imply agreement with all the contents of the SFM plan and activities.

The Advisory Group was expected to work with the AFA and interact to:

- Confirm values, objectives, indicators and targets and identify additional ones based on the CSA SFM elements,
- Assist in developing alternative strategies to be assessed,
- Review the SFM plan,
- Assist in designing monitoring programs, evaluate results and recommend improvements,
- Discuss and provide advice on issues relevant to sustainable forest management on the defined forest area,

- Liaise with member organizations and keep them informed about sustainable forest management activities in the defined forest area and participation in the Advisory Group,
- Meet with internal and external auditors when the SFM system is audited, if requested,
- Review the SFM Annual Report, and
- Review the external audit report provided though the certification process

Membership of the Advisory Group includes representatives from the following groups or organizations:

- Algonquin Nation Kijicho-Manito (Bancroft)
- Bonnechere Algonquin First Nation
- Whitney Algonquins Recreational Users
- Algonquins of Pikwakanagan
- Ardoch Algonquin First Nation
- Municipality – County of Renfrew
- Local Citizens Committee
- Government (Ontario Parks)
- Forest industry and forestry contractors
- Leaseholders
- Recreationalists
- Tourism outfitters
- General public
- Friends of Algonquin
- Environmental Protection Group
- Anglers/hunters and groups (OFAH)
- Research
- Archaeologist/cultural heritage
- AFA Board of Directors

The Advisory Group's Terms of Reference is included in Appendix D. The Terms of Reference identify the decision making process using a consensus-based approach. Discussion regarding each VOIT is captured in the Advisory Group meeting minutes in Appendix E. Minutes of all meetings where reviewed and accepted by the Advisory Group. This often resulted in a revision to the minutes in order to ensure that opinions and discussion were accurately recorded. In addition, when a lack of consensus occurred, a decision was made to record dissenting opinions in the meeting minutes (refer to meeting #5 minutes discussion – page 4).

4.2 Aboriginal Consultation

Aboriginal peoples hold a unique position in Canada and as such, have a legally protected right to participate in the development and review of resource management strategies or plans in areas they assert to be traditional territories, including Crown lands outside areas where treaties apply.

The CAN/CSA-Z809-02 standard recognizes: that Canadian forests have special significance to Aboriginal peoples, that the legal status of Aboriginal peoples is unique and that they possess special knowledge and insights concerning SFM derived from their traditional practices and experience. The standard concludes that Aboriginal forest users and communities require unique consideration in the public participation process and should be given an opportunity to

contribute their special knowledge to the process of setting values, objectives, indicators, and targets.

AFA encouraged Aboriginal forest users and communities to become involved by:

- Contacting all communities involved in the Algonquin Land Claim process through a letter of invitation to participate in the Advisory Group;
- Following up with all communities where no response was received to encourage their participation in the process;
- Confirming with adjacent SFLs and MNR Districts that all potentially affected Aboriginal communities have been identified;
- Working with representatives from four communities on the Advisory Group. Initially 5 communities were represented however one representative withdrew from the process citing inadequate remuneration to participate. This issue was brought back to the AFA Board of Directors at a December 2006 meeting and their initial decision not to pay per diems for attending Advisory Group meetings was unchanged;
- Contacting the Principal Negotiator to advise him of Advisory Group developments and to encourage the ongoing participation in the process by the Algonquin communities;
- Recognizing Aboriginal and treaty rights and agreeing that Aboriginal participation in the public participation process would not prejudice those rights

4.3 Consultation Summary

In developing the SFM Plan, AFA prepared and implemented a Public Participation Plan (Appendix C). Specific consultation efforts included:

- Invitations to participate in the Advisory Group to representatives of major stakeholder groups;
- Letters of invitation to participate in the Advisory Group to Aboriginal communities;
- Letter to the Principal Negotiator of the Algonquin Land Claim;
- 8 Advisory Group meetings;
- SFM advertisements in local newspapers;
- Letters to ENGO groups;
- SFM information on the AFA website;
- Public survey;
- Information presented at annual Loggers Day (2006 and 2007) in Algonquin Park (over 1,000 attending each year).

A summary of the input received consists of:

- Minutes from eight Advisory Group meetings (Appendix E)
- Public survey results (Appendix F)
- Summary of public input (Appendix F)

All of the public input received during the development on this SFM Plan was received either through the Advisory Group and associated meetings, or from the Public Survey that was posted on the AFA Internet site. No other public input was received.

4.4 Continuing Role of Advisory Group

Public participation through the Advisory Committee is an ongoing process of providing input into the continual improvement of the AFA's SFM system and performance. Advisory Group

input will continue during the monitoring and follow-up phases of implementation of the CSA SFM system.

The Advisory Group will continue to meet annually and members will be asked to:

- Identify opportunities for improvement.
- Discuss and provide input into issues relevant to SFM on the DFA.
- Provide input during reviews of values, objectives, indicators and targets.
- Provide input on monitoring programs.
- Review Annual Reports.
- Provide input on new components of the SFM Plan
- Participate in an external certification audit if asked.

5.0 Values, Objectives and Performance Indicators

5.1 Development of the Values, Objectives and Performance Indicators

The CSA Standard provides the following definitions for values, objectives, indicators and targets, which form the basis of the SFM Plan:

Value - A DFA characteristic, component, or quality considered by an interested party to be important in relation to a CSA SFM element or other locally identified element

Objective - A broad statement describing a desired future state or condition of a value

Indicator - A variable that measures or describes the state or condition of a value

Target - A specific statement describing a desired future state or condition of an indicator; targets should be clearly defined, time-limited, and quantified, if possible

Values, objectives and performance indicators included in this SFM Plan were developed through the public consultation process associated with the 2005-2025 Algonquin Park Forest Management Plan and the consultation process for the SFM Plan. At least one DFA-specific Value, Objective, Indicator, and Target (VOIT) has been created for each CCFM SFM criterion and CSA SFM element associated with the CAN/CSA-Z809-02 Standard. Refer to Table 2 for details.

Early in the consultation process with the advisory group, AFA developed a seed document of proposed VOITs and presented that to the advisory group. After extensive discussion around the seed document, it was decided to step back in the process and engage the advisory group in a detailed discussion of the values that they and/or their stakeholders consider most important for Algonquin Park. This discussion was conducted at the third meeting held in Pembroke on January 8/9th, 2007, along with a presentation to the advisory group on participatory decision-making. This was a critical meeting in order to ensure that the most important values and objectives were identified and considered by the advisory group members and addressed within the SFM Plan VOITs. Based on this input, the original seed document VOIT matrix was reviewed and revised to ensure that all identified values and objectives were discussed with the group and addressed.

Many of the indicators associated with the forest management plan were subjected to an analysis of management alternatives (refer to section 5.2 of the SFM Plan). Those indicators developed by the advisory group were subjected to a thorough discussion with all advisory group members. A range of alternative indicators and targets were discussed with the advisory group prior to deciding on the final VOITs for each element.

The following table summarizes the link between the plan's VOITs and the CCFM elements, and indicates the source of the indicators.

Table 2: Link between indicators, CSA/SFM elements, and the CCFM criteria.

CCFM Criterion	CSA SFM Element	Indicator Type	Indicator	Indicator Source	Assessment of Management Alternatives
1	1.1	Forecasting	1.1.1.1.1 - Ecosite area (hectares) over time	FMP	Yes
		Forecasting	1.1.1.1.2 - Old age classes red and white pine	FMP	Yes
		Forecasting	1.1.1.1.3 - Hemlock presence	FMP & SFM	Yes
		Forecasting	1.1.1.2.1 - Range of disturbance patch sizes within the Bounds of Natural Variation (BNV)	FMP	No
	1.2	Forecasting	1.2.1.1.1 - Area of habitat for forest-dependent provincially and locally featured species	FMP and SFM	Yes
		Forecasting	1.2.1.1.2 - Critical habitat for forest-dependent Species at Risk (SAR)	FMP & SFM	No
		Compliance	1.2.1.2.1 - Riparian buffers	FMP	N/A
		Monitoring	1.2.2.1.1 - Status of red spruce as documented in tree marking records, Silvicultural Effectiveness Monitoring records and the use of local knowledge	SFM	N/A
		Monitoring	1.2.2.2.1 - Hemlock regeneration and recruitment status	FMP & SFM	N/A
	1.3	Compliance	1.3.1.1.1 - Application of tree marking guidelines	FMP	No
		Compliance	1.3.1.1.2 - Proportion of seed used in artificial renewal derived from appropriate seed zone	FMP & SFM	No
	1.4	Compliance	1.4.1.1.1 - Identification and protection of zone boundaries	FMP	No
2	2.1	Monitoring	2.1.1.1.1 – Area successfully regenerated	FMP & SFM	No
	2.2	Monitoring	2.2.1.1.1 - Crown Managed Production Forest Area	SFM	No
3	3.1	Compliance	3.1.1.1.1 - Rate of compliance for soil conservation with the AFA site impact guidelines	FMP & SFM	No

CCFM Criterion	CSA SFM Element	Indicator Type	Indicator	Indicator Source	Assessment of Management Alternatives
	3.2	Compliance	3.2.1.1.1 - Proportion of water crossings that are properly installed and removed	FMP & SFM	No
		Compliance	3.2.1.1.2 - Compliance with prescriptions developed for the protection of water quality and fish habitat	FMP & SFM	No
		Compliance	3.2.1.1.3 - Number of spills that enter waterbodies	EMS & SFM	No
		Monitoring	3.2.1.2.1 - Impacts of aggregate pits on water quality and quantity, as measured in established monitoring wells	SFM	No
4	4.1	Monitoring	4.1.1.1.1 - Carbon storage capacity in the Defined Forest Area as calculated by the FORCARB-ON model	SFM	No
	4.2	Monitoring	4.2.1.1.1 - Managed production forest area	SFM	No
5	5.1	Forecasting	5.1.1.1.1 - Long-term projected available harvest volume by product	FMP	Yes
		Monitoring	5.1.1.2.1 Directly link wood supply commitment to long term, sustainable wood supply volume	MNR & SFM	No
		Monitoring	5.1.1.3.1 – Certification status	SFM	No
		Monitoring	5.1.2.1.1 - Number of documented public complaints about forestry impacts on back-country recreation	SFM & EMS	No
		Communication	5.1.2.1.2 - Provision of information with respect to location of planned forest operations on the AFA website.	SFM	No
		Monitoring	5.1.3.1.1 - On going research/ assessment	SFM	No
		Monitoring	5.1.3.1.2 - Clarification of sensitive vs. non-sensitive information	SFM	No
		Communication	5.1.3.2.1 - Establishment of website linkages to information (within the constraints of confidentiality) and promotion of cultural heritage events	SFM	No
		Compliance	5.1.4.1.1 - Compliance with Area of Concern prescriptions which schedule operations such that there is a separation in time and/or space between wilderness recreation and forestry operations	FMP & SFM	No
	5.2	Monitoring	5.2.1.1.1 - Managed Crown Forest area available for timber production	FMP	Yes
		Monitoring	5.2.1.1.2 - Amount of available harvest volume utilized (short term)	FMP	Yes

CCFM Criterion	CSA SFM Element	Indicator Type	Indicator	Indicator Source	Assessment of Management Alternatives
		Monitoring	5.2.1.1.3 - Value added per cubic metre	FMP & SFM	Yes
		Monitoring	5.2.1.2.1 - Number of local production facilities (wood supply commitment holders) that utilize wood fibre from the DFA	FMP & SFM	No
		Monitoring	5.2.1.3.1 - Available wood volume offered to local production facilities	SFM	No
		Compliance	5.2.2.1.1 - Compliance with the cottage/lease AOCs	FMP	No
	5.3	Monitoring	5.3.1.1.1 - Crown timber stumpage paid to government consolidated revenues	FMP	Yes
		Monitoring	5.3.2.1.1 - Percentage of total volume harvested by Algonquin Aboriginal organizations/people	FMP & SFM	No
		Monitoring	5.3.2.1.2 - Percentage of tree marking by Algonquin Aboriginal organizations/people	FMP & SFM	No
		Monitoring	5.3.2.1.3 - Provide Algonquin Aboriginal organizations/people fair sharing of economic opportunities when available	FMP & SFM	No
		Monitoring	5.3.2.2.1 - Increased participation (of Aboriginal organizations/people)	FMP & SFM	No
		Monitoring	5.3.3.1.1 - Interior visitor days per year	SFM	No
		Monitoring	5.3.3.1.2 - The amount of revenue generated by the visitor days	SFM	No
6	6.1	Compliance	6.1.1.1.1 - Respect and allow for Aboriginal treaty rights during management of forest resources/ harvesting within the DFA	FMP & SFM	No
	6.2	Monitoring	6.2.1.1.1 - Opportunities for involvement provided to, and involvement of, Aboriginal communities in forest management planning activities	FMP & SFM	No
	6.3	Monitoring	6.3.1.1.1 - SFM public participation evaluation by the Advisory Group	SFM	No
		Monitoring	6.3.1.1.2 - SFM public participation evaluation by the broader public	SFM	No
	6.4	Monitoring	6.4.1.1.1 - SFM education	SFM	No
		Monitoring	6.4.1.1.2 - Forestry research funding and/or in-kind assistance	SFM	No
		Monitoring	6.4.1.1.3 - Local Citizens Committee self-evaluation of its effectiveness in forest management plan development	FMP	No

CCFM Criterion	CSA SFM Element	Indicator Type	Indicator	Indicator Source	Assessment of Management Alternatives
		Communication	6.4.1.2.1 - Efforts made to create awareness of certification designation on the DFA	SFM	No

As shown in Table 2, many of the SFM Plan indicators are associated with the current (2005) forest management plan, and as such were assessed during the planning and public consultation process for the FMP. The management alternatives associated with the FMP are discussed in the following section, and the detailed VOITs are presented in section 5.3.

5.2 Management Alternatives

According to Ontario's legislated FMP development process, as described in the 1996 FMPM, planning teams develop a range of management alternatives. Each management alternative is comprised of a set of specific management objectives, each with quantified targets, and management strategies which aim to achieve these objectives. A number of management alternatives, involving different combinations of objectives, targets and management strategies were identified by the planning team, with the assistance of the local citizens committee, and each management alternative must be analysed to assess the ability of the forest to produce the desired benefits or outcomes over time. In this way, the planning process in Ontario connects well with aspects of the CSA Standard, and the DFA's approved 2005 FMP contributed to the development of this SFM Plan, as noted in Table 2 in the previous section.

Four management alternatives, involving different combinations of objectives, targets and management strategies were identified. Each management alternative was analysed to assess the ability of the forest to produce the desired benefits or outcomes over time. Management alternatives were analyzed using both spatial and non-spatial models. All management alternatives received the initial non-spatial tests of sustainability, while the selected management alternative underwent a further spatial assessment for the areas selected for operations. The end result of this analysis was the determination of sustainability for each management alternative.

Three mandatory alternatives are required under the 1996 *Forest Management Planning Manual* (FMPM), and one additional alternative was used in the development of the 2005 FMP. The objective for all alternatives is to produce the forest product targets while ensuring that old growth targets, wildlife habitat, forest cover types (ecosites) and ecosite groups by development stage groups are maintained within the bounds of variation from the natural benchmark scenario. The FMP objectives were constant for all alternatives, but each alternative has a different management emphasis.

Alternative #1 (MA1) assessed the timber production potential of the forest based on available revenues for silvicultural funding. The purpose of this management alternative was to determine the timber production potential of the Algonquin Park Forest based on having a limited amount of silvicultural funding. The assumption was that available silvicultural funding will not meet all of the forest management renewal and tending obligations, and thus timber production potential will not be maximized.

Alternative #2 (MA2) assessed the timber production potential of the forest based on the assumption that all required silvicultural funding was available. The assumption of this alternative was that unlimited forest management funding is available, thus the maximum timber production potential of the forest will be realized.

Alternative #3 (MA3) provided for the anticipated industrial demand for timber, assuming that all required silvicultural funding was available. Anticipated demand values were provided by MNR Regional Office, based upon MNR-recognized operating levels for mills that receive wood from Algonquin Park. These inputs were entered as minimum harvest volume targets by species group.

The Preferred Management Alternative (MA4) was similar to MA1 in that this management alternative assessed the timber production potential of the forest based on available revenues for silvicultural funding. In addition, this management alternative applied more harvest area controls (by forest unit) in order to produce a more even flow of harvest area and volume over time. This management alternative also provided for improved levels of wildlife habitat for certain species, including white tailed deer (winter), snowshoe hare, moose winter habitat and white-throated sparrow.

All of the management alternatives contained minimum harvest area constraints by forest unit. These constraints were mainly applied for only the first term and were necessary to ensure historical minimum levels of harvest area in certain forest units and to avoid significant first term fluctuations that are sometimes produced by SFMM (Strategic Forest Management Model) as it tries to maximize the value of timber harvested over the planning horizon.

5.2.1 Assessment of Management Alternatives

Each of the four management alternatives was analyzed in SFMM against the “benchmark alternative”. The benchmark, or what is sometime referred to as the “natural disturbance scenario”, depicts how the forest might develop over time in the absence of human intervention, based on the most current level of knowledge on disturbance patterns.

Alternative MA4 provided slightly more old growth forest in the future (2025) because it incorporates a lower available harvest area (AHA) for the white pine forest unit than the other alternatives. However, all alternatives met the old growth requirement for 25% of the white/red pine forest unit group to be 120+ years of age in 2025.

The main difference between the MAs lies in their ability to meet the wood supply requirements and wildlife habitat objectives over a 100-year period. The selected management alternative (MA4) achieved the highest ranking for both of those criteria.

All management alternatives met the socio-economic objectives; however, MA4 performed the best with respect to socio-economic objective achievement. MA4 has tighter constraints that restrict harvest area and volume more than other alternatives, providing a more balanced, predictable supply and even flow. MA4 also provides a more consistent supply of pine sawlogs and red pine poles over 100 years because it utilizes a lower allowable harvest area than the other alternatives, and thus provides a more consistent supply from term to term.

MA4 was the only management alternative that achieved all of the wildlife objectives. For white tailed deer winter habitat, MA4 came the closest to mimicking the natural benchmark trend over time. MA4 also displays a more stable habitat over time for this species compared to the other

management alternatives. MA4 is the only management alternative to meet the moose winter habitat objective for all of the first 10 terms and comes closest to the natural benchmark trend over time. Also, the white-throated sparrow habitat objective was met by MA4 and habitat levels for this species were above the targeted 39,000 hectares for 9 of the first 10 terms, compared to only 4 of 10 terms in MA1/2 and MA3.

Overall, the mandatory alternatives (MA1 through 3) have greater silvicultural revenues than the selected management alternative because of the higher level of pine and hardwood that is harvested in the first term and the greater associated stumpage revenues attached to those species; however, for each of the terms silvicultural revenue exceeds expenditures for all management alternatives.

In the socio-economic impact assessment model (SEIM) analysis of the above four outputs, MA1 and 2 had the highest ranking, MA3 was ranked second and MA4 was rated third. The preferred alternative (MA4) was rated 3rd because of lower employment, salary and value-added levels; however, the higher ratings of the first three alternatives are tied directly to the higher amount of pine and hardwood sawlogs they would harvest in the first five-year term of the FMP. Alternative 4 (MA4) harvests lower conifer and hardwood volumes and as a result has the lowest ranking of all the sustainable alternatives according to the SEIM analysis. However, SEIM only looks at a 5 year period of time and MA4, while rated lowest in the first 5 years, is most sustainable over entire set of terms.

5.3 Detailed Values, Objectives, Indicators and Targets

The following pages include the detailed VOITs for this SFM Plan. Figure 2 demonstrates the links between short-term operational plans, legislation and the SFM Plan.

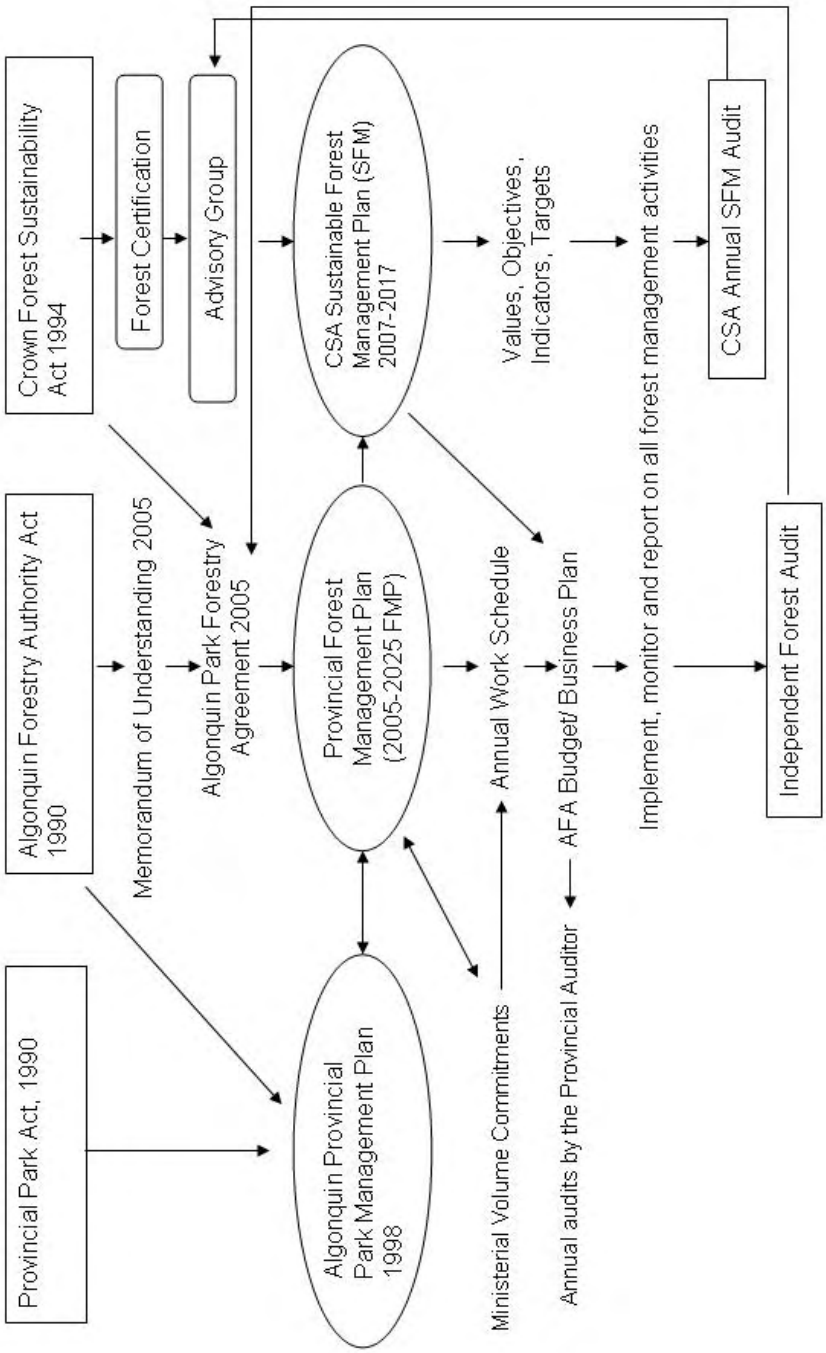

Figure 2. Links between short-term operational plans, legislation and the SFM plan

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.1 Ecosystem Diversity
Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur on the Defined Forest Area.

VALUE: 1.1.1 Forested Ecosystems

OBJECTIVE: 1.1.1.1 To maintain a mosaic of constantly changing yet ever-present forest types within the Bounds of Natural Variation.

Indicator 1.1.1.1.1	Target	Variance
Ecosite area (hectares) over time	Maintain ecosites within acceptable levels* of the Bounds of Natural Variation (BNV) for the next 100 years	+/- 20 % of the 2005 FMP natural benchmark scenario

** Acceptable levels as defined by the "Landscape Analysis and Assessment Paper for Southcentral Region Management Units" - MNR Planning Direction 2003.*

What is this indicator and why is it important?
There is a diverse population of tree species within the Algonquin Park Forest. These species tend to be associated in stands with similar physical and ecological features. Ecosites are developed to allow managers and planners to describe the Algonquin Park Forest types in detail. Based on the classification used in the 2005 Forest Management Plan, there are 25 ecosites in Algonquin Park. These are described in Chambers *et. al*. 1997[1] and McCarthy *et. al.*1994[2]. The proportion will vary from time to time due to ecological factors and Sustainable Forest Management (SFM) activities. The Bounds of Natural Variation define the threshold levels for each ecosite. Conceptually, the Bounds of Natural Variation represent the range of ecosystem behavior that might exist in the absence of further human interference. It is important to maintain acceptable levels of each ecosite in order to support other values such as wildlife or plant habitat types.

Current Status
All 25 ecosites are currently within the target range. See Table FMP-13 (2005 FMP).

Forecast
All ecosites are forecast to remain within the Bounds of Natural Variation for the next 100 years with the exception of ecosite 15. Current analysis shows that the lack of ability to manage stand conditions in the unmanaged portion of the Forest (nature reserve and wilderness) will result in a loss of jack pine area over time (ecosite 15). An effort is being made to counter the loss of jack pine in the unmanaged areas by ensuring the maintenance of jack pine area in the managed portion of the Forest. At five to ten year intervals, the planned forest management activities and projected natural disturbance and succession events will be forecast for subsequent years and reported in Table FMP-13.

Management Strategies and Implementation
Harvest areas will be allocated carefully and appropriate silviculture systems will be utilized in order to maintain ecosite representation within the Bounds of Natural Variation. Harvest constraints will maintain minimum ecosite area thresholds and areas will be regenerated to their planned forest unit according to the preferred or alternative Silviculture Ground Rule (Table FMP-10, 2005), as specified in the Forest

[1] Chambers, B.A., B. J. Naylor, J. Nieppola, B. Merchant and P. Uhlig. 1997. Field guide to forest ecosystems of central Ontario. Ontario Ministry of Natural Resources, Southcentral Sciences Section, North Bay. SCSS Field Guide FG-01.
[2] McCarthy, T.G., R.W. Arnup, J. Nieppola, B.G. Merchant, K.C. Taylor and W.J. Parton. 1994. Field guide to forest ecosystems of northeastern Ontario. Ontario Ministry of Natural Resources, North East Science and Technology, Timmins. Field Guide FG-001.

Operations Prescription. A minimum of 1,750 hectares of the jack pine forest unit will be maintained in the available forest over the next 100 years.

Research and Monitoring Plan
It is the responsibility of the Algonquin Forestry Authority to monitor the status of appropriate ecosites. A current Forest Resources Inventory is critical to this plan. Annual monitoring of depletion and renewal activities will allow the inventory to be updated at regular intervals. Based upon new inventory data and updates from depletion and renewal activities, a new status report and future projection of ecosites will be produced for the 2010 Forest Management Plan. Subsequent forest management plans are scheduled to be produced every ten years afterward.

Comparative Assessment of Planned versus Actual Levels
The assessments are scheduled for 2010 and 2020. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.1 Ecosystem Diversity
Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur on the Defined Forest Area.

VALUE: 1.1.1 Forested Ecosystems

OBJECTIVE: 1.1.1.1 To maintain a mosaic of constantly changing yet ever-present forest types within the Bounds of Natural Variation.

Indicator 1.1.1.1.2	Target	Variance
Old age classes red and white pine	Achieve 25% of the area of red and white pine forest units in old age classes (>120 years) on the DFA landscape by 2025. Planning direction as required under the FMP process in Ontario will be followed.	0

What is this indicator and why is it important?
Red and white pine have long been desired as species that can achieve old growth. This popular notion was further acknowledged in Ontario by the *Conservation Strategy for Old Growth Red and White Pine Forest Ecosystems for Ontario* (1995). The goal of this strategy was "to ensure that red and white pine ecosystems, including old growth stands, are present on the landscape of Ontario now and into the future, while permitting a sustainable harvest of red and white pine." This indicator is important to maintain the diversity of flora and fauna that old growth red and white pine ecosystems support.

Current Status
Table FMP-12 (2005 FMP) shows a baseline of 17% in 2005. Levels are forecast to increase to 43% by 2025.

Forecast
At five to ten year intervals, the planned forest management activities and projected natural disturbance and succession events will be forecast for subsequent years and reported in Table FMP-13.

Management Strategies and Implementation
The balance between old growth retention and recruitment from younger age classes will be optimized. Harvest areas will be allocated carefully to avoid unnecessary loss of old growth red and white pine and appropriate silviculture systems will be utilized in order to maintain old growth representation. Areas will be regenerated to their planned forest unit according to the preferred or alternative Silviculture Ground Rule (Table FMP-10, 2005), as specified in the Forest Operations Prescription. This will allow new stands of old growth to replace those lost to natural causes and harvesting. These strategies are reflected in the 2005 Forest Management Plan currently being implemented.

Research and Monitoring Plan
Similar to the previous indicator, it is the responsibility of the Algonquin Forestry Authority to report on the area of old growth red and white pine ecosystems. A current Forest Resources Inventory is critical to this plan. Annual monitoring of depletion and renewal activities will allow the inventory to be updated at regular intervals. Based upon new inventory data and updates from depletion and renewal activities, a new status report and future projection of old growth red and white pine will be produced for the 2010 Forest Management Plan. Subsequent forest management plans are scheduled to be produced every ten years afterward. In addition, the 2010 Forest Management Plan will be prepared using the new *Old Growth Policy for Ontario's Crown Forests* (OMNR, 2003). It is expected that this will impact the scope and methodology for old growth planning in the Algonquin Park Forest.

Comparative Assessment of Planned versus Actual Levels
The assessments are scheduled for 2010 and 2020. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.1 Ecosystem Diversity
Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur on the Defined Forest Area.

VALUE: 1.1.1 Forested Ecosystems

OBJECTIVE: 1.1.1.1 To maintain a mosaic of constantly changing yet ever-present forest types within the Bounds of Natural Variation.

Indicator 1.1.1.1.3	Target	Variance
Hemlock presence	Maintain the hemlock forest unit within acceptable levels* of the Bounds of Natural Variation (BNV) for the next 100 years. Calculate forest unit BNV using new science as it becomes available.	+/- 20 % of the 2005 FMP natural benchmark scenario

Acceptable levels as defined by the "Landscape Analysis and Assessment Paper for Southcentral Region Management Units" MNR Planning Direction 2003.

What is this indicator and why is it important?
Hemlock provides an important habitat for several wildlife species, especially deer, in the winter. Many species such as barred owl, blackburnian warbler, northern flying squirrel, and pine marten make extensive use of the hemlock forest. Values include shelter, food and perching sites. Hemlock is a heavily used browse species for deer and moose and the seeds provide food for small mammals and birds. Kershaw (1991) states that hemlock contributes to biodiversity both at the stand and landscape level. The presence of hemlock in the hardwood forest adds to species diversity within the stand. At the landscape level, islands and corridors of hemlock aid in the dispersal of animal species from one area to another. Hemlock is of low value as a commercial lumber species.

Current Status
The hemlock working group occupies 40,288 hectares or 6.5% of the total productive forested land in the Park This area has increased since 1995 (AFA FRI updates) as a result of forest management practices. Recent science (OMNR - 2007 Landscape Guide) indicates that hemlock levels in Algonquin Park are currently above the simulated range of natural variation (SRNV) for the Algonquin Park Forest. About 85% of this working group is however in the late successional stage, with little area identified in the FRI in the regeneration and immature stages. Hemlock studies in the Park (Vasiliauskas, 1995) have shown that the lack of younger age classes is a result of extensive deer browsing in the early 1900s and current browsing by moose. Hemlock was also heavily cut during the 1960s for construction ties to be used in the Toronto subway, and many of these stands are now typed as MhHeBy ecosite. Areas restricted from forest management activities contain 23% of the hemlock working group area.

Forecast
At five to ten year intervals, the planned forest management activities and projected natural disturbance and succession events will be forecast for subsequent years and reported in Table FMP-13.

Management Strategies and Implementation
Changes were made to Algonquin Provincial Park tree marking prescriptions in the early 1990s to maintain more hemlock and a strategy to get hemlock from the regeneration stage to free-growing status was developed with the 2000-2020 Forest Management Plan. The 1997 independent forest audit recommended that a hemlock management strategy be developed. The 2005 plan addresses hemlock establishment, ensuring seedling growth to the free growing stage, in an integrated wildlife/forestry approach and the hemlock forest unit was changed from a uniform shelterwood to a selection forest unit

(HeSEL) in order to more effectively manage regeneration and ensure its establishment and recruitment into the forest canopy. The *Hemlock Strategy for Algonquin Park Forest* is in Appendix 16 of the 2000-2005 Forest Management Plan.

Research and Monitoring Plan
Similar to the previous indicator, it is the responsibility of the Algonquin Forestry Authority to report on the status of hemlock ecosystems. A current Forest Resources Inventory is critical to this plan, however, hemlock regeneration and younger age classes do not appear in the FRI because they exist as an understory. An additional VOIT (1.2.2.2) has been created to further investigate hemlock regeneration and recruitment status. Annual monitoring of depletion and renewal activities will allow the inventory to be updated at regular intervals. Based upon new inventory data and updates from depletion and renewal activities, a future projection of hemlock will be produced with the 2010 Forest Management Plan. Subsequent forest management plans are scheduled to be produced every ten years afterward.

Comparative Assessment of Planned versus Actual Levels
The assessments are scheduled for 2010 and 2020. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.1 Ecosystem Diversity
Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur on the Defined Forest Area.

VALUE: 1.1.1 Forested Ecosystems

OBJECTIVE: 1.1.1.2 To maintain landscape diversity by minimizing landscape fragmentation.

Indicator 1.1.1.2.1	Target	Variance
Range of disturbance patch sizes within the Bounds of Natural Variation (BNV)	A distribution of disturbance areas that will result in a patch size pattern over the long term that shows movement towards natural disturbance frequency by size class. Use new science as it becomes available.	Within the BNV

What is this indicator and why is it important?
This indicator relates to Ontario's direction to emulate natural disturbance patterns through forest management. At the landscape (or DFA) level, this is accomplished by maintaining a range of disturbance patch sizes that emulates (as closely as possible) the patterns that would be created naturally by fire, blow-down, insect outbreaks, and gap-phase dynamics. It is assumed that by maintaining a landscape pattern that emulates natural disturbances, a variety of habitats and ecosystems will be maintained, consistent with the bounds of natural variation.

Current Status
Appendix 8 of the 2005-2025 FMP outlines the current and forecasted disturbance frequency distribution by size class. As discussed in section 5.5.2.8 of the FMP, movement towards the regional template has been accomplished as four of the six size (0 to 10 ha, 11 to 70 ha, 261-520 ha and 521+ ha) classes are showing movement towards the regional median disturbance frequency from 2005 to 2010.

Forecast
At five to ten year intervals, the planned forest management activities and projected natural disturbance and succession events will be forecast for subsequent years and reported in Table FMP-12. An analysis of forest disturbances will be completed with the year 7 and year 10 annual reports.

Management Strategies and Implementation

Research and Monitoring Plan
Similar to the previous indicator, it is the responsibility of the Algonquin Forestry Authority to monitor the sizes of disturbances (harvest and natural disturbance). A current Forest Resources Inventory is critical to this plan. Annual monitoring of depletion and renewal activities will allow the inventory to be updated at regular intervals.

Comparative Assessment of Planned versus Actual Levels
The assessments are scheduled for 2010 and 2020. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats for the native species found on the Defined Forest Area are maintained through time.

VALUE: 1.2.1 Wildlife Species Habitat

OBJECTIVE: 1.2.1.1 To maintain wildlife habitat within the Bounds of Natural Variation.

Indicator 1.2.1.1.1	Target	Variance
Area of habitat for forest-dependent provincially and locally featured species	Maintain wildlife habitat within acceptable levels* of the Bounds of Natural Variation for the selected wildlife species (from Table FMP-5, 2005) for the next 100 years (2105) as required under the FMP process in Ontario.	Lower bound = -20% of the natural benchmark scenario. No upper bound.

** Acceptable levels as defined by the "Landscape Analysis and Assessment Paper for Southcentral Region Management Units" MNR Planning Direction 2003.*

What is this indicator and why is it important?
Forest management activities can impact wildlife species through the maintenance or alteration of their habitat. Many species of wildlife can be found within the Algonquin Park Forest. During preparation of the 2005 Forest Management Plan, 15 wildlife species (mammals, birds and amphibians) representing 18 different habitats (black bear, moose and white-tailed deer each have two habitat types) were analyzed to ensure that habitat availability was not deviating below the threshold limits. The species and habitat types are listed in Table FMP-5 (2005).

Current Status
Of the 18 habitat types, all currently meet the target (2005 FMP).

Forecast
At five to ten year intervals, the planned forest management activities and projected natural disturbance and succession events will be forecast for subsequent years and reported in Table FMP-8.

Management Strategies and Implementation
Forestry practices will continue to be modified to account for habitat needs of the native fauna as new scientific information becomes available and is accepted by the Ministry of Natural Resources. Specific types of wildlife trees will be maintained as per Ministry of Natural Resources guidelines, and provincial wildlife guidelines will continue to be implemented. The 2005 Forest Management Plan will guide the creation of a diversity of habitat conditions within the Bounds of Natural Variation for each ecosite and special provisions will also be made for protecting the habitat requirements of sensitive species. Dialogue with forest industry and logging contractors on the intent and practice of maintaining forest cover for other forest values, will be continued. These strategies are reflected in the forest management plan currently being implemented.

Research and Monitoring Plan
The Algonquin Forestry Authority will monitor the status of habitat for forest-dependent provincially and locally featured species. The analysis requires a current Forest Resources Inventory to determine habitat types based on forest cover. The habitat matrix is developed by government researchers and

scientists[3]. It helps determine the significance of each particular forest stand as preferred and/or used habitat. This assignment of habitat value will change over time as stands age and develop. Based upon actual forest management activities, an updated status report and future projection of wildlife habitat will be produced for the 2010 Forest Management Plan and subsequent forest management plans, scheduled to be produced every ten years afterward.

Comparative Assessment of Planned versus Actual Levels
The calculation of new habitat levels is scheduled for 2010 and 2020.

[3] As of 2004, the matrix is based upon Holloway, G.L., B. J. Naylor, and W. R. Watt, Editors. 2004. *Habitat relationships of wildlife in Ontario. Revised habitat suitability models for the Great Lakes-St. Lawrence and Boreal East forests*. Ontario Ministry of Natural Resources, Science and Information Branch, Southern Science and Information and Northeast Science and Information Joint Technical Report #1. 110p.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats for the native species found on the Defined Forest Area are maintained through time.

VALUE: 1.2.1 Wildlife Species Habitat

OBJECTIVE: 1.2.1.1 To maintain wildlife habitat within the Bounds of Natural Variation.

Indicator 1.2.1.1.2	Target	Variance
Critical habitat for forest-dependent Species at Risk (SAR)	100% compliance with Area of Concern prescriptions for the protection of species at risk habitat (for OPUs with SAR values only).	0

What is this indicator and why is it important?
In 1983, the United Nations identified the need for sustainable development, and a cornerstone of this intention was the maintenance of biological diversity. The loss of species was immediately acknowledged as an issue requiring intense conservation and protection measures, as extinct species cannot be replaced. The *Endangered Species Act* (Ontario) and *Species at Risk Act* (Canada) require the identification, protection and monitoring of species at risk.

There are 7 species at risk that can be found in the Algonquin Park Forest: the Deepwater Sculpin, Shortjaw Cisco, Eastern Hognose Snake, Red Shouldered Hawk, Wood Turtle, Bald Eagle and Eastern Wolf. The first two are fish, found each as isolated and disjunct populations in the Forest and are in no way impacted by forest management activities (*Algonquin Park Biologist, 2005 FMP*). There are only a few dated records of the Eastern Hognose Snake, mainly from the Highway 60 corridor, and its existence in the Forest is in doubt. The Red Shouldered Hawk exists only in several mature hardwood stands in the Forest's extreme south end and in fact may be delisted as a species of concern in Ontario. There is one confirmed nest of the Bald Eagle in the Forest and that was discovered in 2003. Bald Eagles are expanding their range in Ontario and we may expect them to become more common in the Forest (the Bald Eagle is now classed as "special concern" north of the French and Mattawa Rivers, although it is endangered in southern Ontario; see *www.e-laws.gov.on.ca/DBLaws/Regs/English/900328_htm*). The Eastern Wolf has been the subject of intense study since the early 1990s and is the primary issue driving some of the habitat management initiatives in the 2005 Forest Management Plan.

The one remaining species, the Wood Turtle, is in fact the only rare vertebrate in the Forest for which there is a major and immediate provincial (even global) conservation concern. The Wood Turtle, considered "endangered" by Ontario, and listed as a species of "special concern" by the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC), has its major foothold in Ontario in the Algonquin Park Forest where it is found as several presumably disconnected populations on the Forest's east side.

Current Status
2005/06 = 90%
2006/07 = 98%

Forecast
Monitoring indicator - no forecast required.

Management Strategies and Implementation
Forest management activities will be monitored to avoid infringing on species at risk populations and habitat. (See attached Area of Concern category descriptions for species and habitat specific strategies.) Ontario Parks, with the assistance of the Algonquin Forestry Authority, have begun to assess areas in the

Recreation-Utilization Zone that have forest-riparian zone characteristics suitable for the improvement of beaver habitat. This will aid in providing increased prey for the eastern wolves - a species at risk. Small areas, approximately 1 hectare in size, will be harvested and monitored to determine if these forest management actions have a positive effect on beaver populations in these environments. Prescriptions and strategies are already being implemented as species at risk and their habitat are encountered.

Research and Monitoring Plan
Monitoring of this indicator for the purpose of the forest management plan, will be conducted concurrent with the Forest Operations Information Program. From the 2005 Forest Management Plan, the Area of Concern categories that guide prescriptions for the species at risk include: BE – bald eagle nesting site; RSC – red shouldered hawk (nest); WT – wood turtle habitat; WTN – wood turtle nest site; BH – beaver habitat (wolf prey); WRS – wolf rendez-vous site; WDS – wolf den site. Compliance percentages are calculated only on OPUs that contain the applicable AOC types. Both AFA and MNR compliance reports are summarized.

A few key initiatives for some of the species include the Algonquin Forestry Authority partnership on the implementation of the Ministry of Natural Resources' *Algonquin Wolf Advisory Group Report* and 2005 *Strategy for Wolf Conservation in Ontario*. This is reflected in the selection of Area of Concern prescriptions for wolves, including the creation of prey habitat (beavers). The Algonquin Forest Authority is also contributing $5,000 per year for five years (2005-2009, inclusive) to assist with Wood Turtle research and monitoring in the Algonquin Park Forest. The Algonquin Forest Authority has also contributed $20,000 per year for wolf research in the Algonquin Park Forest.

Comparative Assessment of Planned versus Actual Levels
Compliance with Area of Concern prescriptions will be measured annually to ensure the target is being met. Reports will be presented in Annual Report Tables AR-12 and AR-13.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats for the native species found on the Defined Forest Area are maintained through time.

VALUE: 1.2.1 Wildlife Species Habitat

OBJECTIVE: 1.2.1.2 Retain ecological values and functions associated with sensitive brook trout riparian areas.

Indicator 1.2.1.2.1	Target	Variance
Riparian buffers	100% compliance with Area of Concern prescriptions for the protection of fisheries habitat around designated brook trout lakes.	0

What is this indicator and why is it important?
Brook trout rely on groundwater flow to create necessary spawning and rearing habitat. Riparian buffers will ensure the protection of these cold water habitats. These areas are generally stands dominated by cedar, larch, or mixed conifers adjacent to brook trout streams in low-lying areas.

Current Status
2005/06 = 97%
2006/07 = 93%

Forecast
Monitoring indicator - no forecast required.

Management Strategies and Implementation
Self-sustaining brook trout lakes are mapped during FMP development and the BT AOC prescription is applied. In addition, a protocol has been developed between AFA and Ontario Parks to survey the perimeter of all BT lakes prior to operations and identify previously unmapped nursery creeks. When identified, these nursery creeks are protected with the CFH (critical fish habitat) AOC prescription. Operators are trained regularly to ensure they understand how to apply Area of Concern prescriptions in the field.

Research and Monitoring Plan
Compliance percentages are calculated only on OPUs that contain the BT AOC, and includes the CFH (Critical Fish Habitat) AOC. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
Compliance with Area of Concern prescriptions will be measured annually to ensure the target is being met. Reports will be presented in Annual Report Tables AR-12 and AR-13.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats for the native species found on the Defined Forest Area are maintained through time.

VALUE: 1.2.2 Tree Species Diversity

OBJECTIVE: 1.2.2.1 To maintain red spruce in the Defined Forest Area.

Indicator 1.2.2.1.1	Target	Variance
Status of red spruce as documented in tree marking records, Silvicultural Effectiveness Monitoring records and the use of local knowledge	1) Establish/maintain operational controls to ensure the identification and management of red spruce as encountered within the Recreation/Utilization Zone. 2) Produce a map showing known historic and present red spruce areas by March 31, 2009.	As reported annually

What is this indicator and why is it important?
Red spruce is uncommon in the Province, being primarily associated with the Maritimes. In Ontario red spruce exists on the western edge of its natural range. Red spruce has experienced a decline in abundance and vigor throughout its entire range during the last 50 years. This VOIT is important to establish the level of abundance of red spruce in the DFA and ensure its maintenance over the long term.

Current Status
There are no red spruce stands or species identified in the Algonquin Park FRI. Known occurrences of red spruce are protected in the following 3 Natural Zones: N45 - Cauliflower Lake Sr zone, N46 - Bruton and Clyde Sr zone, N47 - Oak Lake Sr zone. Red spruce regeneration has been noted on several occasions during field operations, especially in the south-western part of the DFA.

Forecast
Monitoring indicator - no forecast required.

Management Strategies and Implementation
Tree marking prescriptions for Sr are contained in the 2005 FMP if encountered. Tree marker training was conducted in 1998, 2001 and 2007 specifically around Sr identification and protection (annual training also).

Research and Monitoring Plan
Refer to target (2) above.

Comparative Assessment of Planned versus Actual Levels
N/A – there are no planned levels for red spruce. Manage as encountered.

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.2 Species Diversity
Conserve species diversity by ensuring that habitats for the native species found on the Defined Forest Area are maintained through time.

VALUE: 1.2.2 Tree Species Diversity

OBJECTIVE: 1.2.2.2 Quantify the status of hemlock in the Defined Forest Area.

Indicator 1.2.2.2.1	Target	Variance
Hemlock regeneration and recruitment status	Establish a committee consisting of members from the Advisory Group, Ontario Parks, Algonquin Ecowatch, AFA and others to review and report on the status of hemlock in Algonquin Park (regeneration and recruitment) by January 1, 2009. This committee will provide recommendations regarding hemlock management in Algonquin Park to the Advisory Group, LCC, Ontario Parks and AFA.	+/- three months

What is this indicator and why is it important?
Hemlock provides an important habitat for several wildlife species, especially deer, in the winter. Many species such as barred owl, blackburnian warbler, northern flying squirrel, and pine marten make extensive use of the hemlock forest. Values include shelter, food and perching sites. Hemlock is a heavily used browse species for deer and moose and the seeds provide food for small mammals and birds. Kershaw (1991) states that hemlock contributes to biodiversity both at the stand and landscape level. The presence of hemlock in the hardwood forest adds to species diversity within the stand. At the landscape level, islands and corridors of hemlock aid in the dispersal of animal species from one area to another. Hemlock is of low value as a commercial lumber species.

Current Status
The hemlock working group occupies 40,288 hectares or 6.5% of the total productive forested land in the Park This area has increased since 1995 (AFA FRI updates) as a result of forest management practices. Recent science (OMNR - 2007 Landscape Guide) indicates that hemlock levels in Algonquin Park are currently above the simulated range of natural variation (SRNV) for the Algonquin Park Forest. About 85% of this working group is however in the late successional stage, with little area identified in the FRI in the regeneration and immature stages. Hemlock studies in the Park (Vasiliauskas, 1995) have shown that the lack of younger age classes is a result of extensive deer browsing in the early 1900s and current browsing by moose. Hemlock was also heavily cut during the 1960s for construction ties to be used in the Toronto subway, and many of these stands are now typed as MhHeBy ecosite. Areas restricted from forest management activities contain 23% of the hemlock working group area.

Forecast
Monitoring indicator - no forecast required.

Management Strategies and Implementation
Changes were made to Algonquin Provincial Park tree marking prescriptions in the early 1990s to maintain more hemlock and a strategy to get hemlock from the regeneration stage to free-growing status was developed with the 2000-2020 Forest Management Plan. The 2005 plan addresses hemlock establishment, ensuring seedling growth to the free growing stage, in an integrated wildlife/forestry approach and the hemlock forest unit was changed from a uniform shelterwood to a selection forest unit (HeSEL) in order to more effectively manage regeneration and ensure its establishment and recruitment

into the forest canopy. The *Hemlock Strategy for Algonquin Park Forest* is in Appendix 16 of the 2000-2005 Forest Management Plan.

Research and Monitoring Plan
N/A

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.3 Genetic Diversity
Conserve genetic diversity by maintaining the variation of genes within the species.

VALUE: 1.3.1 Genetic Diversity of Tree Species

OBJECTIVE: 1.3.1.1 To maintain genetic diversity within the tree species native to the Defined Forest Area.

Indicator 1.3.1.1.1	Target	Variance
Application of tree marking guidelines	100% of sites where natural regeneration is a preferred treatment must retain appropriate leave trees as a seed source or retain local genetic reproductive material.	0

What is this indicator and why is it important?
Genetic information forms the building blocks of diversity within an individual and its species. Since most of the silviculture activities within the Algonquin Park Forest are conducted using partial harvesting techniques and natural regeneration, tree marking is important to the selection of leave trees. Unless superseded by more critical requirements, leave trees are selected for their ability to form high quality stands, including genetic excellence.

Current Status
Due to the diligence in inspection and re-marking, the trend has been to achieve 100% marking compliance with the prescription every year.

Forecast
Monitoring indicator - no forecast required.

Management Strategies and Implementation
Tree marking guidelines will be applied to assist in the maintenance of genetic diversity. The guidelines will ensure that dominant/co-dominate trees in good health will be retained as a seed source while maintaining cavity trees, mast producing trees and den trees for wildlife.

The objectives and strategies are implemented during the tree marking field season by trained and qualified crews. These activities are guided by Tree Marking Prescriptions (FMP appendix), Silviculture Ground Rules and Annual Work Schedules.

Research and Monitoring Plan
The monitoring program is comprised of inspection of the tree marking. Algonquin Forestry Authority supervisors regularly inspect the tree marking program to the standards that are in place. This is done using the Environmental Management System Tree Marking Inspection Form. A variance of +/- 5% is allowed from the standards and variations beyond this point usually require that the area be remarked. However, as indicated above, 100% compliance is expected so variance is shown as zero. Ministry of Natural Resources technicians also audit the tree marking throughout the year. Results of all Algonquin Forestry Authority marking inspections are forwarded to the Ministry of Natural Resources.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.3 Genetic Diversity
Conserve genetic diversity by maintaining the variation of genes within the species.

VALUE: 1.3.1 Genetic Diversity of Tree Species

OBJECTIVE: 1.3.1.1 To maintain genetic diversity within the tree species native to the Defined Forest Area.

Indicator 1.3.1.1.2	Target	Variance
Proportion of seed used in artificial renewal derived from appropriate seed zone	100% of seed used on the DFA is from the appropriate seed zone and/or within transfer guidelines.	0

What is this indicator and why is it important?
While artificial regeneration is less common on the Algonquin Park Forest than natural regeneration, this indicator complements the previous one. Here we focus on appropriate genetic measures for artificial regeneration, that is, regeneration with some direct assistance from forestry activities.

Provincial guidelines require that artificial regeneration be derived from local seed sources in order to maintain the appropriate genetic adaptations and ensure good growth and vigour.

Current Status
The 2004-2005 Annual Report indicates that 100% of all seed collected was from the appropriate local seed zone.

Forecast
No forecasting is required.

Management Strategies and Implementation
Every effort will be made to use tree seed and stock within seed zones for artificial regeneration. If this is not possible, stand collection tree seed and stock will be used in adjacent seed zones on a last resort basis and must conform to provincial standards for similarity of seed origin and host site. In the case of cross-zone movement, the origin of the seed must be well documented and the environment of the seed origin must be similar to that of the planting site. These strategies are reflected in the forest management plan currently being implemented.

Research and Monitoring Plan
Seed collection activities will be monitored by the Algonquin Forestry Authority and reported in annual report Table AR-8 each year.
Seed records from Angus Seed Plant are to be used.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 1. CONSERVATION OF BIOLOGICAL DIVERSITY

ELEMENT: 1.4 Protected Areas and Sites of Special Biological Significance
Respect protected areas identified through government processes. Identify sites of special biological significance within the Defined Forest Area and implement management strategies appropriate to their long-term maintenance.

VALUE: 1.4.1 Algonquin Provincial Park Management Plan Zones

OBJECTIVE: 1.4.1.1 Protect the special values represented by the four land use categories defined by the Algonquin Provincial Park Management Plan.

Indicator 1.4.1.1.1	Target	Variance
Identification and protection of zone boundaries	100% compliance with zone boundary locations.	0

What is this indicator and why is it important?
The Algonquin Park Forest has a long history of integrated resource management as witnessed by the policies and objectives for the Forest, and the long standing identification of seven land use zones. Excluding the Recreation/Utilization zone, there are four zones of biological significance: the Nature Reserve zone, Historical zone, Wilderness zone, and Natural Environment zone. As per the 1998 Algonquin Provincial Park Management Plan, these protected zones represent 19% of the gross area. The Development and Access zones are the two remaining categories, but were felt to represent no biological significance.

In order to maintain these special biological areas, this indicator will monitor the maintenance of the boundaries with the Recreation/Utilization zone.

Current Status
The boundaries are currently intact.
2005/06 = 100%
2006/07 = 100%

Forecast
No forecasting is required.

Management Strategies and Implementation
Proposed operations in the vicinity of zone boundaries will be carefully marked so operators will not infringe upon them. Where the zone boundary is also the Algonquin Park Forest boundary, there is an Area of Concern category that results in a prescription to leave a buffer on the boundary. These strategies are reflected in the forest management plan currently being implemented.

Research and Monitoring Plan
Monitoring will be conducted through the Forest Operations Information Program. The degree of compliance, with the target of zero infractions due to zone boundary infringement, will be reported annually. There is no acceptable variance. Compliance percentages are calculated only on OPUs that are adjacent to non-RU zone boundaries. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 2. MAINTENANCE AND ENHANCEMENT OF FOREST ECOSYSTEM CONDITION AND PRODUCTIVITY

ELEMENT: 2.1 Forest Ecosystem Resilience

Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.

VALUE: 2.1.1 Resilient Great Lakes-St. Lawrence Forested Ecosystems

OBJECTIVE: 2.1.1.1 Assist those ecosystems as required whose growth has been impacted by fire, insect, disease, blowdown or harvesting to regenerate or otherwise continue along their successional pathway.

Indicator 2.1.1.1.1	Target	Variance
Area successfully regenerated.	100% regeneration success as forecast in table FMP-28 (2005 FMP)	0 – time frame as prescribed in silvicultural ground rules (table FMP-10 in the 2005 FMP)

What is this indicator and why is it important?

Areas that are impacted by natural disturbance or forest management activities will be most productive if they return to a vigorous state within a certain time frame. Silvicultural Ground Rules are developed to aid in the achievement of a new stand following such disturbance. This ensures the resiliency of the forest ecosystem.

Current Status

78% of the total area assessed for the 2000-2005 term is successfully regenerated. Sixty-nine percent (69%) of this area has regenerated to the projected forest unit. The remaining area that has not successfully regenerated and will continue to be monitored in future forest management plans or treated as required to meet free-to-grow standards.

Forecast

Table FMP-28 from the 2005 Forest Management Plan identifies a target assessment area of 54,272 ha spread among a number of Forest Units and Silviculture Ground Rules. Assessments in the HDSEL (hardwood selection) Forest Unit and some of the HeSEL (hemlock selection) Forest Unit are unique compared to the other even-aged Forest Units. The HDSEL and HeSEL Forest Units require assessments of management standards and not regeneration assessments. They have been included to reflect the planned level of harvesting activity.

Management Strategies and Implementation

Areas will be regenerated according to the preferred or alternative Silviculture Ground Rule (Table FMP-10, 2005), as specified in the Forest Operations Prescription. Silvicultural effectiveness monitoring (SEM) assessments will be conducted each year as areas become available and as operational conditions allow.

Research and Monitoring Plan

Silvicultural effectiveness monitoring assessments are performed regularly in order to meet the five-year target identified in Table FMP-28 (2005 FMP). The success of these activities is reported in Annual Report Table AR-14.

Comparative Assessment of Planned versus Actual Levels

The assessment is scheduled for 2010 and 2020. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 2. MAINTENANCE AND ENHANCEMENT OF FOREST ECOSYSTEM CONDITION AND PRODUCTIVITY

ELEMENT: 2.2 Forest Ecosystem Productivity
Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species.

VALUE: 2.2.1 Healthy, Productive Forests

OBJECTIVE: 2.2.1.1 To maintain the ecological and productive capacity of the DFA in order to provide society with a sustainable harvest of forest-based material and social values.

Indicator 2.2.1.1.1	Target	Variance
Crown Managed Production Forest Area	Less than 2.5% of production forest area harvested used for roads, landings and aggregate pits.	+/- 10%

What is this indicator and why is it important?
This land classification indicates the extent to which sustainable forest management activities might be conducted. In addition, various wildlife habitat and other values are present and can potentially be influenced on the Crown Managed Productive Forest area. Other categories include non-forested areas like water or muskeg, as well as patent land and area outside of the recreation/utilization zone (wilderness, natural environment, etc.).

This is a monitoring indicator that will provide an early indication of any undesirable loss to the managed productive forest landbase.

Current Status
There are 481,214 ha of Crown Managed Production Forest (FMP 2005).

Forecast
No forecasting is required.

Management Strategies and Implementation
The maximum road right-of-way is 13.7 metres for primary roads and 9.1 metres for secondary and tertiary roads. Whenever possible, existing roads (roads that were used in the previous harvest) will be used to gain access to proposed harvested areas except where Forest values will be compromised by their use. Existing roads in the Recreation/Utilization Zone may also be phased out if alternative means of access, which would have a lesser impact on Forest values, are available or possible. To prevent excessive disturbance outside the road right-of-way, borrow pits will be limited to a maximum of five per kilometre.

The size of borrow pits will not exceed six metres including side slopes of 1.5:1 and will be limited to ten metres from the tree-line of the road right-of-way. Maximum aggregate pit size, not including rehabilitated area, will be one hectare (2.5 acres). Landings for logs shall not exceed 0.2 hectares.

Operators have been informed of the requirements for access structures through the Standard Operating Procedure for Road and Landing Construction.

Research and Monitoring Plan
At each forest management plan renewal date the Crown Managed Productive Forest area is determined. The next renewal is scheduled for 2010, at which time this indicator can be analyzed.

Comparative Assessment of Planned versus Actual Levels

This indicator is not projected into the future. The assessment is scheduled for 2010 and 2020. At these times, an assessment of any change will be conducted.

CRITERION: 3. CONSERVATION OF SOIL AND WATER RESOURCES

ELEMENT: 3.1 Soil Quality and Quantity
Conserve soil resources by maintaining soil quality and quantity.

VALUE: 3.1.1 Soils of the Precambrian Upland and Ottawa Lowland

OBJECTIVE: 3.1.1.1 To maintain the living substrate for forest stands.

Indicator 3.1.1.1.1	Target	Variance
Rate of compliance for soil conservation with the AFA site impact guidelines	100% of area harvested in compliance with Algonquin Forest Authority site impact guidelines.	- 5%

What is this indicator and why is it important?
Algonquin Forestry Authority has developed guidelines to assist operators with identifying and avoiding potential site hazards and detrimental conditions. These will minimize the amount of rutting and compaction that can have negative impacts upon the soil that trees and other plants require. This is consistent with the Ministry of Natural Resources' efforts to maintain productive soils via the *Forest Management Guidelines for the Protection of the Physical Environment*.

This is an operational monitoring indicator that will identify when and where undesirable effects are taking place.

Current Status
2004/05 – 99.6%
2005/06 – 100%
2006/07 -

Forecast
No forecasting is required.

Management Strategies and Implementation
Extra care is taken in wet or soft conditions, or alternate (drier) routes are used. Seeps and woodland pools are avoided – tree markers identify these sensitive areas where possible with an "S" marking. Operational controls are in place for operating in sensitive areas.

Research and Monitoring Plan
Monitoring will be conducted through the Forest Operations Information Program. The target will be reported annually. Both AFA and MNR Compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 3. CONSERVATION OF SOIL AND WATER RESOURCES

ELEMENT: 3.2 Water Quality and Quantity
Conserve water resources by maintaining water quality and quantity.

VALUE: 3.2.1 Algonquin Dome Headwaters

OBJECTIVE: 3.2.1.1 Conserve the quality and quantity of interior waterways, wetlands and catchment areas within the Defined Forest Area.

Indicator 3.2.1.1.1	Target	Variance
Proportion of water crossings that are properly installed and removed	100% compliance as measured by Forest Operation Inspections on access.	- 5%

What is this indicator and why is it important?
One of the initial environmental goals stated when the Algonquin Park Forest was designated was the protection of major interior waterways. These waterways include such rivers as the Oxtongue, Big East, Madawaska, Bonnechere, Amable de Fond, York, Barron and Petawawa. Water crossings can have significant impacts upon waterways if not properly installed or removed. This indicator is an operational monitoring one that will apply to waterways of all sizes, and ensure the protection of these quality watersheds.

Current Status
2005/06 = 97%
2006/07 = 95%

Forecast
No forecasting is required.

Management Strategies and Implementation Plan
Waterway crossing installations and removals are conducted according to the Ministry of Natural Resources' *Environmental Guidelines for Access Roads and Water Crossings and the Forest Management Planning Manual (2004).* The extensive use of portable bridges significantly reduces impacts at water crossings. Reporting of water crossing installation and removal success will be tailored from the existing Forest Operations Information Program.

Research and Monitoring Plan
Monitoring will be conducted through the Forest Operations Information Program. The target will be reported annually. Progress will be reported through Annual Reports, particularly Table AR-12. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 3. CONSERVATION OF SOIL AND WATER RESOURCES

ELEMENT: 3.2 Water Quality and Quantity
Conserve water resources by maintaining water quality and quantity.

VALUE: 3.2.1 Algonquin Dome Headwaters

OBJECTIVE: 3.2.1.1 Conserve the quality and quantity of interior waterways, wetlands and catchment areas within the Defined Forest Area.

Indicator 3.2.1.1.2	Target	Variance
Compliance with prescriptions developed for the protection of water quality and fish habitat	100% compliance as measured by Forest Operation Inspections.	- 5%

What is this indicator and why is it important?
Water quality and fish habitat are significant environmental values on the Algonquin Park Forest that are interrelated. The water provides exceptional opportunities for recreationalists as well as a source of life for many species of wildlife. Quality habitat supports many species of fish and other living creatures that prey on those fish or use the same habitat.

As part of a carefully planned forestry operation, Algonquin Forestry Authority has developed site level prescriptions for forest management activities conducted near these values. The prescriptions are documented in the forest management plan and are categorized as follows:

CW - Lake Trout Lakes, Coldwater Streams and Unknown Lakes/Streams,
BT - Self-Sustaining Brook Trout Lakes,
CFH - Critical Fish Habitat (including Brook Trout Nursery Creeks),
WW - Other Lakes, Coolwater and Warmwater Streams,
WT - Wood Turtle Habitat,
BH - Beaver Habitat, and
MAFA - Moose Aquatic Feeding Areas and mineral licks.

Current Status
2004/05 = 97%
2005/06 = 99%
2006/07 = 97%

Forecast
No forecasting is required.

Management Strategies and Implementation
Forest management activities are monitored in order to avoid infringing on fish habitat or negatively impacting water quality. Skidding across streams is avoided. Clear-cutting or road building is generally not permitted in these Areas of Concern. (See attached Area of Concern category descriptions for species and habitat specific strategies.) Reporting will be tailored from the existing Forest Operations Information Program.

Research and Monitoring Plan
The Algonquin Forestry Authority is responsible for monitoring the status of this indicator. This will be completed through the current Forest Operation Information Program which ensures that Area of Concern prescriptions are implemented properly. Annual Reports document each year's success, but the year seven and year ten reports will constitute the official occasion to compare actual measurements with the

target. Compliance percentages are calculated only on OPUs that contain the applicable AOC types. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
The assessment is scheduled for 2010 and then seven and ten years thereafter. At these times, an assessment of the previous term's performance will be conducted.

CRITERION: 3. CONSERVATION OF SOIL AND WATER RESOURCES

ELEMENT: 3.2 Water Quality and Quantity
Conserve water resources by maintaining water quality and quantity.

VALUE: 3.2.1 Algonquin Dome Headwaters

OBJECTIVE: 3.2.1.1 Conserve the quality and quantity of interior waterways, wetlands and catchment areas within the Defined Forest Area.

Indicator 3.2.1.1.3	Target	Variance
Number of spills that enter waterbodies	Zero spills entering waterbodies, as recorded by the Environmental Management System Spill Incident Form.	+ 1

What is this indicator and why is it important?
The prevention of pollution is one of the major aspects of Algonquin Forestry Authority's Forestry Policy. This indicator provides a direct link between the Forestry Policy and the element. Preventing spills will help maintain the quality of the Algonquin Park Forest's interior waterways.

Current Status
Spills are tracked under the Algonquin Forest Authority's Environmental Management System.
2004/05 = 0
2005/06 = 0
2006/07 = 0

Forecast
No forecasting is required.

Management Strategies and Implementation
Follow the Algonquin Forestry Authority Standard Operating Procedure for Handling and Dispensing Fuel. Monitoring is conducted through Algonquin Forestry Authority's Spill Incident Form, and reporting will be customized to suit this indicator.

Research and Monitoring Plan
The Algonquin Forestry Authority is responsible for monitoring the status of this indicator. This will be completed through the current Environmental Management System. This indicator is designed to be reported every year.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 3. CONSERVATION OF SOIL AND WATER RESOURCES

ELEMENT: 3.2 Water Quality and Quantity
Conserve water resources by maintaining water quality and quantity.

VALUE: 3.2.1 Algonquin Dome Headwaters

OBJECTIVE: 3.2.1.2. To ensure the maintenance of water quality and quantity during development of aggregate pits.

Indicator 3.2.1.2.1	Target	Variance
Impacts of aggregate pits on water quality and quantity, as measured in established monitoring wells	Establish monitoring wells in 2 aggregate pits in 2008 using methodology required by MNR's Aggregate Resources Program.	As budgeted

What is this indicator and why is it important?
Aggregate extraction has the potential to impact ground water and the water table, especially when near or adjacent to brook trout waters. Potential impacts include a lowering of the water table that provides source water to upwellings, seeps and nursery creeks.

Current Status
This is a new indicator – no current status to report.

Forecast
No forecasting is required.

Management Strategies and Implementation
Monitoring wells will be established in 2 aggregate pits in 2008 using methodology required by MNR's Aggregate Resources Program.

Research and Monitoring Plan
The Algonquin Forestry Authority is responsible for monitoring the status of this indicator. This indicator will be reported on annually.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 4. FOREST ECOSYSTEM CONTRIBUTIONS TO GLOBAL ECOLOGICAL CYCLES

ELEMENT: 4.1 Carbon Uptake and Storage

Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.

VALUE: 4.1.1 Forest Ecosystem Carbon

OBJECTIVE: 4.1.1.1 To provide a pre-determined rate of carbon storage in the Defined Forest Area.

Indicator 4.1.1.1.1	Target	Variance
Carbon storage capacity in the Defined Forest Area as calculated by the FORCARB-ON model	Maintain an overall positive percent change in forest carbon (carbon sink) from the DFA for the next 100 years (to 2105). Adjust target if necessary as new science is developed.	0

What is this indicator and why is it important?

Forest management activities can have substantial impacts on the role of forests in the carbon cycle. Forests use, store and release carbon. The longevity and large area of forests make them particularly well adapted to long-term positive carbon balance. Conversely, conversion of forest lands to low biomass, short-lived standing crops with rapid turnover rates, or the permanent removal of forest cover, can reduce the land's capacity to absorb and store carbon. As such, Algonquin Forestry Authority will monitor the degree to which its forests store carbon.

Current Status

Maintain or exceed the net forest carbon balance. Value estimated at 119.3 million tonnes of carbon in 2005. Recalculate for every update in the forest management plan.

Forecast

Refer to FORCARB model output – percent change in Forest Carbon graph. In three future decades there are slight decreases in forest carbon, but these are never more than 0.3% of the total. The remaining 7 decades forecast a positive % change in forest carbon (a steadily increasing carbon sink).

Management Strategies and Implementation

As indicated in the forest management plan currently being implemented, the amount of forested areas (carbon storage areas) will be maintained and vigorous regeneration encouraged.

Research and Monitoring Plan

Every ten years, as forest stands grow and develop, the status of the indicator will be re-evaluated by staff at the Ontario Center for Forest Research[4]. The assessment will be conducted using a carbon budget model called FORCARB-ON. This model estimates the carbon stored by the forest in living and dead trees and other plants, woody debris on the ground and even carbon in the soil.

Comparative Assessment of Planned versus Actual Levels

The assessment is scheduled for 2010 and ten years thereafter.

[4] Dr. Steve Colombo works for the Ontario Forest Research Center which maintains an office at the Centre for Northern Forest Ecosystem Research, 955 Oliver Road, Thunder Bay, ON P7B 5E1, Canada
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CRITERION: 4. FOREST ECOSYSTEM CONTRIBUTIONS TO GLOBAL ECOLOGICAL CYCLES

ELEMENT: 4.2 Forest Land Conversion
Protect forestlands from deforestation or conversion to non-forests.

VALUE: 4.2.1 Extent of the Defined Forest Area Production Forest Area

OBJECTIVE: 4.2.1.1 To minimize the conversion of production forest to non-forested area in the recreation/utilization zone.

Indicator 4.2.1.1.1	Target	Variance
Managed production forest area	Less than 2.5% of production forest area harvested used for roads, landings and aggregate pits.	+/- 10%

What is this indicator and why is it important?
Maintaining the landbase in a forested state is a key principle of avoiding forest land conversion. While necessary to conduct forest management activities, the construction of access structures poses a threat to the extent of productive forest area. These access structures need to be carefully planned and their use optimized in order to avoid unnecessary losses.

Current Status
There are 481,214 hectares of Crown Managed Production Forest (FMP 2005).

Forecast Assumptions and Analytical Methods
Forecasting is not required.

Management Strategies and Implementation
The maximum road right-of-way is 13.7 metres for primary roads and 9.1 metres for secondary and tertiary roads. Whenever possible, existing roads (roads that were used in the previous harvest) will be used to gain access to proposed harvested areas except where Forest values will be compromised by their use. Existing roads in the Recreation/Utilization Zone may also be phased out if alternative means of access, which would have a lesser impact on Forest values, are available or possible. To prevent excessive disturbance outside the road right-of-way, borrow pits will be limited to a maximum of five per kilometre.

The size of borrow pits will not exceed six metres including side slopes of 1.5:1 and will be limited to ten metres from the tree-line of the road right-of-way. Maximum aggregate pit size, not including rehabilitated area, will be one hectare (2.5 acres). Landings for logs shall not exceed 0.2 hectares.

Operators have been informed of the requirements for access structures through the Standard Operating Procedure for Road and Landing Construction.

Research and Monitoring Plan
At each forest management plan renewal date the Crown Managed Production Forest area is determined. The next renewal is scheduled for 2010, at which time this indicator can be analyzed.

Comparative Assessment of Planned versus Actual Levels
This indicator is not projected into the future. The assessment is scheduled for 2010 and 2020. At these times, an assessment of any change will be conducted.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.1 Timber Resources

OBJECTIVE: 5.1.1.1. To provide timber resources from the Defined Forest Area for local industry.

Indicator 5.1.1.1.1	Target	Variance
Long-term projected available harvest volume by product	1. Average volume of white and red pine sawlogs for the first 10 terms >110,000 m^3. 2. Red pine poles/treelength annually in 5 or more terms >16,700 m^3. 3. Hardwood and white birch sawlogs for each of the first 10 terms >70,000 m^3 per year. 4. Produce 520,000 m^3 of forest products on an annual basis - 248,000 m^3 is in sawlog and better products and 272,000 m^3 of pulp and composite quality products. Note: 1 term = 10 years	+/- 25% over 5 year period

What is this indicator and why is it important?
Building on the broad measure identified in the previous indicator, this one identifies the details of product diversification on value added derived from the available timber harvest. The manufacture of sawlogs, veneer and poles requires higher quality logs than pulp and composite products. Targets one to three identify these higher quality products, while target four compares the balance of higher quality products to pulp. These targets will be measured using the Algonquin Forest Authority Sales System.

Current Status
Prior to implementation of the forest management plan, the level of this indicator was as follows[5]:

1. 113,252 m^3
2. 14,755 m^3
3. 75,998 m^3
4. 253,772 m^3 sawlog and better / 306,456 m^3 pulp

Forecast
The forecast uses historical harvest data combined with projected harvest and sales. Unforeseen deviations from the planned harvest, such as fires, mill closures or market disturbances, will have an impact upon the targets.

Management Strategies and Implementation
The wood supply will be allocated to individual companies based on the range of species and qualities available from particular cutting areas. Surplus species and quantities will be identified and made known to the forest industry, so that it may assess the feasibility of altering its operations to utilize this material. Alternative opportunities will be provided, where possible, to industries which face shortages of traditional

[5] Average for the 2000-2005 period from the 2004-2005 Year Ten Annual Report (AFA Sales System). Note that the previous targets were slightly different.

raw materials and provide for the use of wood fibre as a source of energy. New markets for pulp quality material will be actively sought.

Research and Monitoring Plan
Algonquin Forestry Authority is responsible for monitoring this indicator and they will use their annual sales records to evaluate their performance on a yearly basis.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.1 Timber Resources

OBJECTIVE: 5.1.1.2. To maintain the Ministerial wood supply commitments from the DFA.

Indicator 5.1.1.2.1	Target	Variance
Directly link wood supply commitment to long term, sustainable wood supply volume	No new wood supply allocations without adjustment to existing volumes by the Minister	N/A

What is this indicator and why is it important?
Local mills rely upon a predictable flow of wood, which is partially based upon the Ministerial commitments. Therefore, it is important to maintain the commitment levels in order to ensure the continued and reliable provision of wood to the dependent mills, and the associated socio-economic benefits. Further, if new wood supply allocations are made by the Minister of Natural Resources, the existing volume commitments must be adjusted in order to maintain a reliable flow of timber for all users.

Current Status
The Ministerial commitments are identified in table FMP-24 (2005 – 2025 FMP) and are re-evaluated with each FMP. These Ministerial commitments are currently being met.

Forecast
Not applicable

Management Strategies and Implementation
Prior to the preparation of the FMP, the forest resource inventory is updated to reflect recent depletions and accruals. This updated inventory is the basis for the determination of the available harvest area and volume in the FMP, and the subsequent wood supply commitments made by the Minster.

Research and Monitoring Plan
N/A

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.1 Timber Resources

OBJECTIVE: 5.1.1.3. To recognize good forestry practices within the Defined Forest Area.

Indicator 5.1.1.3.1	Target	Variance
Certification status	Achieve and maintain registration to CAN/CSA-Z809 SFM standard by end of 2007	+/- three months

What is this indicator and why is it important?

- To demonstrate to the public and its customers that the Algonquin Park forest is being managed on a sustainable basis.
- Allows AFA to promote the successful results of their SFM efforts using independent, third-party verification
- Voluntary participation in the requirements of the standard will provide AFA with the opportunity to continually improve forest management performance and engage interested parties in a focused public participation process.
- Certification verifies that forests are well-managed as defined by the standard.

Certification ensures that planning and operations are conducted in a consistent, transparent, and sustainable manner. This is becoming an increasingly common practice, and will ensure that the Defined Forest Area is managed in accordance with the principles of sustainable forest management (environmental, economic and social).

Current Status
The Defined Forest Area is not currently certified.

Forecast
Certification is being sought for the end of 2007, as per the target.

Management Strategies and Implementation
N/A

Research and Monitoring Plan
The CAN/CSA-Z809 SFM standard requires annual third party audits

Once achieved, certification requirements will be monitored on a regular basis in accordance with the standard.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.2 Recreation and Tourism

OBJECTIVE: 5.1.2.1 To maintain or improve the back country qualities of recreation and tourism opportunities within the DFA, through the reduction of sight and sound evidence of AFA operations.

Indicator 5.1.2.1.1	Target	Variance
Number of documented public complaints about forestry impacts on back-country recreation	1. 100% of documented public responses (to redesigned feedback program) from interior users within the RU zone without noted logging impacts. 2. Establish a simple system to measure on the ground conflicts/complaints between Park users and forest industry by December 1, 2008 and review the system with the Advisory Group before implementation. (A sub-group will be set-up to determine the methodology with representation from Ontario Parks, Friends of Algonquin, Outfitters, Recreational Users and an AFA designate) 3. Complaints to be investigated in relation to the FMP's Operational Prescriptions for Areas of Concern including designated canoe routes, campsites, portages and hiking/back-packing trails – towards having the complaints resolved and/or the prescription reviewed.	- 5%

What is this indicator and why is it important?
Recreation and tourism are major benefits provided by the DFA. This is reflected in the Algonquin Provincial Park Management Plan.

Still relating to the recreation and tourism value, the objective of this indicator is to directly monitor public feedback on the impacts of forestry operations on recreation values and activities. It is assumed that many comments may not be associated with any direct impact resulting from forestry operations. Where a comment is related to an impact resulting from a forestry operation and it is possible to address the concern through forest management activities, the target is to implement mitigation in 100% of instances. This contributes to the continual improvement of forestry operations.

Current Status
Regarding visitor complaints, new reporting program - no previous data available. Consult with Ontario Parks regarding availability of public comment information for use in tracking this indicator.

Forecast
The assumption used in setting this target is that the number of visitors to the Algonquin Park Forest will continue on a steady basis unless management decisions deter visitors. Uncontrollable factors that may also influence this indicator include such things as weather and/or various economic conditions. No forecast necessary for number of complaints.

Management Strategies and Implementation
Recreational values will be identified on values maps and Area of Concern guidelines will be implemented to ensure protection of these values. These strategies are reflected in the forest management plan currently being implemented. Where possible, public concerns will be addressed through forest management activities. Continue to utilize Environmental Management System procedure 4.4.3 Communication and develop a reporting mechanism.

Research and Monitoring Plan
A system for reviewing comments is already operating and documentation resulting from it will be tailored to suit this indicator. This will be monitored on a yearly basis in order to allow for timely improvements. Data will be requested from Ontario Parks annually to supplement the information.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.2 Recreation and Tourism

OBJECTIVE: 5.1.2.1 To maintain or improve the back-country qualities of recreation and tourism opportunities within the DFA, through the reduction of sight and sound evidence of AFA operations.

Indicator 5.1.2.1.2	Target	Variance
Provision of information with respect to location of planned forest operations on the AFA website.	Post harvest schedule map with primary haul routes for summer operations on AFA website.	N/A

What is this indicator and why is it important?
The internet is increasingly the most easily accessible source of information for a growing number of Canadians. Posting information on the website will ensure that AFA's operational plans are accessible to as many members of the public as possible, including recreational users who may be concerned about the proximity of forestry operations during their stay in Algonquin Park.

Current Status
Map already posted at *http://www.algonquinforestry.on.ca/summary.htm*

Forecast
No forecasting is necessary.

Management Strategies and Implementation
AFA updates this map annually after Annual Work Schedule approval.

Research and Monitoring Plan
N/A

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.3 Cultural Heritage

OBJECTIVE: 5.1.3.1 To collect and preserve knowledge.

Indicator 5.1.3.1.1	Target	Variance
On going research/ assessment/support	Demonstrate financial and/or in-kind support for cultural heritage initiatives beyond those mandated or required.	As budgeted

What is this indicator and why is it important?
Algonquin has a rich and varied human history, with traditional dependence upon the resources of the Park being a dominant theme. Extensive field research has identified more than 300 areas of historical human activity and a comparable number of archaeological sites. Those sites that provided the best representation of the Park's history have been selected as Historical Zones. Ongoing research and assessment is important to complete the system of archaeological and historical sites. The collection and preservation of knowledge will provide opportunities to enhance the public's understanding and awareness and appreciation of Algonquin Park's heritage.

Current Status
The historical zones in Algonquin Park encompass 1,680 hectares and include 48 historical sites and 38 archaeological sites. The location of archeological is confidential in order to ensure their protection. The park protects all newly discovered historical resources dated prior to 1940, pending thorough study and documentation of their significance. A major focus of historical resources interpretation is at the Algonquin Logging Museum near the east gate. AFA contributes annually to the Algonquin Park Loggers Day (cash and in-kind). In 2007/08 a $5,000 contribution was made for Logging Museum upgrades. Cultural heritage training of woodsworkers and tree markers has been conducted. Funding for a new roof on the cabin at Basin Depot was provided by AFA. Stage 2 archaeological assessments were conducted in 2004/05 and in 2007/08 in order to determine the presence of cultural artifacts in areas scheduled for forestry operations.

Forecast
No forecasting is necessary.

Management Strategies and Implementation
During forest management activities (primarily tree marking), all newly discovered potential archaeological sites are identified and verified by Ontario Parks prior to operations. An AOC is established if warranted. In addition, high potential cultural heritage areas are identified during the FMP process and have an AOC prescription identified, that includes a stage 2 archaeological assessment for certain activities to be permitted.

Research and Monitoring Plan
Document activities and expenditures.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.3 Cultural Heritage

OBJECTIVE: 5.1.3.1 To collect and preserve knowledge.

Indicator 5.1.3.1.2	Target	Variance
Clarification of sensitive vs. non-sensitive information	September 2009	As budgeted

What is this indicator and why is it important?
Some cultural and historical knowledge needs to be protected from general use, such as areas on the landscape that are sensitive to disruption (e.g. burial or spiritual sites). This type of information also needs to be preserved, but this must be done while protecting its confidentiality. In order to determine what types of information require confidentiality, types of information need to be identified as sensitive and non-sensitive. The Ontario Ministry of Culture is the custodian for all registered archeological site data and therefore sets conditions to access this data. The promotion of cultural heritage values is currently limited by Ministry of Culture directives to maintain this as sensitive information. While archaeological values are considered sensitive, other cultural heritage values may not be.

Current Status
The current FMP treats all cultural heritage information as sensitive. The new Forest Management Guide for Cultural Heritage Values (2007) provides new direction on the confidentiality of cultural heritage information. This new Guide will be used for the preparation of the 2010 FMP.

Forecast
No forecasting is necessary.

Management Strategies and Implementation
Clarification will be provided during the development of the 2010 FMP.

Research and Monitoring Plan
N/A

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.3 Cultural Heritage

OBJECTIVE: 5.1.3.2 To assist in the sharing/promotion of cultural heritage information.

Indicator 5.1.3.2.1	Target	Variance
Establishment of website linkages to information (within the constraints of confidentiality) and promotion of cultural heritage events.	Provide information (publications, website linkages) as allowed by provincial guidelines/direction.	As budgeted

What is this indicator and why is it important?
Information that can be provided to the general public is distributed most widely via the internet, as noted in relation to indicator 5.1.2.1.2. Therefore, non-sensitive cultural information can be provided to the public via websites. Linkages to relevant available information will be established from the AFA website. Sharing this type of information will help ensure the appreciation of these values and that it is not lost to future generations.

Current Status
Currently not available – new indicator.

Forecast
No forecasting is necessary.

Management Strategies and Implementation
The availability of relevant cultural heritage information will be determined, Linkages to this information on the AFA website will be established where possible.

Research and Monitoring Plan
Document information provided and expenditures.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.1 Timber and Non-Timber Benefits
Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

VALUE: 5.1.4 Natural and Spiritual

OBJECTIVE: 5.1.4.1 To maintain a wilderness-like experience for users within the Defined Forest Area.

Indicator 5.1.4.1.1	Target	Variance
Compliance with Area of Concern prescriptions which schedule operations such that there is a separation in time and/or space between wilderness recreation and forestry operations	100% compliance with applicable AOCs in 2005 FMP Table 17.	0

What is this indicator and why is it important?
The sound of forestry operations can negatively impact the perceived wilderness experience of recreationalists within the Park. This indicator will assess whether or not the careful scheduling of operations, through the use of Area of Concern prescriptions, can successfully ensure that operations occur at times and places that are separate from wilderness recreation.

As part of a carefully planned forestry operation, Algonquin Forestry Authority has developed site level prescriptions for forest management activities conducted near these values. The prescriptions are documented in the forest management plan and are categorized as follows:
CR – MNR Designated Canoe Routes,
C - Campsites,
P - Portages,
H – MNR Designated Hiking/Backpack Trails,
ST – MNR Designated Cross Country Ski Trails.

Current Status
2005/06 = 99%
2006/07 = 97%

Forecast
No forecasting is necessary.

Management Strategies and Implementation
Based on the land use direction summarized in table FMP-7 (2005), Area of Concern prescriptions will be developed that will place timing restrictions upon operations within wilderness zones during the tourist season.

Research and Monitoring Plan
The Algonquin Forestry Authority is responsible for monitoring the status of this indicator. This will be completed through the current Forest Operation Information Program which ensures that Area of Concern prescriptions are implemented as prescribed. Annual Reports document each year's success. Compliance percentages are calculated only on OPUs that contain these applicable AOC types and from both AFA and MNR compliance reports.

Comparative Assessment of Planned versus Actual Levels
Annual Reports document each year's success.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.1 Economic Value Added

OBJECTIVE: 5.2.1.1. To maintain or enhance the economic value added that harvesting in the Defined Forest Area contributes to the provincial and local economies.

Indicator 5.2.1.1.1	Target	Variance
Managed Crown Forest area available for timber production	Maintain the area available for forestry management within the DFA.	+/- 10%

What is this indicator and why is it important?
The managed Crown forest area available for timber production is the area used to calculate the available harvest area. Any reduction in this area will result in reduced area available for forest management operations, and a reduction in economic value added.

Current Status
There are 481,214 ha of managed Crown forest available for timber production (FMP 2005).

Forecast
No forecasting is necessary.

Management Strategies and Implementation
The Algonquin Park Management Plan defines the area that is available for timber production in Algonquin Park.

Research and Monitoring Plan
The assessment is scheduled for 2010 and seven and ten years thereafter.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.1 Economic Value Added

OBJECTIVE: 5.2.1.1. To maintain or enhance the economic value added that harvesting in the Defined Forest Area contributes to the provincial and local economies.

Indicator 5.2.1.1.2	Target	Variance
Amount of available harvest volume utilized (short term)	Full utilization of the planned 2005-2010 available harvest volume of 3,386,492 m^3.	+/- 20%

What is this indicator and why is it important?
This indicator is identical to that used for value 5.1.1 (indicator 5.1.1.1). For this value the objective is similar, to maintain the economic and employment contribution from the Forest.

Current Status
Prior to the forest management plan period, the 2004-2005 Annual Report shows that the level of this indicator was 2,707,148 m^3. Note that the target was less during that time.

Forecast
The available harvest area is determined by the Strategic Forest Management Model. From this area, volumes are calculated based on species and forest unit yield curves and reported in the forest management plan Table FMP-15. Forecast and utilized volumes are generally considered to match when the utilized volume is within 20% of the forecast volume.

Management Strategies and Implementation
The wood supply will be allocated to individual companies based on the range of species and qualities available from particular cutting areas. Surplus species and quantities will be identified and made known to the forest industry, so that it may assess the feasibility of altering its operations to utilize this material. Alternative opportunities will be provided, where possible, to industries which face shortages of traditional raw materials and provide for the use of wood fibre as a source of energy. New markets for pulp quality material will be actively sought.

Research and Monitoring Plan
Algonquin Forestry Authority is responsible for monitoring the volume of timber harvested from the Algonquin Park Forest. This information is summarized annually in Annual Report Table AR-4. The indicator will be evaluated at the end of the current five-year term (2010), and at seven and ten year intervals thereafter (2017 and 2020) using Annual Report Table AR-4.

Comparative Assessment of Planned versus Actual Levels
The assessment is scheduled for 2010 and seven and ten years thereafter.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.1 Economic Value Added

OBJECTIVE: 5.2.1.1. To maintain or enhance the economic value added that harvesting in the Defined Forest Area contributes to the provincial and local economies.

Indicator 5.2.1.1.3	Target	Variance
Value added per cubic metre	Maintain the value of the previous five- year harvest volume times the value added per cubic metre (Living Legacy Trust 2001 report).	+/- 20%

What is this indicator and why is it important?
Value added is a measure of enhanced economic benefit to a community. By further processing timber resources, an increased level of employment and manufacturing is supported. In addition, value added increases the diversification of an area's economy.

Current Status
$288 per cubic metre or $779,658,624 for the 2000-2005 period.

Forecast
No forecasting is necessary.

Management Strategies and Implementation
The strategies referenced by indicator 5.1.1.1 will continue to be pursued with an emphasis on value added production.

Research and Monitoring Plan
The harvest level will be monitored annually using Annual Report Table AR-4. In addition, updates to the base factor will be monitored. The current value is $288 per cubic metre[6]. The indicator will be evaluated at the end of the current five-year term (2010), and at seven and ten year intervals thereafter (2017 and 2020) using Annual Report Table AR-4.

Comparative Assessment of Planned versus Actual Levels
N/A

[6] Jaakko Poyry Consulting. 2001. Assessment of the Status and Future Opportunities of Ontario's Solid Wood Value-Added Sector, Final Summary Report. Prepared for the Living Legacy Trust, Government of Ontario.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.1 Economic Value Added

OBJECTIVE: 5.2.1.2. To support local production facilities by providing affordable wood fibre from the Defined Forest Area.

Indicator 5.2.1.2.1	Target	Variance
Number of local production facilities (wood supply commitment holders) that utilize wood fibre from the DFA.	Establish a benchmark from 2006-07, monitor trends and maintain production facilities over time.	N/A

What is this indicator and why is it important?
The number of local production facilities using wood from the forest is an indicator of the local economic benefits derived from the forest. If more of the wood remains in the local area, the economic benefit to local communities and businesses is greater.

Current Status
There are currently 13 local production facilities that utilize wood fibre from the DFA. These are identified in table FMP-24 in the 2005-2025 Forest Management Plan.

Forecast
This is a monitoring indicator – no forecast required.

Management Strategies and Implementation
The wood supply will be allocated to individual companies based on the range of species and qualities available from particular cutting areas. Surplus species and quantities will be identified and made known to the forest industry, so that it may assess the feasibility of utilizing this material. New markets for pulp quality material will be actively sought.

Research and Monitoring Plan
Local production facilities that utilize wood from the DFA is currently defined as the 2005 FMP client mills (Table FMP-24).

Comparative Assessment of Planned versus Actual Levels
The assessment is scheduled for 2010 and seven and ten years thereafter.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.1 Economic Value Added

OBJECTIVE: 5.2.1.3. To ensure that if wood volume becomes available, local production facilities will receive first opportunity to receive the wood volume.

Indicator 5.2.1.3.1	Target	Variance
Available wood volume offered to local production facilities	100% is offered.	0

What is this indicator and why is it important?
The wood volume available to local production facilities is an indicator of the local economic benefits derived from the forest. If more of the wood is made available to facilities in the local area, the economic benefit to local communities and businesses is greater.

Current Status
2000-2005 term = 90% sold to commitment holders, 10% outside sales
2006-06 = 93% sold to commitment holders, 7% outside sales

Forecast
N/A

Management Strategies and Implementation
The Algonquin Park Forestry Agreement provides AFA with the direction to meet wood supply commitments that are set by the Minister of Natural Resources. These commitments are spelled out in the Forest Management Plan – Table 24 of the 2005-2025 FMP. In the event that a commitment holder is unable to utilize its committed volume, AFA may offer the wood to other commitment holders and/or other existing markets. The volume of wood sold to these other existing markets will be summarized for reporting on this VOIT.

Research and Monitoring Plan
This will be accomplished by annually reviewing the annual report and reporting on the percent of volume sold outside commitment holders.

Comparative Assessment of Planned versus Actual Levels
The assessment is scheduled for 2010 and 2020. At these times, an assessment of any change will be conducted.

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.2 Communities and Sustainability
Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

VALUE: 5.2.2 Cottage Experience

OBJECTIVE: 5.2.2.1. To maintain the quality of the cottage experience within the Recreation/Utilization (RU) zone of the Defined Forest Area.

Indicator 5.2.2.1.1	Target	Variance
Compliance with the cottage/lease AOCs	100% compliance with cottage lease AOCs	0

What is this indicator and why is it important?
There are 305 cottage properties held under lease, license or land use permit in the Park as of January 1998 (Algonquin Park Management Plan). Only a small percentage of these are in the R/U zone and are potentially impacted by forest management operations. An AOC has been developed to afford protection for these features within the R/U zone.

Current Status
2005/06 = no active operations adjacent to cottage leases
2006/07 = 100%

Forecast
No forecast necessary

Management Strategies and Implementation
Cottaging/lease values will be identified on values maps and Area of Concern guidelines will be implemented to ensure that operations do not negatively impact the cottaging experience. These strategies are reflected in the forest management plan currently being implemented.

Research and Monitoring Plan
This will be monitored annually. Compliance percentages are calculated only on OPUs that contain the cottage lease AOC. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.1 Revenues to the Crown

OBJECTIVE: 5.3.1.1. To provide Crown timber stumpage revenue from the Defined Forest Area.

Indicator 5.3.1.1.1	Target	Variance
Crown timber stumpage paid to government consolidated revenues	Maintain/increase a revenue stream of $2.6 million per year of Crown stumpage payments from the DFA (2000-2005 annual average).	+/- 20%

What is this indicator and why is it important?
A fee, called stumpage, is paid to the province for the harvest of Crown timber from the Algonquin Park Forest. Stumpage fees are used for the benefit of the entire province; to pay for expenditures from such activities as highway maintenance, operation of schools and hospitals, and civil service payroll, making this a good indicator of how society benefits from forest management activities. Stumpage fees for this indicator do not include fees paid to the Forestry Futures Trust Fund or the Forest Renewal Fund.

Current Status
As stated by the target, past revenues averaged $2.6 million per year for the 2000-2005 period.

Forecast
No forecasting required.

Management Strategies and Implementation
Strategies referenced by indicator 5.1.1.1, with an emphasis on value added production, will continue to be pursued.

Research and Monitoring Plan
The annual value of payments made to the Crown is monitored in Annual Report Table AR-11.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.2 Opportunities to Local Aboriginal Communities

OBJECTIVE: 5.3.2.1. Encourage participation of local Algonquians and increase involvement of Algonquin Negotiation Representative (ANR) communities/people in the economic opportunities provided by forest management.

Indicator 5.3.2.1.1	Target	Variance
Percentage of total volume harvested by Algonquin Aboriginal organizations/ people.	Maintain/increase the total volume harvested by ANR communities per year (from a benchmark set in 2006-2007)	As defined by target.

What is this indicator and why is it important?
This indicator is a measure of the distribution of economic opportunities to various demographic groups. In this particular case, Aboriginal people are identified in respect of the unique role they play in forest management.

Current Status
2006/07 = 12.2%

Forecast
No forecasting is required.

Management Strategies and Implementation
The 2005 Year Ten Annual Report explains the initiative to date. "Work opportunities were provided for the Algonquin First Nation communities in tree marking, road construction and maintenance, logging, releasing trees from competition and growing nursery stock. Value of all work to Aboriginal contractors in 2003-2004 was $4.2 million, in 2004-2005 was $3.3 million, in 2005-2006 was $3.5 million and in 2006-2007 was $3.7 million.

Research and Monitoring Plan
As part of the Annual Report prepared by Algonquin Forestry Authority, the Ministry of Natural Resources provides information on the progress toward implementing ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management activities. This is referred to as the Environmental Assessment Condition 34 Report and will be coordinated between Algonquin Forestry Authority and the Ministry of Natural Resources. This information will be used to assess progress towards meeting these targets. To be tracked from 2000 looking at volume and percent of total volume harvested, with 2007 as the benchmark year.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.2 Opportunities to Local Aboriginal Communities

OBJECTIVE: 5.3.2.1. Encourage participation of local Algonquians and increase involvement of Algonquin Negotiation Representative (ANR) communities/people in the economic opportunities provided by forest management.

Indicator 5.3.2.1.2	Target	Variance
Percentage of tree marking by Algonquin Aboriginal organizations/people	Percent of total area tree marked by Algonquin organizations/people per year (from a benchmark set in 2006-2007)	As defined by target.

What is this indicator and why is it important?
This indicator is a measure of the distribution of economic opportunities to various demographic groups. In this particular case, Aboriginal people are identified in respect of the unique role they play in forest management.

Current Status
2005 = 26.6 %
2006 = 25.2 %

Forecast
No forecasting is required.

Management Strategies and Implementation
The 2005 Year Ten Annual Report explains the initiative to date. "Work opportunities were provided for the Algonquin First Nation communities in tree marking, road construction and maintenance, logging, releasing trees from competition and growing nursery stock.

Research and Monitoring Plan
As part of the Annual Report prepared by Algonquin Forestry Authority, the Ministry of Natural Resources provides information on the progress toward implementing ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management activities. This is referred to as the Environmental Assessment Condition 34 Report and will be coordinated between Algonquin Forestry Authority and the Ministry of Natural Resources. This information will be used to assess progress towards meeting these targets.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.2 Opportunities to Local Aboriginal Communities

OBJECTIVE: 5.3.2.1. Encourage participation of local Algonquians and increase involvement of Algonquin Negotiation Representative (ANR) communities/people in the economic opportunities provided by forest management.

Indicator 5.3.2.1.3	Target	Variance
Provide Algonquin Aboriginal organizations/people fair sharing of economic opportunities/silvicultural activities when available	To be recorded as it happens (no target)	N/A

What is this indicator and why is it important?
This indicator is a measure of the distribution of economic opportunities to various demographic groups. In this particular case, Aboriginal people are identified in respect of the unique role they play in forest management.

Current Status
Value of all work to Aboriginal contractors in 2003-2004 was $4.2 million, in 2004-2005 was $3.3 million, in 2005-2006 was $3.5 million and in 2006-2007 was $3.7 million.

Forecast
No forecasting is required.

Management Strategies and Implementation
The 2005 Year Ten Annual Report explains the initiative to date. "Work opportunities were provided for the Algonquin First Nation communities in tree marking, road construction and maintenance, logging, releasing trees from competition and growing nursery stock. Contracts for this work in 2000-2001 totaled $1.2 million and were $1.4 million as of January 31, 2002 for the 2001-2002 fiscal year. Value of all work to contractors in 2003-2004 was $4.2 million and in 2004-2005 was $3.3 million (the difference was reduced harvest activity by the Algonquin First Nation communities)."

Research and Monitoring Plan
As part of the Annual Report prepared by Algonquin Forestry Authority, the Ministry of Natural Resources provides information on the progress toward implementing ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management activities. This is referred to as the Environmental Assessment Condition 34 Report and will be coordinated between Algonquin Forestry Authority and the Ministry of Natural Resources.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.2 Opportunities to Local Aboriginal Communities

OBJECTIVE: 5.3.2.2. Shared stewardship, co-management for Aboriginal people.

Indicator 5.3.2.2.1	Target	Variance
Increased participation	As determined by the Treaty under negotiation	N/A

What is this indicator and why is it important?
This indicator is a measure of the distribution of economic opportunities to various demographic groups. In this particular case, Aboriginal people are identified in respect of the unique role they play in forest management.

Current Status
No shared stewardship or co-management agreements have been made at this time.

Forecast
No forecasting is required.

Management Strategies and Implementation
The Algonquins of Ontario are currently engaged in negotiations with Ontario and Canada working towards an Agreement in Principle and eventually a Treaty. These discussions involve the future of Algonquin Park and the Algonquin's participation in the future management of the Park.

Research and Monitoring Plan
As part of the Annual Report prepared by Algonquin Forestry Authority, the Ministry of Natural Resources provides information on the progress toward implementing ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management activities. This is referred to as the Environmental Assessment Condition 34 Report and will be coordinated between Algonquin Forestry Authority and the Ministry of Natural Resources.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.3 Direct and Indirect Employment

OBJECTIVE: 5.3.3.1. Maintain non-forestry benefits.

Indicator 5.3.3.1.1	Target	Variance
Interior visitor days per year	Maintain the current level of interior visitor days at 300,000/yr	+/- 10%

What is this indicator and why is it important?
Algonquin has experienced steady visitation growth in the past thirty years. Since 1985, total Park visitation has nearly doubled from 500,000 to 1,000,000 visits annually. While Algonquin Park continues to be an important destination for domestic users, the Park has witnessed an increase in the number of international visitors. International visitation to the Park has doubled since 1995, and Algonquin has become a cornerstone Ontario Tourism's outdoor product. For the past fifteen years interior camping use has grown on average from 175,000 to 300,000 camper nights.

Current Status
300,000 /yr

Forecast
No forecasting is required.

Management Strategies and Implementation
The management of non-timber values information is the responsibility of the Ministry of Natural Resources (*Forest Information Manual, 2007*). Non-timber values discovered as new, or in a different location, are identified by AFA during tree marking/operations and verified by MNR. All values are protected according to Area of Concern (AOC) prescriptions – as identified in table FMP-17. These AOC prescriptions include buffers and timing restrictions designed to maintain recreational values throughout the forest. In addition, AFA posts a Schedule of Operations map on its internet site to provide information to the public on the location of planned forest management operations (VOIT 5.1.2.1)

Research and Monitoring Plan
Numbers to be provided by Ontario Parks on an annual basis.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 5. MULTIPLE BENEFITS TO SOCIETY

ELEMENT: 5.3 Fair Distribution of Benefits and Costs
Promote the fair distribution of timber and non-timber benefits and costs.

VALUE: 5.3.3 Direct and Indirect Employment

OBJECTIVE: 5.3.3.1. Maintain non-forestry benefits.

Indicator 5.3.3.1.2	Target	Variance
The amount of revenue generated by the visitor days	Sustain the revenue generated by interior visitor days/yr	+/- 10%

What is this indicator and why is it important?
Algonquin has experienced steady visitation growth in the past thirty years. Since 1985, total Park visitation has nearly doubled from 500,000 to 1,000,000 visits annually. While Algonquin continues to be an important destination for domestic users, the Park has witnessed an increase in the number of international visitors. International visitation to the Park has doubled since 1995, and Algonquin has become a cornerstone Ontario Tourism's outdoor product. For the past fifteen years interior camping use has grown on average from 175,000 to 300,000 camper nights.

Current Status

Impact	Park Management	Park Visitors	Total
Initial Expenditure	$2.48 million	$3.30 million	$5.78 million
Value Added	$3.95 million	$3.59 million	$7.54 million
Wages & Salaries	$3.04 million	$2.12 million	$5.16 million
Employment (py's)	105 person years	53 person years	158 person years

Note: Figures do not include revenue from the purchase of park permits.
Source: SEIM 2000 Version 7.1 April 2004 and Algonquin Park Economic Impact Fact Sheet

Forecast
No forecasting is required.

Management Strategies and Implementation
The management of non-timber values information is the responsibility of the Ministry of Natural Resources (*Forest Information Manual, 2007*). Non-timber values discovered as new, or in a different location, are identified by AFA during tree marking/operations and verified by MNR. All values are protected according to Area of Concern (AOC) prescriptions – as identified in table FMP-17. These AOC prescriptions include buffers and timing restrictions designed to maintain recreational values throughout the forest. In addition, AFA posts a Schedule of Operations map on its internet site to provide information to the public on the location of planned forest management operations (VOIT 5.1.2.1)

Research and Monitoring Plan
Numbers provided by Ontario Parks every 5 years.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.1 Aboriginal and Treaty Rights
Recognize and respect Aboriginal and treaty rights.

VALUE: 6.1.1 Aboriginal and Treaty Rights

OBJECTIVE: 6.1.1.1 To recognize the Aboriginal and treaty rights applicable to the Defined Forest Area.

Indicator 6.1.1.1.1	Target	Variance
Respect and allow for Aboriginal treaty rights during management of forest resources/harvesting within the DFA	Identification of Aboriginal values in the DFA and 100% compliance with Aboriginal-value Area of Concern prescriptions.	0

What is this indicator and why is it important?
During preparation of forest management plans, consultation is conducted with Aboriginal communities and prescriptions are developed and implemented for the protection of Aboriginal values. The goal of this indicator is to ensure that these values receive the protection that they require. Aboriginal values are protected in the current forest management plan under the following categories:

- CHS – cultural heritage site
- HPA – high potential cultural heritage areas.

The CHS AOC type includes more than just aboriginal values. Instances of non-compliance will be verified on a case-by-case basis.

Current Status
Section E of the 2005 Forest Management Plan Supplementary Documentation contains the current Native Background Information Report and Section M contains the Native Consultation Summary. A summary of the Forest Operations Information Program reveals the following:
2005/06 = 99.5%
2006/07 = 99%

Forecast
No forecasting is required.

Management Strategies and Implementation
Tree marking and harvest layout crews will be kept informed of Aboriginal value locations and prescriptions in order that they may receive adequate protection. Ensure that operational crews follow stop work procedures when unidentified values are discovered, and that they report such values to their supervisors and to the Ministry of Natural Resources for verification. Roads, harvesting and other disturbances may be restricted within these areas. Where operations are allowed, they will be in a modified manner in order to minimize the disturbance of soil and physical values (modified conditions identified in Table FMP-17, 2005).

Reporting will be tailored within the existing Forest Operations Information Program.

Research and Monitoring Plan
Algonquin Forestry Authority is responsible for monitoring compliance with Aboriginal Area of Concern prescriptions. The Area of Concern categories are: CHS - Cultural Heritage Site (known); and HPA - High Potential Cultural Heritage Areas. The values represented by these categories may be confidential and thereby require that their location remain undisclosed on maps presented to the public. Compliance is reported on an annual basis in the Annual Report Tables AR-12 and AR-13.

Compliance percentages are calculated only on OPUs that contain the applicable AOC types. Both AFA and MNR compliance reports are summarized.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses
Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.

VALUE: 6.2.1 Aboriginal Consultation in the Forest Management Planning Process

OBJECTIVE: 6.2.1.1. Involve Algonquin Communities (Algonquin Negotiation Representatives) and other Aboriginal Groups on the identification and protection of Aboriginal values and uses in the Defined Forest Area.

Indicator 6.2.1.1.1	Target	Variance
Opportunities for involvement provided to, and involvement of, Aboriginal communities in forest management planning activities	1. Meet as required with those Aboriginal communities expressing interest to participate in forest management planning. 2. Notifying the Algonquin Negotiation table of the certification process and its outcomes	0

What is this indicator and why is it important?
One of the first steps in achieving meaningful respect for Aboriginal values is communication and consultation. This indicator ensures that the Algonquin Forestry Authority, with the assistance of the Ministry of Natural Resources if necessary, remains available to consult with Aboriginal communities as required.

Current Status
New reporting program - no previous data available.

Forecast
No forecasting is required.

Management Strategies and Implementation
An enhanced effort is made through the forest management planning process and the *Crown Forest Sustainability Act* to involve Aboriginal communities. Updated contact information for all interested Aboriginal communities is maintained. Requests will be responded to in a timely manner.

Research and Monitoring Plan
The number of meetings will be monitored against the requests of Aboriginal communities. Currently, the Ministry of Natural Resources provides information on the progress toward this target as an addition to the Annual Report prepared by the Algonquin Forestry Authority.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.3 Public Participation
Demonstrate that the sustainable forest management (SFM) public participation process is designed and functioning to the satisfaction of the participants.

VALUE: 6.3.1 SFM Public Participation Performance

OBJECTIVE: 6.3.1.1. To implement a public participation process that is supported by the participants.

Indicator 6.3.1.1.1	Target	Variance
SFM public participation evaluation by the Advisory Group.	Achieve a satisfactory evaluation from a minimum of two-thirds of the Advisory Group members.	0

What is this indicator and why is it important?
Public participation is a major requirement of the forest management system in Ontario. Since forest management is conducted on Crown land, the public has the right to influence it. Algonquin Forestry Authority's mandate for Sustainable Forest Management arises from public influence as well as formal legislative and contractual arrangements with the government. These mechanisms ensure that the social and environmental values that benefit the province are respected[7]. The Advisory Group is the mechanism that Algonquin Forestry Authority is using to maintain communication with the public and stakeholder groups. Public consultation is also undertaken during the development of forest management plans and through ongoing consultation with a Local Citizens Committee.

Current Status
New reporting program - no previous data available.

Forecast
Not forecasting is required.

Management Strategies and Implementation
Ensure that members of the Advisory Group are included in all aspects of the forest management planning process. This can be done by confirming that required information is sent to them before each meeting so that they can be prepared to take part. The assessment will be conducted every three years using a standardized survey.

Research and Monitoring Plan
Every three years, an assessment will be conducted in order to determine the satisfaction of the Advisory Group with the public participation process. The target is to achieve a passing grade on this evaluation.

Comparative Assessment of Planned versus Actual Levels
N/A

[7] Wang, Sen. 2005. Managing Canada's forests under a new social contract. The Forestry Chronicle. Volume 81 Number 4. pp.486-490.

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.3 Public Participation
Demonstrate that the sustainable forest management (SFM) public participation process is designed and functioning to the satisfaction of the participants.

VALUE: 6.3.1 SFM Public Participation Performance

OBJECTIVE: 6.3.1.1. To implement a public participation process that is supported by the participants.

Indicator 6.3.1.1.2	Target	Variance
SFM public participation evaluation by the broader public.	Annually review with the Advisory Group all public comments with respect to forestry activities and how they were responded to.	N/A

What is this indicator and why is it important?
Similar to the preceding indicator, this one focuses on the broader public not directly engaged in the Advisory Group. Combined with the Advisory Group evaluation, this will ensure a thorough assessment of public satisfaction.

Current Status
New reporting program - no previous data available.

Forecast
No forecast required.

Management Strategies and Implementation
Information regarding the Sustainable Forest Management process will be distributed to the public. Members of the public will be encouraged to comment and take part in the process and each suggestion will be considered. The assessment will be conducted every five years using a standardized survey, similar to the survey distributed to the Advisory Group.

Research and Monitoring Plan
Every five years, an assessment will be conducted in order to determine the satisfaction of the broader public with the public participation process. Individuals will be selected at random from a list of individuals expressing interest in the forest management plan or general interest in management of the Algonquin Park Forest.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.4 Information for Decision Making
Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

VALUE: 6.4.1 SFM Education

OBJECTIVE: 6.4.1.1. To maintain/increase the knowledge and awareness of SFM to the general public.

Indicator 6.4.1.1.1	Target	Variance
SFM education evaluation	Identify new and on-going opportunities for public awareness including but not limited to the list below: a) Update and monitor the AFA web site b) Provide educational tours/seminars on SFM c) Loggers Day d) Support of high school forestry initiative e) Brochure f) Track enquiries from interested parties g) FMP open houses h) Friends of Algonquin Park publications i) Explore partnerships	N/A

What is this indicator and why is it important?
This indicator provides the most direct measure of the element. An increase in Sustainable Forest Management knowledge by the public will result in more meaningful consultation and a greater awareness of the issues involved in the management of the Algonquin Park Forest.

Current Status
New reporting program - no previous data available.

Forecast
No forecasting is required.

Management Strategies and Implementation
Displays and information booths will be set up during the Logger's Day events which demonstrate and explain the forest management process in Ontario. Brochures or other printed information will also be available at the Algonquin Park Information Centre throughout the year. The public will be encouraged to view the website for more information. Algonquin Forest Authority's participation in the Canadian Ecology Centre Annual Teacher's Tour program also contributes to this target.

Research and Monitoring Plan
Every year at the Logger's Day events held in the Algonquin Park Forest, a survey will be conducted to determine whether knowledge and awareness of the forest management process has increased. The target is to increase the number of parties who respond positively every year.

Comparative Assessment of Planned versus Actual Levels
N/A

Forecast Assumptions and Analytical Methods
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.4 Information for Decision Making
Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

VALUE: 6.4.1 SFM Education

OBJECTIVE: 6.4.1.1. To maintain/increase the knowledge and awareness of SFM to the general public.

Indicator 6.4.1.1.2	Target	Variance
Forestry research funding and/or in-kind assistance	1. Expenditure of $20,000 per year 2. The AFA reports annually to the Advisory Group on funding expended and projects undertaken.	+/- $5,000 per year

What is this indicator and why is it important?
Research and development are necessary to support improvements and adaptive management. The trend in natural resource management has been toward an ever-increasing awareness of issues and values that require addressing. This can only be successful with the type of research that this funding will support. Algonquin Forestry Authority already participates on directed and integrated studies within Algonquin Park Forest.

Current Status
2004-2005 = $22,000
2005-2006 = $15,750
2006-2007 = $26,200

Forecast
N/A

Management Strategies and Implementation
Resources will be provided to research projects of a high priority.

Research and Monitoring Plan
With the assistance of Algonquin Forestry Authority, financial information will be summarized regarding research efforts.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.4 Information for Decision Making
Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

VALUE: 6.4.1 SFM Education

OBJECTIVE: 6.4.1.1. To maintain/increase the knowledge and awareness of SFM to the general public.

Indicator 6.4.1.1.3	Target	Variance
Local Citizens Committee self-evaluation of its effectiveness in forest management plan development	Achieve a satisfactory evaluation from a minimum of two thirds of the Local Citizens Committee on the effectiveness of the LCC	0

What is this indicator and why is it important?
The Local Citizens Committee is hosted by the District Manager of the Ministry of Natural Resources. This committee participates in forest management planning activities, similar to the Algonquin Park Forest Advisory Group. They will have some knowledge of forest management activities. Monitoring their effectiveness in forest management plan development will provide an indirect indicator towards an informed public.

Current Status
Prior to the implementation of the forest management plan, the Year Ten Annual Report prepared in 2005 for the 2000-2005 period indicated that the Local Citizens Committee rated their performance at 81%.

Forecast
Forecasting not required.

Management Strategies and Implementation
Participation of the Local Citizens Committee in the planning process will be encouraged.

Research and Monitoring Plan
Every five years, as part of Algonquin Forestry Authority's annual reporting requirements, this evaluation is required. It will be provided in the Annual Report Table RPFO-18.

Comparative Assessment of Planned versus Actual Levels
N/A

CRITERION: 6. ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

ELEMENT: 6.4 Information for Decision Making
Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

VALUE: 6.4.1 SFM Education

OBJECTIVE: 6.4.1.2. Promote and market achievement of certification.

Indicator 6.4.1.2.1	Target	Variance
Efforts made to create awareness of certification designation on the DFA	1. Make information available to the public and document. 2. Advertise	N/A

What is this indicator and why is it important?
The general public is often unaware of efforts made by the forest industry to contribute to sustainable forest management. Making the public aware of SFM certification will assist in broadening public understanding of sustainable forest management in the DFA. It is important in order to increase the knowledge of the general public with respect to SFM practices in the DFA to enable them to develop informed opinions.

Current Status
AFA currently provides information regarding sustainable forest management on its website at *http://www.algonquinforestry.on.ca/*. Information is also presented to the public during forest management plan open houses and annually at Logger's Day in Algonquin Park.

Forecast
Forecasting not required.

Management Strategies and Implementation
Build on existing mechanisms to provide information on SFM certification to the public.

Research and Monitoring Plan
Document advertising efforts and information made available to the public.

Comparative Assessment of Planned versus Actual Levels
N/A

5.4 Basis for the Selection of Indicators of Sustainability

In the development of the performance framework to be used in this SFM Plan, AFA in conjunction with the advisory group, reviewed potential indicators put forward by AFA to ensure that the indicators selected would contribute to the measurement of success in implementation of SFM for the DFA. It is recognized by the advisory group and the AFA that the selection of appropriate indicators is key to making and measuring progress towards SFM.

Through the indicator selection process the advisory group and AFA considered the following characteristics:

Measurable or clearly descriptive
In order to assess progress towards the target for an indicator it is important that in most cases, the indicator be a measurable characteristic. Where this is not possible, an indicator was selected that enables a clear description of the status of the indicator to be made to determine progress toward the target.

Predictable
It is important that the characteristics represented by indicators can be forecasted in terms of expected future conditions.

Relevant and valid
To be useful for monitoring of success of SFM for the DFA it is crucial that indicators be selected that are relevant to the forest ecosystems, communities and conditions of the DFA. The indicators must be applicable to the forest value being represented and they must be technically valid for measurement, including suitability for measurement at the DFA level.

Understandable
Indicators selected must be useful for AFA and for the public in terms of providing clear understanding of the progress towards meeting the objective for the DFA value being assessed.

Practical and cost effective
It is important that all processes, including the monitoring processes associated with this plan be practical and cost effective. Only by incorporating this factor in the selection process can a framework be developed that will result in long-term effectiveness in implementation. The availability or lack of suitable data was a factor in the selection of indicators. Practical indicators that convey useful and relevant information are viewed to be the most meaningful for the DFA.

Integration with the FMP
Where feasible and suitable, indicators have been selected that will tie back in to the current approved 2005–2025 FMP. A number of the indicators selected for this SFM performance framework relate back to the stated objectives and strategies put forward in the FMP. A number of indicators also relate to the measurement of compliance associated with the FMP for the DFA.

The above considerations were taken into account during deliberations of the advisory group during development and finalization of the performance framework for this SFM Plan. The results of the discussions are reflected in the minutes of the advisory group meetings. The VOIT matrix identifies the final framework upon which this plan is based.

6.0 SFM System

6.1 SFM Policy

Algonquin Forestry Authority's Sustainable Forest Management Policy is presented in Appendix I of this document and is available to the public on the AFA Internet site (*www.algonquinforestry.on.ca*).

6.2 Structure and Responsibility

AFA has defined the roles, responsibilities, and authorities of individuals essential to the development, implementation and management of the SFM Plan in accordance with the CAN/CSA-Z809-02 standard.

The AFA Chief Forester is responsible for the development, implementation and maintenance of the SFM Plan and for the integration of the EMS with the SFM System.

Roles and responsibilities for implementation and maintenance of the SFM System are described in the EMS/SFM System Organizational Chart (Figure 3). Also see Table 1 in section 3.3.

Section 5.3.7 (Roles and Responsibilities) of the Advisory Group Terms of Reference defines the roles, responsibilities, and authority for the SFM planning process. The Terms of Reference for the Advisory Group are presented in Appendix D.

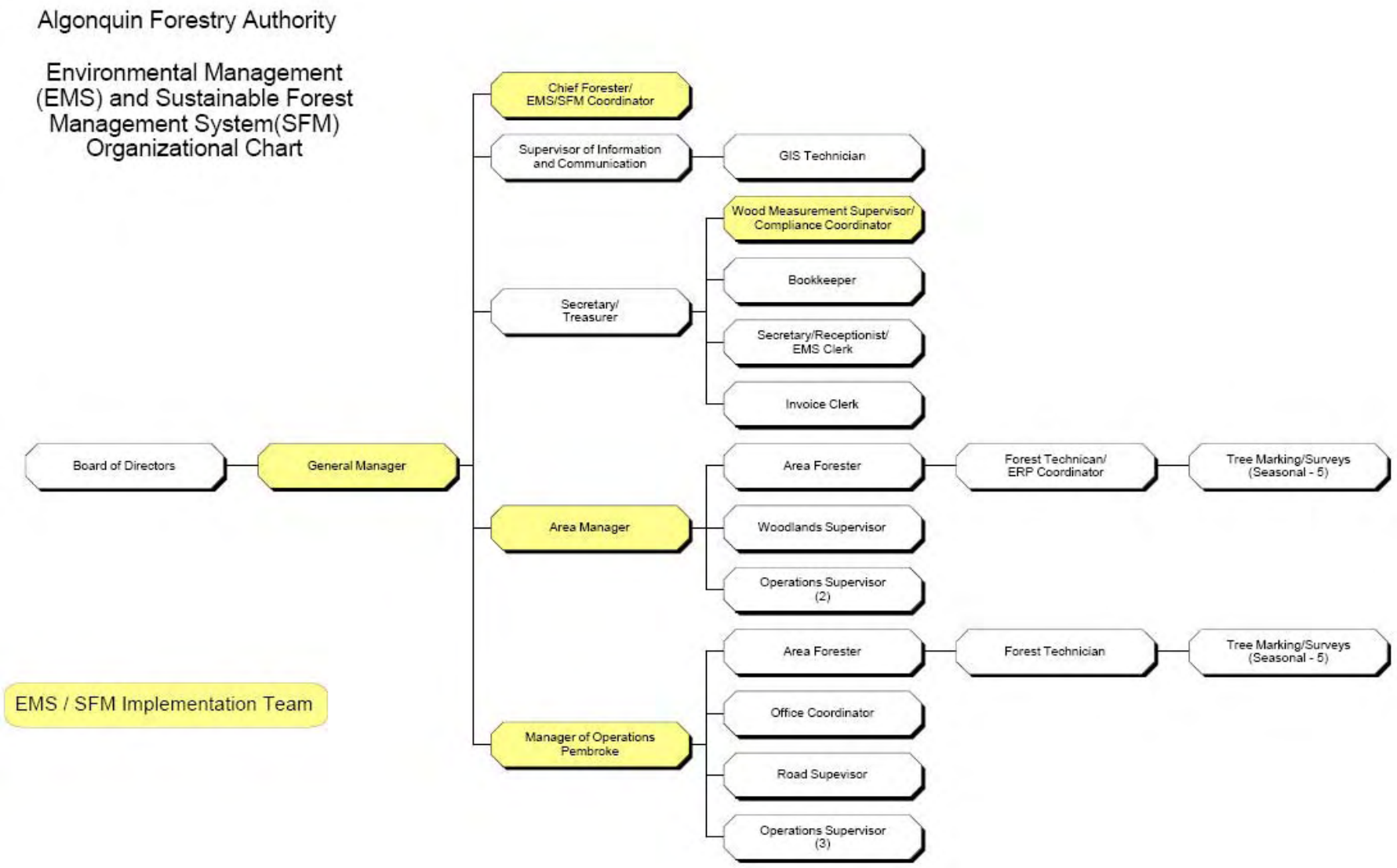

Figure 3. Environmental Management and Sustainable Forest Management System Organizational Chart

6.3 Training, Awareness, Qualification and Knowledge

The training, awareness, qualification and knowledge requirements for AFA staff are identified in MSP 4.4.2 (Competence, Training and Awareness). This procedure describes the methods and the personnel responsible for EMS and SFM awareness training of AFA staff and its contract employees, whose work may create a significant impact on the environment. Further, it describes the methods for identifying competence, training needs, training methodology and record keeping. The procedures states that:

- The EMS Implementation Team determines full training requirements for AFA and contract employees. Training requirements are identified in the Training Matrix (by job function) which is available on the AFA Intranet site under section 4.4.2 of the EMS Manual.
- Indoctrination training of new employees, or existing employees that change job function, is conducted by the Contractor Supervisor, or his delegate, prior to the commencement of work of new employees.
- Full EMS training is conducted by AFA Operations Supervisors for all woodsworkers associated with the operations they have been assigned.
- Core training records (as per the Training Matrix) are kept for all AFA and contract employees. Records are maintained in the EMS training database by the EMS Clerk in the Huntsville office. This database assists in identifying training requirements by identifying the training needs of each individual and their current training status.

6.4 Communications

Section 5.3.5 of the Terms of Reference for the Advisory Group (Provisions for Internal and External Communication) presented in Appendix D, describes the process used for internal and external communication in developing AFA's Sustainable Forest Management System. This section states that:

Internal communication will be carried out using existing AFA communication networks (e-mail and regular meetings). Staff will be provided with updates on the CSA process and will be provided with opportunities to comment on the VOITs associated with the SFM Plan.

External communication will be made available to the general public and interested parties through the following means:

- Newspaper advertisements.
- A website designed for the purpose of providing CSA information to the public (both on the registration process and on progress); or by utilizing the existing AFA Internet site.
- Meetings and presentations with the Local Citizens Committee, AFA staff, contractors and stakeholders interested in participating in the process.
- External communication will be reviewed and approved by the AFA prior to posting. All documentation associated with the consultation process will be maintained for consideration by the Advisory Group and/or utilized in the development/amendment of the SFM Plan. All input received during the public consultation process will be responded to in a timely manner.

MSP 4.4.3 (Communication) describes the process for the ongoing internal and external communication of AFA's EMS and SFM System.

For Internal Communication it states:
The EMS Intranet site is the primary tool for internal communication of the AFA EMS and SFM. All AFA regular staff have individual email addresses and have access to this system via a designated username and password. Details on management of the EMS Intranet site and associated documentation are identified in the MSP 4.4.5 (Control of Documents).

Training, as detailed in MSP 4.4.2 (Competence, Training and Awareness), is the primary method of communicating EMS and SFM System components to AFA staff. AFA staff and contractors are required to be trained on EMS/SFM System awareness and specific EMS/SFM System components applicable to their roll(s) within the EMS and SFM System. EMS/SFM System training information for every individual is maintained in the EMS training database in the Huntsville AFA office.

The AFA Corrective/Preventive/Public Input Action (CPPA) program records, and tracks corrective actions and preventive actions, and details of external public inquiries. This program is described in more detail in MSP 4.5.3., Nonconformity and Corrective and Preventive Action. Reports are generated from this program on a regular basis and are reviewed during regular (monthly) implementation team meetings.

For External Communication it states:
Opportunities for public input into the activities of the AFA are provided through the forest management planning process for Crown lands in Ontario. These include open houses, ongoing dialogue and advertising with the public during plan development and implementation and regular meetings with a Local Citizen's Committee. Records of this public consultation are managed under the FMP process and documentation is filed in the AFA Chief Forester's office.

The CPPA program has been designed to record and track all EMS and SFM related public input, and views from other interested parties outside the FMP planning process. For all relevant external communications regarding the AFA EMS and SFM, AFA staff are required to field the initial response and then follow up by forwarding written documentation of the inquiry to either the EMS Coordinator or the Compliance Coordinator for entry into the CPPA program. The Public Communication Form is an optional form that can be used to document external communications. The official record of the communication is the CPPA program.

General Information about the AFA and its activities is available to the public via the AFA Internet site. The AFA internet site is also used to communicate information regarding forest certification to AFA staff and to the general public, including the SFM Plan and associated annual reports. Contact information is also supplied on this website.

6.5 Reporting

There are a number of processes used to report internally and externally on the SFM activities on the DFA.

Internal reporting provides information to those responsible for delivering and managing the SFM System and procedures in order to provide for adaptive management and continual improvement. Internal reporting will follow the internal communications procedures previously outlined in of the Terms of Reference for the Advisory Group and in the Environmental Management System.

External reporting will be used to communicate the SFM policy and AFA's progress in meeting and maintaining the SFM requirements to the broad public.

Annual reports describing AFA's SFM performance and the results of SFM Audit Reports (Initial Certification and Surveillance) will be posted on the AFA website. The SFM Annual Report will be reviewed with the Advisory Group to incorporate input prior to the report being finalized. Findings of the SFM Annual Report will be reviewed at annual Contractor Meetings.

AFA reporting also includes the requirements of the *Forest Management Planning Manual* (FMPM) and the Forest Information Manual (FIM), including:

- Annual Reports.
- Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report
- Native Background Information Report
- Report on the Protection of Identified Native Values
- Independent Forest Audit Reports

6.6 Documentation

SFM documentation procedures are governed by MSP 4.4.4 (Documentation) within the AFA EMS.

6.7 Control of Documents

SFM document control procedures are governed by MSP 4.4.5 (Control of Documents) within the AFA EMS.

6.8 Operational Procedures and Control

AFA's Operational procedures and controls are identified in MSP 4.4.6 (Operational Control) in the EMS. Operational control is exercised through the following 3 mechanisms:

- Verbal direction from Supervisors,
- Standard Operating Procedures and,
- Supplemental Work Instructions.

Verbal instruction from Supervisors occurs on a regular basis on all forestry operations within Algonquin Park.

Standard Operating Procedures have been developed for significant aspects as identified through the environmental aspects procedure. Employees have been trained on relevant standard operating procedures and monitoring and measurement is ongoing to ensure conformance to these procedures.

Supplemental work instructions provide additional direction to a limited number of activities. This direction is intended to supplement other operational controls (where they exist), in order to provide greater clarity and assistance in achieving the desired results.

6.9 Emergency Preparedness and Response

AFA's EMS includes an Emergency Preparedness and Response Procedure (MSP 4.4.7).

The procedure states that for those environmental impacts which require emergency preparedness and response, an emergency response plan has been written. This plan includes a Spills Response Program and a Fire Prevention and Suppression Program (which is contained in the Annual Work Schedule). These programs have been combined with the AFA Safety Response Program and general emergency information to form the AFA Emergency Response Plan document.

The AFA Emergency Response Plan consists of eight (8) Controlled Documents:

1. Emergency Preparedness and Response Management System Procedure;
2. Emergency Response Plan document, which is composed of the following components:
    - General Information;
    - Safety Response Program;
    - Spills Response Program;
    - Fire Prevention and Suppression Program (contained in the Annual Work Schedule);
3. ERP Map;
4. ERP Safety Point Coordinates;
5. ERP Mailing List;
6. AFA Contact List;
7. ERP Emergency Instruction Sheet;
8. Spill Incident Form.

6.10 Monitoring and Measurement

MSP 4.5.1 (Monitoring and Measurement) specifies that ongoing inspections and monitoring activities are conducted throughout Algonquin Park Forestry Operations as a means to check that regulatory and environmental aspects are being addressed and that performance objectives are being achieved as per operating procedures, defined roles & responsibilities and implementation schedules.

Monitoring activities are developed and implemented based on a review of the significant environmental aspects; legislative requirements; policy commitments; and performance objectives. Monitoring is utilized as a means to track, record, report and improve on the effectiveness of the AFA EMS in achieving desired environmental outcomes.

Monitoring and measurement of AFA operations are conducted according to the following hierarchical system:

1. During the activity,
2. Through Forest Operations Inspections,
3. External monitoring and audits.

Specific SFM monitoring and measurement will include:

1. Assessing the Public Participation Process

AFA will undertake an assessment of the SFM public participation process to determine the satisfaction of the Advisory Group with the public participation process. The assessment will be conducted every three years.

2. Assessing Values, Objectives, Indicators, and Targets

As knowledge and experience is gained and objectives achieved, AFA will continue to assess the quality and validity of the values, objectives, indicators, and targets. The following steps will be taken to assess the performance requirements of the CAN/CSA-Z809-02 Standard:

- Review of VOITs with advisory group members;
- Review of VOITs with DFA-Related Workers/Other Interested Parties;

3. Assessing SFM Performance Requirements
Indicators will be compared against targets according to the schedule specified in the VOITs. Reasons for unacceptable variances will be determined and explained.

4. Assessing the SFM System Requirements:
The effectiveness of the SFM System will be regularly assessed through the internal audit process and improved as necessary through the corrective and preventive action processes.

6.11 Compliance to Legislation

Compliance with legal and other requirements is monitored at all levels of operations. Monitoring and measurement activities described in MSP 4.5.1 provide an ongoing evaluation of compliance to legal and other requirements. Additional evaluation of compliance to legal and other requirements will be completed on a periodic basis as per MSP 4.5.2 (Evaluation of Compliance), which states:

The table "Description of Applicable Legal and Other Requirements" on section 4.3.2 of the EMS Intranet site contains relevant legal requirements for compliance audits and identifies the linkages to activities, operational controls and applicable monitoring and EMS documentation. This table is maintained as per Procedure 4.3.2 Legal and Other Requirements.

The Forest Operation Inspection Forms also contain a list of items from legal requirements that are considered prior to completing the “in compliance” boxes on the forms. These items were originally defined under the OMNR FOIP program, and have been expanded under the AFA EMS to contain Part B - Environmental Inspections.

In addition to the ongoing monitoring program outlined in MSP 4.5.1 a separate compliance audit will be completed every 3 years. This audit will be conducted by a lead auditor and will usually be combined with the EMS internal audit (MSP 4.5.5.) This audit will focus exclusively on compliance to applicable legal and other requirements. The results of the compliance audit will be documented separately from the results of the internal audit.

6.12 Corrective and Preventive Action

AFA has developed procedures within the EMS to provide direction for corrective and preventive actions.

MSP 4.5.3 (Nonconformity, Corrective Action and Preventive Action) applies to all Forestry operations within Algonquin Park and is intended to deal with all instances of nonconformity and noncompliance related to:

- Legal and Other Requirements,
- Standard Operating Procedures
- Management System Procedures

- Spill/emergency incidents.

The procedure provides direction for the:
- Identification and Reporting of Actual and Potential Nonconformities.
- Identification of Corrective and/or Preventive Action.
- Tracking and Management of Nonconformities and Corrective and Preventive action (the CPPA Program).

6.13 Records

MSP 4.5.4 (Control of Records) describes how the AFA manages records pertaining to the EMS and SFM System.

EMS records are maintained in a number of formats. They include:
- Hard-copy (paper);
- Electronic;
- Electronic Database.

Where appropriate, each section of the EMS Intranet site contains a subsection called “Forms and Records”. Records associated with each MSP are stored within these sections or the location of the record is identified. Other electronic records associated with the EMS are stored in the records subdirectory of the EMS network drive (drive N). Direction on record keeping and associated record retention times are also provided in the “EMS Forms Summary Table” in section 4.5.1 of the EMS site. Further direction on record keeping is detailed within the related EMS Procedures.

The procedure provides instructions for the management of hard-copy (paper), electronic and electronic database records.

6.14 Internal Audits

Continually evaluating compliance to the policies and procedures of the AFA SFM System is the responsibility of all employees. The General Manager or designate annually organizes an internal audit following the procedure set out in MSP 4.5.5 (Internal Audit). The audit will determine if the SFM System has been properly implemented and is functioning correctly. The purpose of the SFM System audit is to determine the extent to which the AFA SFM System conforms to the overall approach of Sustainable Forest Management, including the requirements of the CAN/CSA-Z809-2002 standard and other standards as determined by top management. It will provide a benchmark against which annual environmental performance can be measured and improved upon. The audit scope is AFA's entire SFM System as it applies to the DFA.

6.15 Management Review

AFA will conduct and document an annual review of SFM requirements to ensure that progress towards SFM continues to be suitable, adequate, and effective. The management review process is described in MSP 4.6 (Management Review).

The management review is used to address the possible need for changes to policy, targets, and other SFM requirements, in light of audit results, changing circumstances, compliance results, and the commitment to continual improvement.

7.0 References and Acronyms

AFA – Algonquin Forestry Authority – *www.algonquinforestry.on.ca*

AHA – Available Harvest Area – the area projected for harvest during the first five-year term of an FMP is referred to as the AHA, which serves as a limit for harvest operations (FMPM 1996 page A-72).

BNV – Bounds of Natural Variation – a trend line produced during modeling that portrays forest development over time when subjected to forces of natural disturbance and succession (produced from the "natural benchmark" or "NULL" scenario). Acceptable levels for non-spatial sustainability testing are identified as a range of +/- 20% of the BNV line for each of the relevant indices over time.

CCFM – Canadian Council of Forest Ministers – "The CCFM provides leadership on national and international issues and sets direction for the stewardship and sustainable management of Canada's forests. The CCFM is composed of fourteen federal, provincial and territorial ministers (elected officials)." Refer to *www.ccmf.org/index_e.php*

CSA – Canadian Standards Association – "The Canadian Standards Association is a not-for-profit membership-based association serving business, industry, government and consumers in Canada and the global marketplace". Refer to *www.csa.ca*

DFA – Defined Forest Area – "A specified area of forest, including land and water (regardless of ownership or tenure) to which the requirements of the Standard apply." (Z809-02 Guidance and Requirements document).

EMS – Environmental Management System - part of an organization's management system used to develop and implement its environmental policy and manage its environmental aspects.

ENGO – Environmental non-government organization

ERP – Emergency Response Plan

FMP – Forest Management Plan – the forest management plan produced for each forest management unit in Ontario, as prescribed by the FMPM.

FMPM – *Forest Management Planning Manual for Ontario's Crown Forests*

Indicator - a variable that measures or describes the state or condition of a value

MSP – Management System Procedure – procedures within an EMS used to describe requirements, roles and responsibilities of the various components of the ISO 14001 environmental management system standard.

Objective - a broad statement describing a desired future state or condition of a value

RU Zone – Recreation/Utilization Zone – The RU Zone is where low intensity recreation and commercial timber harvesting are permitted. This zone comprises approximately 75% of Algonquin Park and is managed as the Algonquin Park Forest Management Unit (the Forest).

SFM – Sustainable Forest Management

SFM Plan – the forest management plan produced as required by the CSA Z809-02 Sustainable Forest Management Standard.

SFMM – Strategic Forest Management Model – a computer model used in the management of Ontario's Crown forests in order to determine appropriate levels of harvest and silviculture, and to predict the outcomes of various management options on harvest levels, forest composition, and wildlife values over the long term.

Target - a specific statement describing a desired future state or condition of an indicator.

Value - a DFA characteristic, component, or quality considered by an interested party to be important in relation to a CSA SFM element or other locally identified element

VOIT – Values, Objectives, Indicators and Targets – performance indicators as per appendix B.