2021/2022
General Development Plan

Alberta-Pacific Forest Industries Inc.

Forest planning overview and plain language document for consultation

2021

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Why do we consult?

Al-Pac and NFPL are legally obligated by the Government of Alberta to consult with First Nations and Métis Settlements on their Integrated General Development Plan. The spirit of this consultation is to encourage strong relationships and mutual respect by enabling early discussion related to forest planning and operations resulting in tangible and measurable outcomes from consultation efforts. The companies also aim to support communities on obtaining a common understanding of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and Free Prior and Informed Consent (FPIC).

Who is Alberta-Pacific Forest Industries Inc. (Al-Pac)?

The Alberta-Pacific Forest Industries Inc. millsite located 50 kilometres north of Boyle, Alberta.

Al-Pac is North America's largest single-line producer of high-quality kraft pulp, using best available technology and advanced processes to produce 650,000 air-dried metric tonnes of elemental chlorine-free bleached kraft pulp a year. Through the company's Forest Management Agreement (FMA) the Government of Alberta grants Al-Pac stewardship of 6.4 million hectares of forest land to sustainably harvest, establish, and grow timber. That timber, along with deciduous timber purchased from private land and coniferous sawmill chips, provides fibre to the mill. The fibre is transformed into pulp, which Al-Pac's customers turn into paper products that range from photo paper to tissue paper. Many products made from Al-Pac pulp carry the Forest Stewardship Council® (FSC® C021640) certification, which provides assurance that Al-Pac is operating in a socially and environmentally responsible manner. For more information on FSC go to ca.fsc.org

In addition to producing pulp, Al-Pac produces renewable energy, from forest biomass and steam recycling, to power the company's millsite. Any surplus energy is added to the Alberta power grid. The company also produces bio-methanol, a by-product of the pulping process. The bio-methanol is used as a pulp whitening agent within the mill and any surplus is sold commercially to be used in the manufacturing of a variety of products.

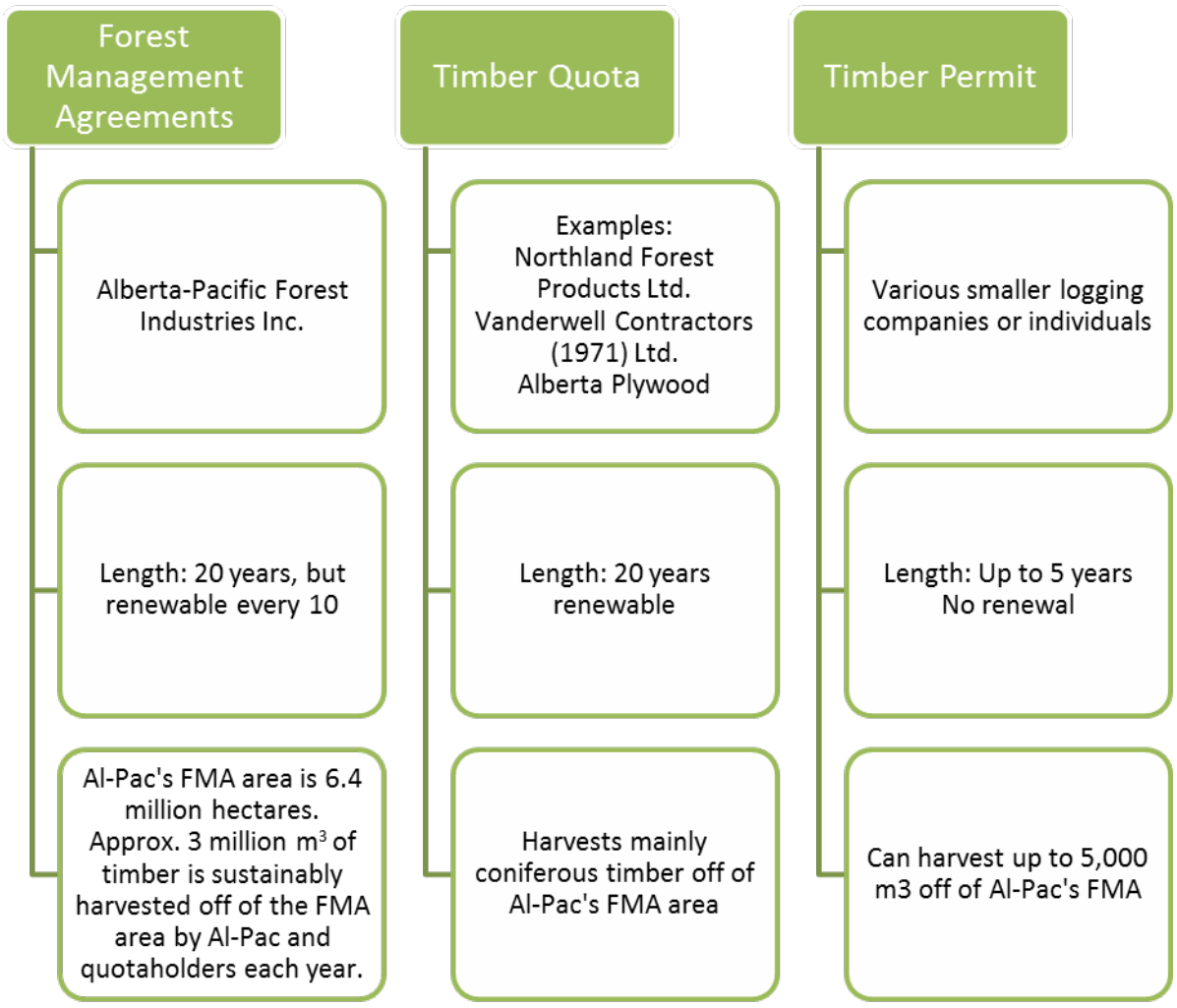
Al-Pac's Environmental Policy is integral to how the company does business. All team members and contractors are required to follow the policy that commits the company to minimizing its impact on the environment by working closely with government, Aboriginal peoples, and the public to:

- Apply ecologically sustainable forest practices.
- Implement and maintain pollution prevention procedures.
- Develop new operational techniques.
- Diligently operate Al-Pac facilities to ensure compliance with legislation and other requirements.
- Work to improve environmental management systems.

For additional information regarding Al-Pac visit www.alpac.ca

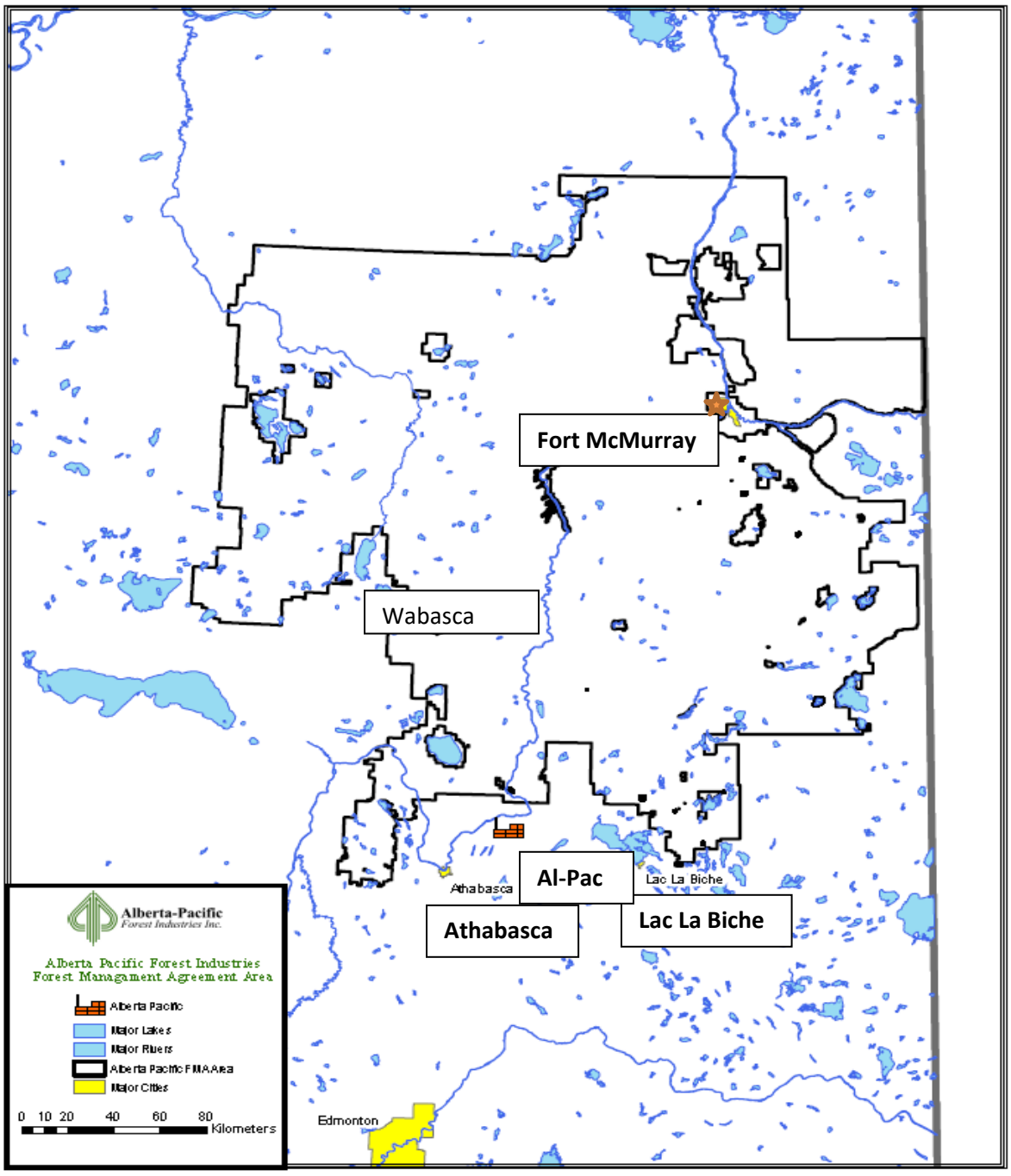
Forest Tenures

Alberta's Forests Act gives forest companies the ability to harvest timber in Alberta. This ability is provided to companies and individuals through forest tenures. Alberta Agriculture and Forestry (AAF) administers those tenures and ensures that Alberta's forests are managed in a sustainable manner. There are three main forest tenure systems provided in Alberta:



The FMA…

Al-Pac has a Forest Management Agreement (FMA) with the Government of Alberta to sustainably harvest deciduous (leafy, hardwood) and coniferous (cone bearing, softwood) trees. An FMA is an area-based tenure agreement that gives a forestry company the right to establish, grow and harvest timber. The FMA provides Al-Pac with a secure fibre supply.



This agreement is reviewed and negotiated every 20 years, or earlier at the company's request. In return, Al-Pac assumes primary responsibility and accountability for forest management planning and public consultation, and seeks to maintain healthy forest ecosystems on the FMA area. The company is responsible for managing the timber resource to provide a sustainable supply of wood, while considering wood consumed by other forest companies, the energy (oil and gas) industry and natural disturbances, such as forest fires. Al-Pac's current FMA was signed in 2011.

The FMA area encompasses 6.4 million hectares of boreal mixedwood forest in northeast Alberta. About 2 million hectares of the FMA area are considered harvestable productive forest, while over 4 million hectares are comprised of wetlands (bogs, fens and muskeg), non-commercial black spruce stands, and non-harvestable forest areas (river valleys, slopes, protected areas and riparian buffers) as well as areas affected by wildfire. Parks, forestry and environmental reserves also exist within the FMA area but are not included in the total number of harvestable hectares.

Quota Holders

Although Al-Pac holds a Forest Management Agreement (FMA) granted by the Alberta government to grow and harvest timber in a specific area of the province's forest land base, it is not the only forest company with active timber harvest operations within this boundary. There are seven forest companies that hold a coniferous timber quota to harvest timber within Al-Pac's FMA area. These companies are referred to as "Quota Holders".

When the province grants an FMA license, it does so with the intention that the area within that FMA boundary will be managed for both sustainability and multiple uses. This includes all industrial activities that may be licensed within that area. Because Al-Pac primarily harvests deciduous timber, such as aspen and poplar trees, the Alberta government grants coniferous timber quotas that allow other companies to harvest coniferous timber, such as pine and spruce trees, within Al-Pac's FMA boundary.

Timber Quotas are granted for a period of 20 years, and are regulated by the Alberta government. As such, Quota Holders must meet forest management planning and timber harvest operation requirements laid out by the province throughout the duration of their tenure. The amount of timber that may be harvested annually by any one Quota Holder varies from 1,000m^3 to 1,000,000m^3. This amount is determined with sustainability in mind as timber quotas are calculated based on how much timber in total, including both deciduous and coniferous trees, should be harvested from an FMA area in a given year.

While Al-Pac does not oversee the timber harvest operations of the Quota Holders active within Al-Pac's FMA area, in order to ensure the forest within the FMA area remains healthy and sustainable, the company must consider the amount of timber harvested by Quota Holders within its forest management planning process. This consideration is an important component of Al-Pac's Forest Management Plan, as well as its Spatial Harvest Sequence and Timber Supply Analysis.

In addition to good forest management planning practices, Al-Pac and quota holders work together at an operational level to minimize the environmental footprint on the forest land base through integrated operations.

Introduction to Forestry in the Boreal Forest

Harvests mimic natural disturbances, such as fire. Harvest areas are irregular in shape, a variety of sizes and have various patches left standing.

Fire has been the main natural disturbance that has shaped Alberta's boreal forests for the past 10,000 years. Plants, animals and ecosystems have adapted to forest fires that sweep through the forest every 40 to 150 years. Fire creates unique new habitats for wildlife and helps maintain the natural balance of young and old forests found in the Al-Pac FMA area.

There has been considerable research into fire ecology and how forest fires historically maintained biodiversity across the boreal forest landscape. Specifically:

- Frequency - how often fire occurs on a given piece of land?
- Size - what range of fire sizes occur on different parts of the FMA area?

- Intensity - how hot do the fires burn; distribution and size of skips (patches of trees left unburned)?
- Biotic response - how do the plants, animals and insects respond to fires?

These characteristics of fire are now used by Al-Pac as a guideline for establishing the type, size and distribution of cutblocks and stand structure. Forest harvesting strategies are patterned after fire with a goal to minimize the effects of harvesting operations and restore the ecological benefits of fire by mirroring this natural disturbance as closely as possible.

This includes approximating the stand structure retained after forest fires by leaving variable patches of trees standing in cutblocks. In addition to work done at the stand or cutblock level, a landscape level harvest approach is designed to maintain landscape patterns created by forest fires at large scales while ensuring a continued fibre supply. For example, traditional cutblocks are small and regular in shape. Al-Pac's harvest sites follow natural stand boundaries, are a variety of shapes and sizes, and leave a mix of different aged stands across the landscape. Imitating large forest fire patterns requires a mix of harvesting techniques and bigger disturbance sizes. Studying natural disturbances, their differences and similarities to forest harvesting, and the associated responses of biodiversity to both is an ongoing process. By applying this knowledge, managers of the boreal forest will be able to reduce the differences between the two types of disturbance. The more harvesting practices and other human disturbances conform to natural variability, the more likely it is that a healthy ecosystem will be maintained.

Sustainable Forest Management

The Canadian Forest Service (CFS) defines Sustainable Forest Management as…

"Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations."

Note that according to this definition, sustainable forest management involves a lot more than growing trees after harvest.

This CFS definition is embraced through a variety of initiatives:

Economic, Social and Cultural Sustainability

- Contributing to the economy.
    - Hiring local individuals and contractors as much as possible.
    - Purchasing more than $100 million in Alberta goods and services annually, mainly in the nearby region.
    - Investing in scientific research and development.
- Supporting communities.
    - Partnering with First Nation communities to create employment, economic development and educational opportunities.
- Supporting education through training and scholarship opportunities.

- Utilizing consultation and community engagement to assist with the development of forest management practices.
- Maintaining certifications that demonstrate social and environmental values. For Al-Pac these certifications include Forest Stewardship Council (FSC) and Progressive Aboriginal Relations (PAR) Gold level certification.

Environmental Sustainability

- Maintaining biological diversity.
- Protecting the habitat of species-at-risk.
- Maintaining the distribution of coniferous, deciduous and mixedwood stands.
- Reforestation.
- Avoiding impacts on groundwater and surface water resources.
- Designing harvest patterns to approximate natural disturbances.
- Working with other industrial users within the forests of northeast Alberta to minimize the combined industrial footprint on the landscape through Integrated Land Management.

Economic, social, cultural and environmental sustainability involves a balance that can be difficult to determine because many costs and benefits cannot be measured in dollars and cents. Furthermore, there may be conflicts and trade-offs among economic, environmental and social objectives that need to be weighed and judged together as well as individually. If there are negative effects, are they temporary or permanent? Are there alternative approaches or ways to reduce impacts?

Areas of high environmental, social or cultural values often exist around water features.

Recognizing Forest Values

Within the forest in which Al-Pac operates there are areas that have been identified as having high environmental, social or cultural importance which may require special management. Many areas and values are already protected in some way, whether in river valleys or around lakes, or in Operating Ground Rule buffers and deletions from harvest.

This concept of High Conservation Values (HCVs) within the forest is part of responsible forest management. Within the FMA area High Conservation Values may exist in the areas of:

- Species diversity
- Landscape level ecosystems
- Rare or threatened ecosystems and habitats

- Community needs
- Cultural values

The values are recognized and supported in a number of ways, including:

- protected areas and conservation areas
- special planning and operating practices
- protection of large wetland areas
- forest planning at a landscape level
- special consideration for old growth forest during forest planning
- consultation and community engagement

Protected Areas

Al-Pac recognizes the importance of protecting representative sample areas of native ecosystems in the FMA area. Work is underway with other forest licensees, communities and stakeholders committed to sustainable forest management principles, to assess the completeness of existing protected areas networks in Northeast Alberta and Northwest Saskatchewan. Should this analysis find that the existing protected area network does not meet the desired level of conservation, Al-Pac and its partners will work collaboratively with community and stakeholders to identify additional areas for conservation.

Wildlife

Forest wildlife species can vary widely in what they need for their habitat requirements reflecting different strategies for obtaining food, avoiding predation, and meeting other requirements of life. Many species have specialized requirements designed to minimize competition with other species. Because of these differing needs, the overall diversity of forest species is dependent upon the diversity of habitat features. The diversity of habitat in the boreal forest is in turn dependent on the combined actions of disturbance events, like fire, and forest succession (how the forest ages over time). Thus, the greater the structural complexity of the forest, the greater the number of wildlife species it can support.

Operating Ground Rules and Wildlife

Habitats of selected wildlife species require maintenance of undisturbed sites like breeding or denning locations. These sites are protected by the Government of Alberta's Operating Ground Rules (OGRs) through retention of an undisturbed, forested buffer. The following sensitive sites and associated wildlife are listed in the current OGRs:

- Breeding sites and wintering locations of Species-at-Risk
- Bat hibernating sites
- Colonial bird nesting areas
- Sandhill crane nesting areas
- Wolverine dens
- Mineral licks
- Raptor nest trees
- Natural springs and beaver ponds with no outflow channel

- Grizzly dens *(none found to date in FMA area)*

Moose

What you have told us:

Through public consultation there have been two mammal species identified that appear to attract the most stakeholder attention: moose and woodland caribou. Furbearers and deer are also identified as important wildlife species. The OGRs deal with species at risk, such as caribou, and socially important species, like moose.

Moose

As demonstrated in community meetings, moose are likely the most valued wildlife species in the FMA area. They are an important focus of Aboriginal and non-Aboriginal hunting, have high viewing value, and have considerable value related to success in the guiding and outfitting businesses and related retailing. Moose occur throughout the FMA area. They are an adaptable species and are well suited to sites where forest succession has been set back by fire or by logging creating abundant shrub production. Optimal moose habitat may occur where sufficient forest cover has been retained to maintain connectivity among important habitat features, such as conifer cover, shrub-land or newly generating forests, wetlands and riparian zones.

Woodland Caribou

Potential negative impacts of larger, aggregated harvest blocks on moose habitat are addressed through harvest area planning which limits line-of-site and maintains connectivity of habitat through unharvested, retained stand structure.

Woodland Caribou

Caribou is arguably the most critical wildlife species in northeastern Alberta. It has been a focal point of the Canadian Boreal Forest Agreement (CBFA), the Lower Athabasca Regional Plan and federal initiatives. Based on research by the University of Alberta and the Alberta government, woodland caribou populations in northeastern Alberta are not self-sustaining. Woodland caribou are listed as threatened under Alberta's *Wildlife Act* and the federal *Species at Risk Act*.

Al-Pac has prepared a Caribou Conservation Strategy for the FMA area that includes planning, operational, and research activities that can effectively assist in protecting or restoring caribou habitat. Al-Pac's activities outlined in the strategy include:

- Identifying strategies for long-term caribou habitat management to be implemented through government-led range plans
- Identifying planning and operational aspects of caribou conservation in relation to the Northeast Alberta Operating Ground Rules (OGRs).
- Promoting protected areas as an important component of the landscape.
- Actively participating in coordinated restoration of seismic lines and other linear features in caribou range
- Supporting monitoring, research, and participation on external committees.
- Promoting engagement, leadership, and participation on provincial and national caribou conservation initiatives.

In addition to the Caribou Conservation Strategy both Al-Pac and NFPL are committed to following the OGRs and operating objectives that mitigate impacts on caribou populations and habitat, such as:

- Closing out planning units wherever possible during one operating season.
- Using the early in /early out principle for planning operations.
- Maintaining a short time lag between phases of operations.
- Promptly reclaiming temporary roads.
- Avoiding areas of terrestrial lichen growth.
- Coordinating timing with other users to reduce continuous access throughout the winter.

Al-Pac continues to play an active role in the Alberta government Caribou Range Planning Process. The Caribou Range Planning Process is a multi-stakeholder approach to build on existing work and develop actions and strategies to meet provincial and federal caribou population and habitat objectives. In addition to public information sessions, the process builds on recommendations developed through a collaborative approach with environmental organizations, forest companies, communities, Indigenous peoples, industry and other stakeholders. Some caribou range planning initiatives currently being actioned on the ground include; restoration of linear features and aggregated harvesting.

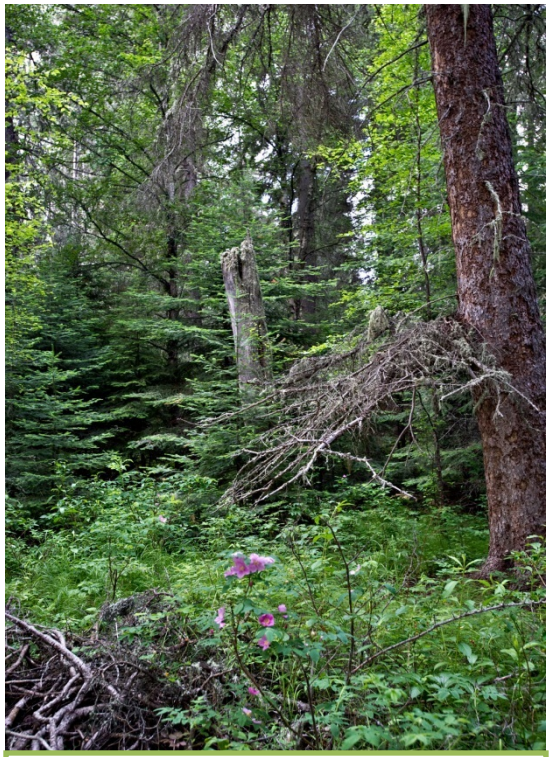
Furbearers

Currently, through the Al-Pac's Woodland's trapper coordinator, Al-Pac has continuous communication with affected trappers in our planning units. Trapper notification typically occurs up to three years ahead of actual harvest and can result in a combination of shifting of block boundaries or special buffers around selected furbearer habitat.

Biodiversity

Biodiversity, also referred to as biological diversity, refers to the variety and abundance of species - from insects to moose - and the natural communities, ecosystems, and landscapes in which they occur.

Nature and biodiversity provide life-sustaining services: clean water to drink, clean air to breathe, soil for agriculture, plants for medicines and much more. Biodiversity is also an indicator of how well land and water systems are functioning. Maintaining biological diversity on the landscape is a central goal of sustainable forest management. Consequently, Al-Pac and NFPL consider and alleviate any impact their forest operations may have on biodiversity. Some of the initiatives that have been implemented are:



Mixedwood forests, with both deciduous and coniferous trees, are important to biodiversity.

- Using a coarse-filter approach to forest management. The coarse-filter approach is a landscape level concept and ecosystem approach that tries to mirror natural disturbance processes like fire. Biodiversity is maintained primarily by making sure that the distribution of ages and types of forest stays within the natural range of variability (NRV), thus providing habitat for plants and animals. Due to the effects of wildfire, however, the ranges of variability are quite wide within the boreal forest.
- Maintaining the diversity of mixedwood sites containing both deciduous and coniferous species. Traditional forestry practices would return harvested sites to either all-conifer or all-deciduous stands. This issue has partially been addressed through understory protection (avoiding damage to young conifer while harvesting mature aspen in mixedwood stands). The Alberta government's adoption of new regeneration standards (RSA) in 2010 has directed forest companies to ensure reforestation of mixedwood sites.
- Taking measures to protect habitat important to wildlife identified as Species at Risk. Within the FMA area, Woodland Caribou and Trumpeter Swan are two species that receive enhanced management considerations.
    - Steps have been taken to avoid impacts on caribou and their habitat, and Al-Pac participates in regional and provincial initiatives to protect the species.
    - Trumpeter Swan lakes are protected with undisturbed buffers

Working with other forest companies and the energy sector through Integrated Land Management (ILM) agreements to reduce the ecological footprint (the cumulative effects of forestry and energy sector activities) compared to what might otherwise occur without integrated planning.

Monitoring

Monitoring the effects of forest management actions on biodiversity is important to determine if those actions are effective, or if changes might be needed to achieve the desired outcomes. Therefore, Al-Pac is a supporting member of the Alberta Biodiversity Monitoring Institute (ABMI), a registered not-for-profit, member-based organization dedicated to systematically measuring and reporting on changes in biodiversity, habitats and other environmental disturbances, either natural or man-made, across Alberta.

Analysis of ABMI data allows Al-Pac and NFPL to determine if biodiversity responses are within the range of variability that exists in nature. The ABMI uses a cumulative-effects monitoring approach to detect the ecological effects of environmental stresses on habitat elements as well as hundreds of plants, animals, lichens, and mosses; in the Al-Pac FMA area, 684 species were assessed (alpacreport.abmi.ca). This is accomplished by sampling biodiversity at regular intervals at over 1,500 permanent sites distributed across Alberta. Monitoring results from the ABMI provide a scientifically credible means to evaluate status and trends in biodiversity, and insight into potential relationships between trends and underlying factors.

The institute's 2020 report on the FMA area indicates that habitat and species are 94.6% intact (alpacreport.abmi.ca).

Integrated Land Management

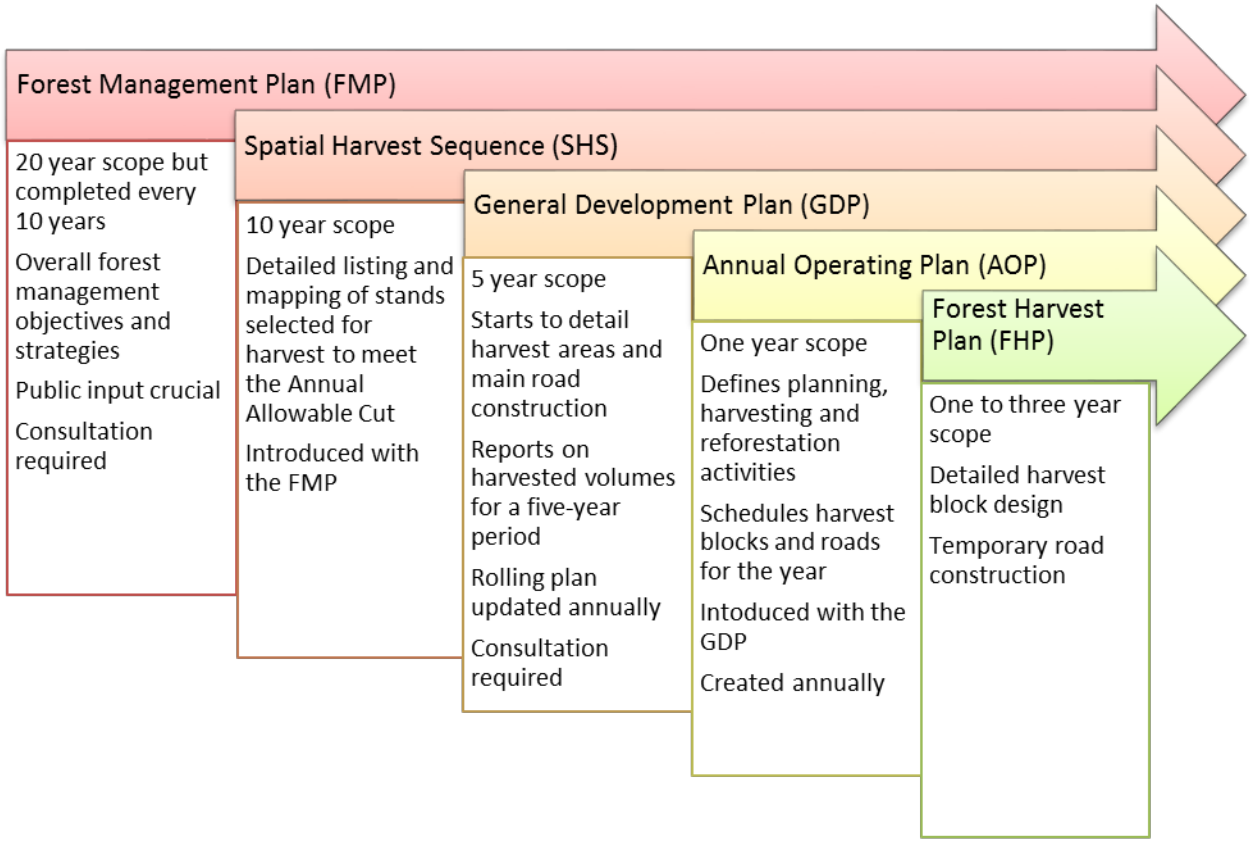
Northeastern Alberta is rich with natural beauty, abundant resources, vibrant communities and people. As a result, there are competing demands for the landscape – including recreational pursuits, roads, seismic lines, pipelines and other oil and gas activity, as well as forestry. All of these activities contribute to changing the landscape. Integrated Land Management (ILM) is the coordination of activities from the initial land-use to the eventual return of the area to a reclaimed state.

It's no secret that northeastern Alberta is one of the busiest regions when it comes to resource activity. The process of oil and gas development in the FMA area generally follows the sequence of exploration, project planning, project development, ongoing operations, decommissioning and reclamation. Al-Pac can implement ILM initiatives with resource companies at any stage of this sequence and past partnerships show that using Integrated Land Management techniques have many benefits. By working together and coordinating forest harvest operations with oil and gas exploration and development, companies are helping reduce loss of productive forestland, while saving operational costs and minimizing cumulative effects on the boreal ecosystems. For instance, Al-Pac attempts to coordinate their harvests within the Surface Mineable Area with other industrial users as much as possible. Fibre realized through ILM projects for Al-Pac will reduce harvests elsewhere on the FMA area.

Once an energy sector activity is concluded, Al-Pac is also able to offer reclamation services, doing something that is part of Al-Pac's normal operations, turning the disturbed land back into a viable forest.

The Planning Process

Maintaining a sustainable forest that has many users while securing economic, social and environmental benefits requires a lot of input and planning. The process starts with knowing what that forest looks like now and determining what the forest should look like into the future. That first step is completed as part of the Forest Management Plan. The FMP paints the big picture many years in advance. As the planning process continues a variety of other plans are created that gradually include more detailed information. The final step in the planning process is the Forest Harvest Plans. These plans are so detailed they can specify where the ribbons go within a harvest block and the location of a specific raptor nest. Having public input early in the process is crucial in ensuring that the following, more detailed plans honor the overall values of the people, communities, companies and other stakeholders that have a vested interest in a healthy forest.



The Forest Management Plan

As the FMA holder it is Al-Pac's responsibility to develop the Forest Management Plan (FMP) for the FMA area. The FMP is the first step in the forest management planning process. This important document considers how to maintain a sustainable forest over the long term. The FMP outlines strategies regarding where, when and how the forest land base will be managed, and includes information about timber harvest operations, reforestation, environmental footprint and community engagement. Once completed, the FMP becomes the guide to forest stewardship on the FMA area for a period of 10 years, providing the base from which more detailed planning documents are developed.

As a forest management guide, the FMP is centred on a commitment to preserve key forest values. These values represent a picture of what a sustainable forest looks like from environmental, community and economic points of view. More specifically, this picture considers what factors contribute to such things as:

- The health of wildlife habitat, soil, water and plants;
- Forest structure and what size, age and types of trees should be present on the land base for the forest to thrive;
- How communities and people use the forest to live and work; and
- How to facilitate cooperation with other industries active in the area of operation.

From this picture, the FMP identifies a number of objectives Al-Pac must meet throughout the course of their more detailed forest management planning and timber harvest operations activities. These objectives then inform specific strategies intended to meet the goal to maintain a sustainable forest, and include such things as:

- How much timber should be harvested within a given year;
- How roads will be built to access timber harvest areas;
- How the impact of forest operations activities on wildlife, soil and water will be assessed and monitored; and
- How communities will be engaged in the planning process.

The development of the FMP is a collaborative effort; it is prepared by Al-Pac according to guidelines set out by the Alberta government, and includes input from other forest companies, Al-Pac's Landscape Advisory Group and the public. With the help of these partners and stakeholders, Al-Pac can develop an FMP that honors the overall values of the people, communities, companies and other stakeholders that have a vested interest in a healthy forest.

Alberta Land Use Framework regional plans and Al-Pac's Forest Management Plan

The Government of Alberta has developed the Land-Use Framework (LUF) to manage growth in Alberta in a manner that balances the province's growing economy with Albertans' social and environmental goals. The LUF establishes seven new land-use regions and calls for the development of a regional plan for each.

Al-Pac's FMA area exists within three of the regions identified within the LUF; the Lower Athabasca, Upper Athabasca, and Lower Peace. Of those regions, only the Lower Athabasca has a regional plan that has been developed. The regional plans for the Upper Athabasca and Lower Peace are still in development.

The Lower Athabasca Regional Plan (LARP) considers the cumulative effects of all activities on air, water and biodiversity. It establishes new environmental frameworks with limits to protect air and surface water quality, and increases the total conserved land within the region to more than two million hectares; three times the size of Banff National Park.

The objectives of Al-Pac's FMP need to flow out of the overriding landscape objectives identified within the LARP. Al-Pac also has to recognize that there is more regional plan development that will take place within the FMA area.

Coarse Filter Approach

While developing the FMP, Al-Pac makes use of a coarse-filter or ecosystem management approach.

The coarse filter approach is a landscape level concept which assumes that:

- Forest planning should be consistent with conditions under which species and ecosystems have evolved.
- The more closely that managed disturbances (forest harvesting), approximate natural disturbances (fire) the lower the risk of losing natural biodiversity.

This umbrella-style approach focuses on managing ecosystem processes and attributes rather than managing individual components. In doing so, the natural habitats and most stand-level elements (such as stand structure and wildlife trees) are maintained.

Much of Al-Pac's research has focused on monitoring and improving the coarse-filter approach. One tool that is useful in verifying the effectiveness of coarse-filter forest management in the FMA area is ecological benchmarks (large, representative portions of land where there is no harvest or industrial development). Such benchmarks can be used to compare processes in undisturbed forests with those in similar forests that are under management so that differences can be studied and addressed. Al-Pac assisted the Government of Alberta (GOA) in establishing two large benchmarks within Al-Pac's FMA area - the Gipsy-Gordon and Dillon River Wildland Parks.

The Timber Supply and the Spatial Harvest Sequence

Ensuring forest sustainability over the long term is a complex process, and incorporating that process into forest management planning is equally as challenging. It requires Al-Pac to figure out not only where to harvest timber within the FMA area and under what conditions, but also just how much timber should be harvested and when should it be done? Fortunately, there are a number of tools and map products available that help to answer these important questions.

One of these tools is called the Timber Supply Analysis (TSA). Although it sounds complicated, the TSA is essentially a computer program that produces a FMA area map that allows Al-Pac to link the forest stewardship strategies outlined in the FMP with the tactical aspects of timber harvest operations. This map is the Spatial Harvest Sequence (SHS) – a 10-year view of potential areas to harvest timber. In other words, the TSA allows Al-Pac to input data with respect to a number of key forest values that contribute to forest sustainability, such as watershed protection, ecosystem management and old forest growth; this data is then used within a computer model that provides a map of where and how much timber could be harvested annually from what locations. This model not only helps to see if there is a sustainable supply of timber to meet business needs, but also that the timber harvest operations are conducted in a way that preserves the health of the forest for the long term.

The Timber Supply Analysis and the Spatial Harvest Sequence help determine how much timber can be sustainably harvested annually while still maintaining key forest values. This is called the Annual Allowable Cut (AAC). For the 2021/22 timber year:

- Al-Pac's AAC is 2,422,200 m^3 for deciduous timber and 293,585 m^3 for coniferous timber.

The TSA and SHS help to forecast this picture of sustainable forest management planning and timber harvest operations 200 years into the future. However, because conditions change, timber supply maps generated through the SHS are produced in 10-year increments. This 10-year timber supply plan becomes the basis on which more detailed timber harvest plans are developed.

Like all aspects of forest management planning, the timber supply is a collaborative effort; it is prepared according to guidelines set out by the Alberta government, and includes input from communities and stakeholders with a vested interest in the maintenance of a healthy forest.

Operational Planning - General Development Plan

If you were to compare forest planning to building a house, the Forest Management Plan (FMP) would be where you start to think about what neighbourhood you would live in, what you could afford to build, what general style you would want and what characteristics or features you would need to match your lifestyle. The General Development Plan (GDP) would then be the blueprints for that house. You would know the square footage, how many rooms, what the accesses looked like and how much it would cost. Like a house blueprint, the GDP is when the development starts to become real. You can "see" it. You can see what is going to happen where. Harvest areas are mapped out. Road requirements are determined.

GDPs project activities for a five-year period. The 2021/22 GDP projects Al-Pac's forest activities from May 1st, 2021 to April 30th, 2026.

The GDP is a rolling plan, meaning that, although it covers a five-year period, it is updated and consulted on annually. GDPs are intended to guide the integration of activities within the FMA area.

You can find the 2021/22 GDP map at the end of this document.

Items that you will find on the GDP map include:

- lakes, rivers and streams
- roads
- protected areas and parks
- Indian Reserves
- Métis Settlements
- cities, towns and urban areas
- Al-Pac's FMA area
- and planning units

The planning units are areas where harvests are planned. It is important to note that the entire planning unit is NOT being harvested. The planning units are merely locations that include a number of cutblocks where the harvests will occur.

The GDP map will specify when the harvests are *expected* to occur within the planning units, however the dates can be subject to change.

As a planning unit moves closer to its date of harvest, more planning activities are completed within the planning unit boundary. Input early in the planning process is important as specific concerns are more easily addressed in the early years.

For Al-Pac, consultation and community engagement is a necessity for GDP development. The companies gather input from First Nations, Métis, trappers, communities and stakeholders to incorporate within operational planning whenever possible.

Operating Ground Rules

From forest planning through to the regeneration of the forest, Al-Pac is required to follow the Government of Alberta's Northeast Alberta Operating Ground Rules (OGRs). OGRs are a set of rules that establish practices that minimize the chance of negative impacts of roads, timber harvesting and other forest management operations. OGRs are in place for:

- Operational Planning – Delineate the planning process from the Forest Management Plan (FMP) down to the Annual Operating Plan (AOP).
- Utilization – Ensure that harvested trees are used to their full potential. Utilization ground rules specify things like – stump height, merchantable tree size.
- Integration with other users – Minimize the forest operations impact on other users, as well as the combined impact or footprint of all users on the forest landscape. Other forest uses like recreation, trapping, range management, aesthetics, as well as historical and cultural resources are taken into account.
- Watershed Protection – Establish watershed classification and the no-harvest buffers required to protect those watersheds.
- Habitat Management – Assist to maintain the biodiversity and ecological integrity of the forest landscape. One consideration to accomplish this is to mirror the variability of natural disturbances like fires. These OGRs include:
    - Maintaining a balance between debris management and habitat creation for furbearers.
    - Leaving retention patches for thermal or hiding cover for ungulates like deer, moose or caribou.
    - Protecting white spruce understory.
    - Maintaining treed buffers and taking special care around riparian areas to prevent forest operations from impacting aquatic habitat, productivity, and aquatic or fish species health or abundance.
    - Following provisions to protect species of special management concern such as Woodland Caribou and the Trumpeter Swan. For instance, in the case of the Woodland Caribou an emphasis is placed on winter roads within caribou habitat to decrease the impact of harvesting on the ungulates and reduce long-term infrastructure. As well, large retention patches are left in the harvest patterns to protect areas of concentrated terrestrial lichen growth (the caribou's food supply).
- Silviculture – Enable reforestation activities after harvest to result in the desired establishment, growth, composition, and quality of forest vegetation to ensure the sustainability of the forest for a variety of present and future uses.
- Soil – Protect forest soils to ensure the capability of a site to support healthy forest tree growth. Soil ground rules work to minimize soil disturbance, erosion and compaction. They also prevent soil from entering waterways.
- Forest Health Protection – Minimize the risk of occurrence and spread of insects and disease, as well as prioritize the salvage of timber damaged by insects and disease. Additionally, forest companies are required to minimize the impact of noxious and prohibited noxious weeds within the FMA area.
- Roads – Ensure that roads crossing watercourses do not negatively impact the aquatic environment, ensure that access controls are in place to protect key resource values, and ensure that camps and other temporary facilities have minimal impact on the environment.

This Al-Pac cutblock demonstrates many examples of OGR requirements, such as buffers around a waterbody, understory protection, and retention patches.

Forest Harvest Plans

The document or plan that links the higher level plans to what happens on the ground is the Forest Harvest Plan.

A few years prior to an area being harvested, forest planners will initiate the Forest Harvest Plan. The first step is to consider all of the information they have for the area planned for harvest. This includes vegetation maps for the area, air photos, topographic information and information provided by communities and stakeholders. With this information they will begin the process of establishing or drawing the boundaries of the cutblocks, as well as the road network needed to get from the permanent roads to those cutblocks.

Once all of the blocks for a planning unit are sketched out, a layout crew will hit the ground to ensure those plans make sense. This is when flagging ribbons are tied in the forest and you may start to see evidence that there is activity planned for the area. Any changes required to the plans discovered during the layout or ground truthing stage are communicated back to

Typical ribboning of a cutblock boundary.

the planners and adjustments are made to the plans. Things that are confirmed in the bush by the layout crew are:

- That the cutblock boundaries make sense or require adjustment;
- That the roads are placed in the right location;
- If there is a White Spruce understory that requires protection;
- If there are any wildlife features that need a buffer (e.g. raptor nests, mineral licks, dens);
- Watercourse sizes and potential for fish bearing and, consequent buffers and/or special operating conditions that would be required; and
- If there are any other sensitive sites or species of special concern.

Once the ground truthing or layout is complete the on-site information is relayed from the layout crew back to the forest planner who will use that information to generate a Forest Harvest Plan. The Forest Harvest Plan for the Planning Unit will be sent for approval to the Government of Alberta.

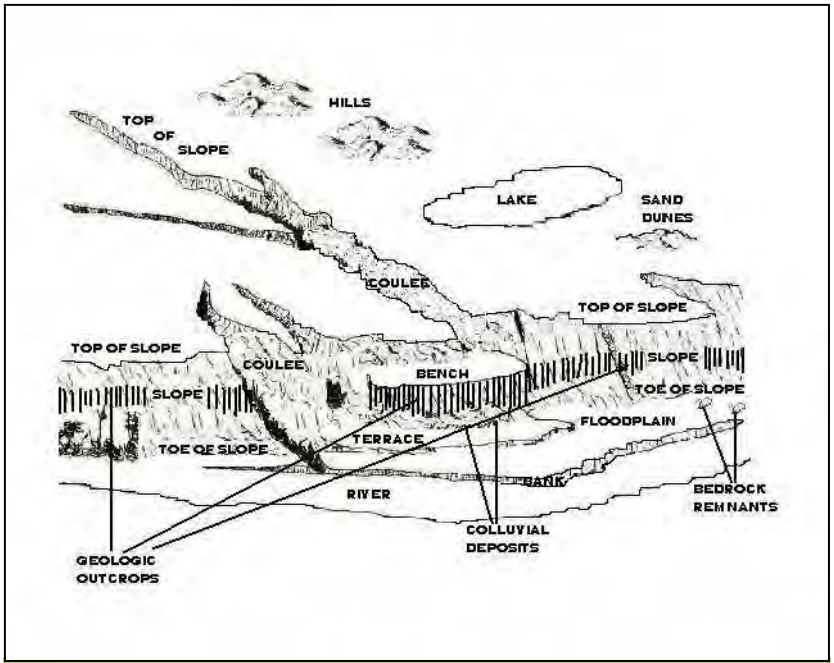
The Forest Harvest Plan includes:

- watershed management
- debris management
- expected timber volumes
- road lengths, types and watercourse crossings
- input from Aboriginal consultation, trappers, guides and outfitters and other stakeholders
- historical resources
- wildlife
- access management
- integration with other resource users
- buffers and other forest management practices in place to follow the Operating Ground Rules and explanations for any variances from those rules.

Approved Al-Pac Forest Harvest Plans are available for the public on Al-Pac's website at www.alpac.ca

Archeology

The Government of Alberta requires all activities that may cause a surface disturbance on the land have a Heritage Resource Review prior to development. A Heritage Resource Review can look for two main elements – archeological resources and paleontological resources. While forest harvesting activities are not extensive enough to impact paleontological resources, they could impact archeological resources, such as burial grounds, and sacred or ceremonial sites.



Archeological sites are often found through following terrain features that are identified as high potential by a Registered Professional Archaeologist. (Figure taken from Alberta Culture & Community Spirit Listing of Historical Resources)

While Al-Pac is legally obligated to ensure that such resources are protected within their operations, the companies are also sensitive to the reality that each community may define their own traditional use in different ways than that expressed by the provincial government.

To protect archeological resources, those resources must first be identified and located. The Historic Resources Management Branch controls a database containing a listing of what they call Heritage Resource Values. This database is populated with sites of a historic nature that appear as a generalized legal land description. This data is publicly accessible and the list is not comprehensive. The data is dynamic and added to twice a year.

Al-Pac acquires the services of archaeological consultants to complete Historical Resources Reviews and impact assessments for Forest Harvest Plans. The impact assessments include field investigations to identify heritage resource sites so they can be avoided. In addition, field crews are trained to assess, document and report on all features they may happen upon while traversing in the field.

Trapping

Within the FMA area there are around 400 Registered Fur Management Areas or traplines. Just like Al-Pac, trappers use the natural resources to provide them revenue. However, for many trappers, owning a trapline means more than the revenue that trapline can generate. Al-Pac recognizes that trapping is an important part of the culture and history of people in northeastern Alberta.

Trappers within the FMA area are some of the most connected people to the forested lands and resources. They are interested in what is happening to the forests in their area, they are informed and knowledgeable, and they have a personal stake in how the forest resources are managed.

Al-Pac's forest operations do have the potential to disrupt or hamper a trappers' ability to be successful. The companies have a responsibility to mitigate or lessen their impact on other resource users. To make sure they are working with their trapping neighbors, the companies utilize a Trapper Coordinator who works directly with the area's trappers.

Trapping is more than a source of income in Northeastern Alberta, for many people it is a way of life.

Early in the forest management process, before a single ribbon is tied in the forest, the Trapper Coordinator will contact trappers that may be impacted by the forest operations with a letter and a map. Then the Trapper Coordinator prefers to follow up that notification package with a phone call, visits with the trapper and, often, a trapline tour of the area being impacted.

Not only does the process followed by the Trapper Coordinator enable Al-Pac to share knowledge about the forest operations, it allows the trapper to share knowledge, such as:

- Location of traplines, cabins, trails, etcetera that are important to the trapper
- Areas and times of the year that are important to trapping success and where forestry operations should be adjusted

The notification process also helps the Trapper Coordinator and trapper find ways to minimize or resolve impacts on the trapline's success.

The information collected by the Trapper Coordinator is relayed to the forest planners and layout crews to ensure that any modifications to harvest or other mitigative measures needed are incorporated early in the process.

Capital Roads

Prior to entering into a new harvest area, it may be necessary to develop access into that area in the form of a capital (all-weather) road. Capital roads exist for more than five years and enable access and transport of fibre.

Al-Pac is currently constructing the Osi South Road/Seaforth Road on the horizon for 2021/22. (see the attached Access Development Plan)

When planning and developing capital roads Al-Pac works jointly with other industrial users and communities to provide the maximum benefit while minimizing the overall footprint. This approach has reduced the amount of road building within the FMA area by up to 30 per cent. Additionally, the resulting roads and bridges are often built to higher standards.

Al-Pac's detailed knowledge of the landscape (mapping its vegetation, soils, hydrology, etc.) has become another valuable asset in road planning. Providing this data to energy companies helps them make better informed decisions about access.

All capital roads require approval from the Government of Alberta. An environmental review is completed and the following elements are considered:

- Potential impacts and mitigation strategies
- Watercourses
- Water crossings
- Grazing dispositions
- Fish habitat
- Wildlife
- Soils
- Trappers
- Protected areas
- Recreation areas
- Heritage resources
- Integrated access

As directed by the GOA process, consultation with potentially affected First Nation communities and Métis Settlements is a requirement of capital road approval.

You can find the 2021/22 Alberta-Pacific Forest Industries Inc. Access Development Plan at the end of this document.

The Access Development Plan identifies projected class I, II and III road developments showing planning and construction timelines. The submission of road plans is a requirement of the Government of Alberta to assist with the facilitation and integration of access management among resource users (e.g., oil and gas industry).

Many of the roads are years away from development. For roads in your area that are closer in the planning horizon, addendums have been provided to facilitate your input into the planning process. These addendums provide specific, detailed information on road developments that will form part of Alberta-Pacific's record of consultation upon submission for the disposition. The level of detail provided is less specific the more distant the development is into the future. However, to ensure consultation is as comprehensive as possible, wide corridors are identified when specific centerline road details are not known. Providing information regarding the proposed corridors to communities several years in advance allows more time for site specific concerns to be identified and mitigated before the final alignment is created.

Once a capital road is ready to be submitted for disposition status a formal consultation process will be undertaken that is specific to that road.

Operations

Once all of the planning has taken place, from Forest Management Plan through to Forest Harvest Plan, it is time to put those plans into action.

If required, capital roads are constructed to provide access to planning units where harvests are scheduled. Temporary roads are constructed within the planning units to the specific blocks where the harvests will take place.

The majority of harvest activities will occur when the ground is frozen. This minimizes disturbance that can affect soils and watersheds. However, about one-third of Al-Pac's harvest will take place during the frost-free months on summer suitable ground for a number of social and economic reasons (i.e. year round work for contractors). Year-round operations maintain the flow of timber to the mill, make efficient use of roads and equipment, and provide economic security for contractors.

After the harvests are complete in an area and the roads are to be closed, site preparation equipment will be employed when necessary to ready the block for the planting of coniferous seedlings. Deciduous harvest areas are left for natural establishment of deciduous regrowth. All temporary roads and accesses are reclaimed. Harvested areas will continue to be monitored and treated as necessary until it has been determined that those areas will return to a healthy forest without any further treatment.

Incidental Activity

Incidental activities are necessary to facilitate operations and are directly associated with access development, harvest, haul, and silviculture undertakings. Where feasible incidental activities are located within the footprint of harvest areas. In some cases, incidental activities may be larger than half a hectare. Incidental activities may include but are not exclusive to:

- temporary work camps
- surface material exploration
- temporary roads
- decking areas and log storage sites
- borrow pits
- staging areas for equipment and supplies
- cone collecting
- seedling storage sites (winter caches)

Harvest

Once the blocks within a Planning Unit have been laid out with ribbons in the field, and access is established with capital and temporary roads it is time to begin harvesting.

Trees selected for harvest are cut by feller bunchers, skidded to piles where branches are removed and the stems cut to length by a processor. Al-Pac's harvest contractors use GPS technology in conjunction with the ribbons to ensure they stay within the block boundaries and cut only what they are supposed to. This is also the time when block roads are constructed to provide log truck access to log decking sites so that logs can be transported to the mill site, or, temporarily, to a log storage site. During this process regular inspections of the harvest areas and haul take place by Al-Pac staff to ensure compliance with government legislation, as well as company policies and procedures.

Equipment

Felling

Cutting the tree from the stump is referred to as felling. A **feller-buncher** or a machine with a harvesting head is the most cost-effective method of putting trees on the ground.

Skidding

Pulling the tree from the forest area (or 'stump') to a landing is referred to as skidding and is completed with a **grapple skidder**.

Processing

Once the tree is skidded to the landing, it must be processed, sorted and stacked before loading out onto the truck. This typically involves taking the branches off (delimbing), topping the tree, and then cutting the stem into logs ('bucking') according to a certain set of mill specifications. This is typically done with a loader that has a pull-through **delimber**, or a number of different machines.

Loading

Once the trees have been processed into logs, a **Butt n' Top loader** will load the logs onto log trucks. The grapple attachment on the knuckle-boom can be fitted with a grapple-saw to help top and buck the trees, and a heel on the boom provides stability. The loader is often involved in at least part of the processing of the logs.

Hauling

Al-Pac has 62 permanent fleet trucks in a twin (two) trailer configuration that haul the wood to the mill. There are also 150 temporary fleet trucks that can be in many different configurations.

Safety and Log Hauling

The safe movement of logs is a priority for Al-Pac. Consequently, the company has several initiatives in place to enable safety within their log haul fleets:

Mandatory Safety Training

All of Al-Pac's trucking contractors are required to have a Health and Safety Plan and are required to train professional drivers to high safety standards.

Safety Consultant

A Safety Consultant is contracted by Al-Pac to patrol the company's haul areas and work with truck operators and contractors. The Safety Consultant helps to ensure operators meet Al-Pac's safety requirements. He also provides them with road-side safety training.

Random Truck Audits

The Safety Consultant conducts random audits to ensure lights and reflective ribbons are properly attached to the load. He also monitors speed, weight and wrappers (used to strap the load to the truck). There is also a certified mechanic who periodically inspects the trucks and trailers to ensure that proper maintenance is being completed on the units.

Regular Safety Meetings

Al-Pac personnel conduct start-up safety meetings with truck owners and operators to address the needs and requirements of the communities they are hauling through.

Alcohol, Drug and Medication Testing Program

Al-Pac has a commitment to ensure drivers are fit for duty. As part of this commitment the company conducts various drug, alcohol and medication tests on log truck drivers. These tests range from pre-employment tests, random tests through the log haul season, as well as post incident and reasonable grounds testing. Any drivers not in compliance with the program are removed from the driver pool.

Onboard Monitoring

Al-Pac uses onboard monitoring within its permanent fulltime log haul fleet to monitor things like speed and load checks. This helps to ensure the Al-Pac drivers are safe and to keep the roads safe for other travellers as well.

Safety around Log Trucks

When meeting log trucks or other large commercial vehicles there are a number of safety tips you can use to help ensure you reach your destination safely. Some important points to remember are:

- Log trucks are very heavy and take longer to stop and maneuver than passenger vehicles. Be courteous and always give them plenty of time and space.
- If you cannot see the truck's mirrors when following it, the driver cannot see you. Keep a safe distance back so the driver can more easily view your vehicle.
- Give yourself extra time to pass large trucks since they are generally five to six times longer than passenger vehicles.
- Do not pass a turning log truck until the unit has completely cleared the intersection.
- Use extreme caution at all times and especially during periods of poor visibility. Fog or blowing snow not only limits your visibility; it also limits the truck drivers' ability to see you.

When a log truck turns the overhang at the end of the trailer could swing into the opposite lane making it very dangerous to

All permanent Al-Pac trucks have a plate on the front bumper of the truck with a number and a company logo. Other trucking companies may be identified

- Do not pull out in front of a log truck or any other heavy truck as it takes them more time to slow down.
- Give larger vehicles extra space and notice of your intentions at all times.

If you have questions or concerns regarding Al-Pac's log haul or the operations of an Al-Pac truck, please call Alberta-Pacific Forest Industries Inc. Truck Dispatch at 1-780-525-8124 (24 hrs. a day). When placing a call regarding a specific truck please provide your name, a contact number, the identification number or description of the truck, and a detailed description of the incident, including the time and place.

Silviculture

After Al-Pac has harvested trees in an area the companies are legally required to ensure those harvested areas are returned to reforested stands that will meet standards approved by the Government of Alberta. This process, known as silviculture, is based on the most current knowledge and best practices for establishing a healthy, quality forest to meet the diverse needs and values on the forest landscape.

The steps to a successful silviculture program include:

- Site assessment- Knowledge of how sites will respond to different treatments will result in better treatments and greater success in reforesting the sites.
- Prescription or plan based on the site assessment.
- Site preparation - Mechanical site preparation can be used to ready sites for conifer planting. This could include slash or debris management to create planting sites or scarification to create a warmer raised planting site in areas that are low and wet. This provides relief from vegetation competition, and promotes natural regeneration.
- Planting (if required) - When deciduous trees, such as aspen and balsam poplar are harvested, sunlight heats the ground and new trees sprout from the near surface roots. This process known as suckering means that most deciduous sites regenerate quickly after harvest without additional treatment. Harvests conducted on conifer (spruce or pine) sites are replanted with spruce and pine seedlings.
- Stand tending - Such as vegetation management which may include the use of manual (brush saws) or chemical (glyphosate herbicide applications) methods to control competing vegetation on conifer sites. Al-Pac's 2021

Deciduous (poplar and aspen) trees often grow back naturally through suckering. To re-establish conifer (spruce and pine) on a site planting is required.

Vegetation Management Program will include the treatment of approximately 558 hectares.
- Monitoring of tree growth.
- Back to forest – After about 14 years the harvested areas are expected to return to a healthy, productive forest without any additional help from Al-Pac.

Additionally, measures taken during the harvest of a cutblock can aid in the re-establishment of a healthy forest during the silviculture stage. For instance, measures to avoid soil compaction during harvest help ensure a suitable growing site for young trees. As well, in many stands of deciduous trees within the FMA area a conifer understory may exist (young conifer trees under mature deciduous trees). In those areas loggers will take special care and measures to protect young conifer trees (mainly white spruce). This enables those stands to grow back into their original mixed forest of deciduous and coniferous trees. By enabling the productivity and health of the conifer understory the biodiversity of those stands is preserved.

Temporary Road Reclamation

Temporary roads are roads within cutblocks and roads that connect cutblocks within a planning unit to access and transport fibre.

Temporary roads are constructed just prior to harvest beginning in an area and are reclaimed immediately after harvest is complete. If the harvest in an area spans a number of years, there could be seasonal or temporary reclamation on roads that have periods where their use is not necessary. This enables Al-Pac to use the road again when it is needed, but prevents access and erosion in the meantime.

Temporary roads are constructed using existing access (seismic lines, trails and existing roads) in all cases where it is practical and feasible. As well the total area covered by temporary roads, bared processing areas, and soil displaced during timber harvest cannot exceed five per cent of the harvest area. This helps to minimize the footprint on the landscape.

Roads and landings are constructed to avoid unstable soils, water source areas, springs and seepage areas. The intent is to minimize soil damage and provide the best conditions possible to reclaim or revegetate the roads after their use is no longer required. As roads and landings are being constructed the debris from the clearing and stripping is set aside to be placed on the road right of way at reclaim. This debris will restrict access, stabilize erodible soils and slopes, minimize surface water flow, and contribute to furbearer habitat and revegetation of the site. Revegetation has to be completed as operations wrap up in an area as soon as soil conditions permit.

Additionally, at the conclusion of road reclamation the road area will be reshaped to an acceptable landform and decompacted. Water course crossings and drainage structures will be removed, stream banks and approaches reclaimed, cross ditching completed, and the top soil rolled back.

Forest Protection

Al-Pac has a vested interest in protecting the boreal forest resources of northeastern Alberta. Fire is the predominant natural disturbance on the landscape in this region. More than 600,000 hectares have burned within the last 10 years. Insects and disease also affect forest composition, and can contribute to the risk of forest fires.

Fire

In all aspects of forest operations staff and contractors are required to abide by the Government of Alberta's Forest and Prairie Protection Act and Regulations.

Precautions taken within the forest include spark arresters on engines, cleaning of equipment, parking machines on bare ground, smoking limitations and requirements regarding fire suppression equipment. As well, when requested by the Government of Alberta, Al-Pac will provide personnel to assist in fire suppression.

Insects or Disease

The Northeastern Alberta Operating Ground Rules prioritize insect and disease control based on minimizing fire hazard, preventing reduction or loss of merchantable volume, and maintaining landscape aesthetics. Insects or diseases that pose a threat to forests in Northeastern Alberta that Al-Pac can help reduce the spread of include the mountain pine beetle, spruce budworm, tent caterpillar and mistletoe. Risks are prioritized based on government protocols. Aggressive action may be taken to harvest an infected area or conduct single tree treatment to prevent spread.

Noxious Weeds

Al-Pac follows Alberta laws in regards to the eradication or control of restricted or noxious weeds.

We want your input…

Al-Pac encourages input at any time in their operations. This being said, input that is received as early as possible into the forest planning process will result in the best opportunities to incorporate those contributions into the forest operations. Please advise us at any time if there are any concerns or questions your community has regarding the information provided. Al-Pac is interested in the following;

- Specific traditional sites or specific impacts on treaty rights for consultation purposes.
- Understanding non-site-specific concerns which are related to the communities traditional legal and customary rights.

We would also like to get to know you! Al-Pac is always eager to learn more about your community and participate in events at any time of year. Please feel free to contact Haley Alm, Indigenous Relations Coordinator, so that we may coordinate opportunities to get to know one another more.

Please contact:

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Approved Al-Pac plans are available for review on the company's website at www.alpac.ca