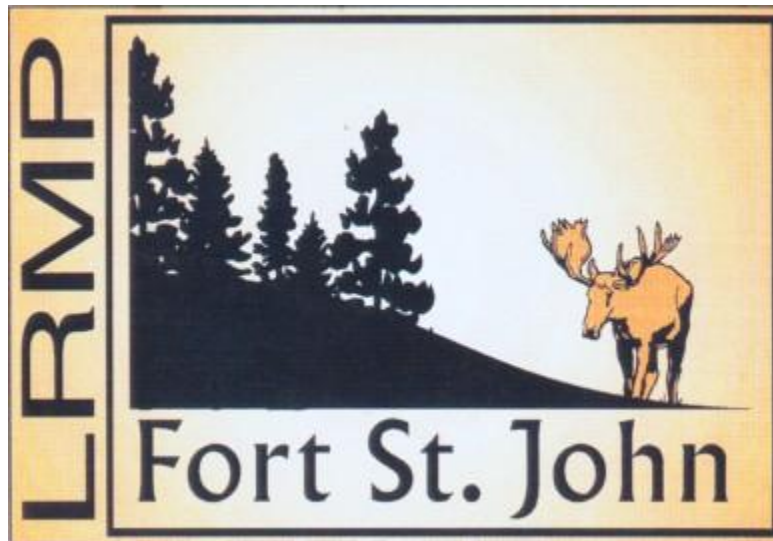


Fort St. John Land and Resource Management Plan



Prepared by Fort St. John LRMP Working Group October 1997 File: 31090-25-04

Dear Reader:

Re: Approval and Direction to Implement the Fort St. John Land and Resource Management Plan

On behalf of Cabinet, we are pleased to approve the Fort St. John Land and Resource Management Plan (LRMP) and direct participating ministries to implement the plan.

The LRMP is intended to guide ongoing resource management activities, including designation of new provincial parks and planning for forest development. The OminecaPeace Interagency Management Committee is charged with ensuring that the plan is implemented, monitored and reviewed.

We would like to thank members of the LRMP table for their significant contribution to development of the Fort St. John LRMP. The table has demonstrated that diverse interests can work together to develop consensus on management of land and resources. Their cooperative approach and commitment to negotiations at the community level are exemplary for other Land and Resource Management Planning processes.

We look forward to successful implementation of the Fort St. John LRMP and are confident that the plan will contribute to sustainable development in the plan area.

David Zirnhelt
Minister of Forests

Dan Miller
Minister of Energy, Mines
and Minister Responsible for
Northern Development

Cathy McGregor
Minister of Environment
Lands and Parks

[MAP](#)

EXECUTIVE SUMMARY

Overview

The Fort St. John Land and Resource Management Plan (**LRMP**) incorporates the principles of integrated resource management into a long-term plan for Crown land and resource development within the planning area, the Fort St. John Forest District.

Many residents of this area value the economic opportunities provided by natural resource development and the outdoor and wilderness recreation experiences that are readily available in this area. These two important values have been combined to form a vision statement for the plan:

"Our vision is to maintain resource development opportunities to sustain the economic base of planning area communities while maintaining high outdoor recreation, wilderness, wildlife and biodiversity values for future generations."

The Fort St. John LRMP provides a stable strategic planning framework for resource development industries and ensures continued access to these natural resources outside of Protected Areas. At the same time, the plan incorporates the protection of environmental and recreation resource values through the development and implementation of objectives and strategies to manage and maintain these values over the planning area. After ratification and adoption by government, implementation of the plan should provide greater economic stability for residents and communities within the planning area and increased environmental awareness, management and protection.

Planning Area Description

The Fort St. John Forest District is one of the largest in British Columbia covering approximately 4.6 million hectares. Crown lands within the boundary of the Forest District are essentially, the planning area. The southern district boundary is the Peace River. The north boundary is shared between the Fort St. John and Fort Nelson Forest Districts.

Bisected by the Alaska Highway, the planning area can be roughly described as two major areas: east of the Alaska Highway and west of the Alaska Highway. The topography east of the highway is flatter or gently rolling terrain, part of the extensive Alberta Plateau extending all the way to the BC/Alberta provincial boundary. West of the highway, the terrain becomes increasingly more rugged as part of the Rocky Mountain Foothills. Further west lies the Rocky Mountains, the western boundary of the planning area.

The Fort St. John planning area is unique in several ways. Oil and gas exploration and development has occurred throughout most of the planning area over the past few decades. The southern and southeastern portion of the planning area is predominantly used for agriculture and has a high concentration of privately-held lands. Forest harvesting and management, although a major part of the current local economy, is

relatively recent with many areas yet to be developed for timber harvesting. The mineral resources of the area are relatively unexplored and significant potential exists in the western portion of the planning area near the Rocky Mountains. Energy development is the largest economic sector in this planning area, with agriculture and forestry ranked second and third, respectively, in terms of local employment.

Nationally and internationally important wildlife resources are an important feature, especially in the "wilderness" areas in the western portion of the planning area. The planning area incorporates the southern portion of the Access Management Area known as the Muskwa-Kechika, part of the Northern Rockies. Management of this area for its high wildlife, biodiversity and wilderness values is a key objective for several sectors and several provincial, national and international groups.

Process

The Land and Resource Management Planning process is an integral part of the Province's Land Use Strategy. This process differs from previous or other Land and Resource Management Planning processes in that:

- ➔ The general public and a wide selection of interest groups were invited and encouraged to participate in the planning process.
- ➔ The plan is an outcome of the deliberations of the Fort St. John planning table — private citizens, stakeholders (industrial sectors, environmental groups, etc.) and government agency representatives who live, work or who have an interest in how Crown lands and resources are managed in the planning area. Table representatives provided presentations of their land and resource management interests.
- ➔ Despite government's sincere attempts to involve local First Nations, they chose not to participate in the planning exercise. First Nations were kept informed through regular mailings of meeting agendas and minutes. Copies of the draft plans were forwarded to First Nations for comment. Although the process had minimal direct involvement of First Nations and their communities, their cultural, archaeological and heritage values were endorsed by the Table and incorporated into the planning exercise where identified.
- ➔ The Fort St. John LRMP process incorporated a form of consensus-based decision-making. Resource sector representatives were not directed to steadfastly support all positions and recommendations. The overall planning objective was to identify land and resource management issues and then develop solutions and recommendations that sector representatives "could live with". General agreement was reached on all issues.
- ➔ The Fort St. John LRMP is an organized set of approved policies which will be applied to the management of Crown lands and resources in the planning area. These policies include: resource management zone boundaries, Protected Areas, and resource management objectives and strategies. Policy changes were recommended for those issues that the Table wished to send a strong message to government.
- ➔ The Fort St. John LRMP developed policies for a number of resources including; energy, forestry, recreation, agriculture, range, minerals, fish, wildlife,

transportation, heritage, culture and water resources. In addition, this plan has developed a comprehensive set of access management objectives and strategies to address access concerns on Crown lands. The plan provides strategic direction to land and resource planning, management and development for a period often years.

- ➔ An important aspect of government approval is how an LRMP fits within the strategic planning framework of the *Forest Practices Code of British Columbia Act* (FPC). All or part of an LRMP can be declared a higher level plan under the FPC or the plan can be implemented through government policy direction. Those portions of an LRMP declared as higher level plans under the FPC provide strategic direction for forest management activities and more detailed plans (for example Forest Development Plans, Range Use Plans, Access Management Plans, etc.).

Key Features of the Plan

- ➔ The planning area is divided into 27 resource management zones (RMZ's) based on resource values, existing economic activity, environmentally important areas and Agricultural Land Reserve (ALR) boundaries.
- ➔ Using provincially-adopted land-use categories, the planning area can be subdivided by percent area, into five broad categories: Agriculture/Settlement - 12%, Enhanced Resource Development - 20%, General Resource Development - 46%, Special Management - 14%, Major River Corridors - 4% and Protected Areas - 4%.
- ➔ Resource developers and users will be required to manage for environmental and conservation values using a range of management strategies.
- ➔ Access management is critical to maintaining wildlife, recreation, wilderness and biodiversity values, especially in environmentally sensitive areas like major river valleys and the western region of the planning area. This plan includes specific access management objectives and strategies to achieve the objectives for each RMZ.
- ➔ Opportunities for the expansion of lands for agriculture (including grazing) are a priority for areas identified as having significant agricultural potential. Appropriate strategies have been developed to achieve this objective.
- ➔ Existing and traditional uses of the land within Protected Areas that are not in conflict with the provincial Protected Area Strategy have been approved in the plan to continue. Approved uses include trapping, hunting, fishing, guide outfitting and limited livestock grazing in support of these activities.
- ➔ Industrial activity is permitted in all RMZ's with the exception of Protected Areas. Although resource development and access may be limited or restricted in some RMZ's, the plan provides appropriate strategic direction for more detailed planning to allow responsible resource development in the vast majority of the planning area.
- ➔ Directional drilling for petroleum and natural gas, under Protected Areas, is allowed if it does not compromise other values.

Implementation and Monitoring

The plan will be generally implemented as follows:

- ➔ The plan will guide land and resource development on Crown lands for a period of ten years.
- ➔ Resource managers will incorporate appropriate strategic direction from the plan into more detailed plans. These plans include a wide range of existing and improved regulatory processes, including Inter-agency planning, referral, and joint management provisions (defined in the Glossary of this report).
- ➔ Public concerns regarding specific operational practices within the planning area will be directed to the appropriate resource management agency.
- ➔ Government agencies will use information in the plan to guide budget deliberation exercises, especially where resource inventory gaps have been identified.
- ➔ An appropriate time frame, method and format will be developed to ensure that Table members and the public are informed of the plan's progress. Special circumstances and/or scheduled update meetings may require that Table members be reconvened to try and resolve any new issues or plan interpretation issues.
- ➔ Concerns regarding interpretations of the plan by industry or one or more agencies will first be forwarded to the affected line manager for clarification. The line managers may consult with the LRMP Table for clarification on major issues.
- ➔ Conflicts not resolved will be elevated to the Omineca Peace Inter-Agency Management Committee for resolution.

Summary Recommendations

I: Plan Adoption

The Fort St. John LRMP recommended that the BC Government:

1. - Approve the Fort St. John LRMP document as general policy and guidance to strategic Crown land and resource management planning for the planning area.
2. - Declare appropriate portions of the Fort St. John LRMP a Higher Level Plan under the *Forest Practices Code of British Columbia Act*.
3. - Approve and adopt the areas recommended for Goal 1 and 2 Protected Area status (approximately 4.25% of the land base) as required under the Protected Areas Strategy.

II: Policy Recommendations

The Fort St. John LRMP recommended that the BC Government:

1. - Recognize that the Besa-Halfway-Chowade, Graham-Laurier, Redfern-Keily and Graham North resource management zones (with their related management objectives and strategies as developed and recommended by the Fort St. John

LRMP Table), be included in any formal designation established for the area known as the Muskwa-Kechika.

2. - Confirm that the implementation of the Commercial Backcountry Recreation Policy shall fully consider non-commercial recreation in the adjudication of commercial backcountry proposals so that historic and traditional non-commercial recreational use is maintained.
3. - Address the issue of permitting access (using appropriate technology) to petroleum and natural gas resources located under proposed Protected Area. This should not preclude the balance of the Fort St. John LRMP from going forward to the Provincial Government for approval. (see Appendix B)
4. - Endorse the establishment of funding for the Fort St. John LRMP planning area to meet the grazing objectives of the proposed plan.
5. - Consider protecting the islands within the Peace River Valley (that are currently within the BC Hydro and Power Authority's flood reserve) using appropriate legislation until BC Hydro reviews the Site C project.
6. - Consider advising BC Hydro to re-evaluate their hydro-electric development proposals on the Peace River prior to the onset of a future LRMP process within an eight year time frame.
7. - Consider directing resource managers to adopt a comprehensive public consultation process where access control gates, that are required for reasons other than safety, are a realistic and preferred option used to regulate access on Crown lands.

Lastly, although not a formal recommendation, the Table wishes to lend its support to any provincial initiative to review the Ministry of Environment, Lands and Parks, Crown Lands Agricultural Lease Policy, to ensure that it is meeting the needs of both the agriculture sector and government.

Questions or Comments? [Web Administrator](#)

1.0 INTRODUCTION

Since 1993, a group of people from the Fort St. John area worked on a Land and Resource Management Plan for their area. The plan, adopted by the BC Government, will guide all land use activities on Crownlands within the Fort St. John planning area over the next ten years.

This document, The Approved Fort St. John Land and Resource Management Plan contains:

- ➔ a map of the planning area,
- ➔ a socio-economic and physical description of the area and an overview of the planning process (Section 1.0),

- ➔ a summary of important values, resources and general management direction (Section 2.0);
- ➔ Resource Management Zone (RMZ) descriptions, values, objectives and strategies (Section 3.0);
- ➔ Protected Areas including values, objectives and management strategies (Section 4.0);
- ➔ socio-economic and environmental assessment of the plan (Section 5.0);
- ➔ implementation and recommendations (Section 6.0);
- ➔ monitoring and amendment provisions (Section 7.0);
- ➔ interpretation and appeal of the plan (Section 8.0); and
- ➔ a glossary and list of Table members (Appendices).

Additional background information, including the "Socio-economic/Environmental Assessment of Base Case and Land Use Scenarios" and the "Planning Process Terms of Reference" can be viewed at the Ministry of Forests office in Fort St. John or other government agencies.

1.1 The Planning Area

The Fort St. John LRMP area covers over 46,000 square kilometers of land. It is only slightly smaller than the Province of Nova Scotia, and about 1.5 times the size of Vancouver Island. This is one of the largest LRMIP areas in the province.

The planning area boundaries follow the Fort St. John Forest District boundaries in northeastern British Columbia. The area is bounded on the east by Alberta, on the south by the Peace River, to the west by the height of land of the Rocky Mountains and to the north by the Fort Nelson planning area at about the 58th parallel.

1.1.1 Socio-economic Description

The Cree, Beaver, Sekani and Slavey First Nations are the original inhabitants of the Fort St. John planning area. In 1899 (northern bands) and 1900 (Beaver), Treaty 8 was signed by the Crown and representatives of the First Nations bands that traditionally use the LRMP area: the Halfway River Band, the Prophet River Band, the Blueberry River Band and the Doig River Band. Nothing in this document can, nor was intended, to change the nature of rights granted by Treaty 8.

European settlement began over two hundred years ago with the establishment of the Northwest Company fur trading post. Rocky Mountain Fort was located at the junction of the Peace and Moberly Rivers. The population grew slowly until the Alaska Highway was completed in 1942. The Highway opened the area to development and a wave of immigration. Another influx of people arrived with the discovery of oil and gas in 1957. Transportation and sales of North Peace natural resources have improved since the Pacific Great Railway arrived in 1958. The W.A.C. Bennett hydroelectric dam was constructed in 1967, flooding the upper Peace River and creating the Williston Lake

Reservoir. Each of these developments has contributed to the population growth and economic development of the region.

Over the past two decades the population of the planning area has risen and fallen, with the level of activity and economics of the energy sector. The current population is estimated at 23,940 people and is expected to grow by about 1% per year. Settlement is concentrated in Fort St. John (population 14,818) and Taylor (population 933). The economies of the communities of Fort St. John, Taylor and Wonowon are dependent on providing services to the three major resource based industries: oil and gas exploration and development, agriculture and ranching, and timber harvesting, processing and related forest management activity. Taylor's industrial base includes a gas processing plant, a pulp mill and a sawmill. The remaining population lives in a number of small settlements scattered throughout the region. About 800 people live in the First Nations settlements at the Halfway River, Blueberry River, Doig River and Prophet River Indian reserves.

Energy is the largest economic sector in the planning area. It provides 23% of the basic employment and 22% of the personal income. The public sector follows, with about 20% of both employment and income. Agriculture (13%), tourism (10%), forestry (9%) and mining (2%) comprise the remainder of the natural resource sectors.

1.1.2 Physical Description

Glaciation, tectonic forces (movement of the earth's plates) and climate have created the soils, vegetation, forest ecosystems and subsurface formations that exist today. The vast flat plateau that dominates the eastern regions of the planning area was formed by retreating glaciers. Soils are generally fine textured with deeply incised streams. The north eastern area tends towards saturated soils and muskeg while south eastern soils are drier. Moving westward, the topography rises to the rolling and hilly landscapes of the foothills and ends in the Rocky Mountains. River systems originating in the mountains cut deeply through bedrock and can be straight, meandering or braided.

Rivers are the dominant hydrological feature in the planning area. The major river systems include the Halfway, Graham, Beatton, Sikanni-Chief, Fontas and Peace River systems. Where lakes exist, they tend to be small and shallow with low to moderate productivity. Significant lakes include Charlie Lake and Redfern Lake. Over 40 fish species, including mountain whitefish, bull trout, Arctic grayling, rainbow trout, lake white fish and walleye are found, mostly in the large rivers and streams.

The area has a fairly typical northern continental climate. Cold winters, short growing seasons and low precipitation limit the vegetation, agricultural crops and forest ecosystems that can thrive here. Mean daily temperatures range from -19.4~ C to +2 1.50 C. Most of the moisture carried by the prevailing westerly winds falls on the west side of the Rocky Mountains, outside of the planning area. Average annual precipitation is 295.9 mm of rainfall and about 198.2 mm in equivalent snow cover. Some areas can suffer a water deficit, especially during summer. The short growing season is somewhat offset by the long sunny northern days during spring and summer.

Substantial populations of large mammals such as deer, elk, sheep, goat and moose inhabit the LRMP area. Both black and grizzly bear are found across the planning area. Other significant wildlife include fur bearers such as marten and a variety of birds, including waterfowl and warblers.

White spruce, lodge pole pine and trembling aspen are the main commercial tree species, accounting for most of the timber harvested in the planning area.

1.1.3 Ecosystem Classifications

The natural ecosystems of British Columbia have been divided into ecosections, based on climate, landforms and vegetation. Ecosection classification is significant because management strategies are often based on ecosystems to respect and mimic natural processes. Nine of the 116 ecosections are found in the planning area. These are: the Clear Hills, the Halfway Plateau, the Peace Lowlands, the Peace Foothills, the Fort Nelson Lowlands, the Muskwa Foothills, the Muskwa Plateau, the Eastern Muskwa Ranges and the Missinchinka Ranges.

Biogeoclimatic units are an ecological classification based on climate, vegetation and site. The four biogeoclimatic zones found in the LRMP area are:

Alpine Tundra (AT) - Alpine Tundra is found above the tree line. It is characterized by short growing seasons and long, cold winters with deep snow. White and Engelmann spruce and subalpine fir are the dominant tree species. Trees generally exhibit a stunted or 'krummholz' growth form. Vegetation consists of shrubs, heathers, herbs, mosses and lichens. Alpine Tundra supports Stone's sheep, caribou, grizzly bear, wolf, wolverine and small mammals such as marmots and ground squirrels.

Engelmann Spruce-Subalpine Fir (ES SF) - These coniferous forests include Engelmann spruce, subalpine fir and lodgepole pine with shrub-dominated understoreys. The growing season is short and cool, with long cold winters and deep snow depths. Mountain goat and caribou have adapted well to winter in this zone. Coniferous forests provide habitat for fur bearing animals and a variety of seed-eating birds. Avalanche tracks provide spring and summer habitats for grizzly bear and ungulates. These large mammals spend summer in the parkland meadows.

Boreal White and Black Spruce (BWBS) - Extensive BWBS forests in the area contain lodgepole pine, white and black spruce and trembling aspen along with many bogs and fens. Common understory plants are highbush cranberry, rose, forbs and moss. Fires are common. Two subzones are found within the BWBS: moist warm. (mw), and wet cool (wk). The BWBS zone with its low to moderate snow accumulation provide important ungulate wintering habitat. Deciduous forests established after fires are also useful to ungulates and many species of birds and small mammals.

Spruce-Willow-Birch (SWB) - The SWB zone is found at lower elevations. These areas are generally forested with white spruce and subalpine fir, and lesser amounts of lodgepole pine, black spruce and trembling aspen. Wildfires are less common and extensive than in the BWBS. Wetlands can be white spruce and tall

willow swamps, sedge fens and marshes. Deep snows in the winter make this zone less productive for wintering ungulates.

1.2 The LRMP Planning Process

Public participation is the cornerstone of the LRMP planning process. All the major economic sectors, organizations and interest groups were identified at the beginning of the process and invited to participate. The Fort St. John LRMP Table included representatives from the energy, forestry, agriculture, ranching, trapping, tourism, non-commercial anglers and hunters, small business, local governments, labour, guide outfitters, environment, and culture and heritage interests.

Representatives of the government ministries involved in land and resource management participated in the LRMP process as process supporters. They included the Ministry of Forests (MOF), Ministry of Environment, Lands and Parks (MELP), Ministry of Agriculture, Fisheries and Food (MAFF), and the Ministry of Employment and Investment (MED). The role of the government representatives was to provide information, answer questions, chair meetings and support the process.

The LRMP process uses consensus-based decision making, as opposed to majority rule. This means that the entire Table must come to common agreement on issues before a decision is reached. Consensus decision making requires full cooperation and commitment (not to mention tremendous patience and good will) on the part of everyone involved. While this principle was at times difficult for the participants, it has resulted in a plan that is supported by the entire Table.

1.2.1 Defining the Process

The Fort St. John LRMP process dates back to June 1993, when a public workshop was held in Fort St. John describing the process, identifying the sectors and inviting all interested parties to join. A Working Group of about 30 core members continued to meet over the next three years to draft the land use plan. This group formed the LRMP Table.

The Terms of Reference was produced by the Table and adopted in October 1994. The document outlines the vision, objectives, principles for public participation, general planning sequence, organizational structure (membership), decision making (consensus) and the approval processes. The Terms of Reference document states:

The vision of this planning process is to produce a Land and Resource Management Plan that will:

- guide the use and development of Crown land at a strategic level, based on the principles of sustainability, meeting the needs of the present without compromising the ability of future generations to meet their own needs;
- present Crown land and resource use options which will identify and consider all resource values, along with social, economic and environmental needs;
- provide information that may assist in the planning and future development of private land, and;

provide a forum for shared decision making on broad land and resource use issues, based on consensus.

The first step was to subdivide the planning area into Resource Units (RU's). Land resource values were identified for each of the resource units. RU's were then combined into somewhat larger Resource Management Zones (RMZ's). Ultimately the Table identified 27 RMZ's; three of these zones are Protected Area Strategy Goal 1 areas.

For each of the RMZ's, land and resource management objectives and strategies were developed to address each of the resource values identified. After general agreement was reached on the objectives and strategies, common statements were identified and used to define the General Management Direction. These statements define broad land and resource management objectives and strategies that apply to the entire planning area.

A number of Areas of Interest (AOI's) were identified for consideration as Protected Areas under the Protected Area Strategy. The Table studied these Protected Area proposals during the spring of 1996. All of the proposed Protected Areas were ultimately recommended and approved for protection, although many boundaries were changed to satisfy concerns about representation, to protect specific ecological or geographical features or to exclude areas of commercial and economic interest.

The Graham-Laurier and Milligan Hills Protected Areas were the subject of considerable debate. Several alternative boundaries were proposed by various sectors. The final boundaries were agreed upon by the Table after reviewing the socio-economic effects of various proposals. Lastly, preliminary RMZ's with resource management objectives and strategies were communicated to adjacent LRMP Tables (Dawson Creek, Fort Nelson LRMP's) to harmonize RMZ boundaries, objectives and strategies.

1.2.3 Public Participation

Throughout the process, the Table made considerable efforts to inform the public and invite their comments and input. LRMP meetings received local media coverage. Many meetings were broadcast on the local cable channel and articles appeared in the local paper. In the fall of 1995, every household in the Fort St. John planning area received a flyer outlining the progress of the LRMP and inviting the public to become involved. The public was invited to attend the monthly meetings and individuals could make presentations to the Table. Table members kept their sectors informed about the process and ensured that the concerns of their interest group were addressed. Each interested sector had the opportunity to make formal presentations to the Table and to express their interests and concerns regarding the management of Crown land. A series of open houses were held to present the draft plan, including: Upper Pine School, Hudson's Hope Hall, Buick Creek School, Fort St. John and the Upper Halfway Community Hall.

1.3 First Nations

The province of British Columbia is committed to avoiding the infringement of Treaty and Aboriginal rights in areas where resource management activities are proposed. In

this regard, government agencies consult with First Nations to determine the nature and extent of Treaty and Aboriginal rights and to also determine if infringement of those rights could occur by government decisions. The First Nations in the Fort St. John LRMP planning area that have signed Treaty 8 have Treaty Rights.

Despite governments sincere attempts to involve them, the First Nations peoples chose not to participate in the Fort St. John LRMP. Although the First Nations peoples were not formally represented at the LRMP Table, their archaeological, cultural and heritage values were recognized by all of the LRMP participants. The Table attempted to incorporate any First Nation interests that were known by Table members at the time. The approved recommendations put forward by the Plan are without prejudice to Treaty or Aboriginal rights.

2.0 GENERAL MANAGEMENT DIRECTION

2.1 Introduction

The overall objective of the Fort St. John Land and Resource Management Plan (LRMP) is to ensure sustainable management of land, resources, water and ecosystems within the Fort St. John Forest District (i.e. the planning area). The plan provides greater certainty for the planning of resource developments by maintaining opportunities for responsible land and resource development. Throughout the planning process, the LRMP working group maintained its commitment to balancing the social, economic and environmental needs of the people, industries and communities with environmental, conservation and protection within the planning area.

The Fort St. John LRMP adopts the principles of

- ➔ Sustainable use of renewable natural resources, and;
- ➔ The management of any one resource shall take into consideration other resource values, rights, tenures, and development opportunities and shall recognize the biological and physical limitations of the land and resources. In addition, land and resource management objectives and strategies will incorporate the need to maintain or enhance the local quality of life, social and economic stability, and vitality of the local communities.

The General Management Direction for each of the resource sectors is intended to provide strategic direction to land and resource management across Crown lands within the planning area. The direction addresses the values, needs and interests of resource users and are based on the following guiding principles:

- ➔ Industrial and commercial activities (commercial backcountry recreation, forest resource development and mineral resource exploration and development, etc.) are acceptable uses of Crown lands.
- ➔ Industrial development planning shall give full consideration to other land and resource values. The conservation of these values shall be incorporated into more detailed plans and operational activities

- ➔ All land and resource developments shall comply with the existing regulatory framework (i.e. appropriate regulation, legislation and government policies)
- ➔ Land and resource development is subject to the Fort St. John LRMP General Management Direction and, where appropriate, Resource Management Zone (RMZ) specific resource management objectives and strategies developed and recommended by the LRMP Table
- ➔ In Protected Areas, acceptable uses shall be in compliance with the Protected Area Strategy and government policy. Further, existing land and resource uses within Protected Areas that are not in contravention with government policies shall continue
- ➔ The Fort St. John LRMP relies on the spirit and intent of the *Forest Practices Code of British Columbia Act* to protect and conserve many values not specifically mentioned in this land use plan. Although practices may change over time, the intent of the FPC at the time of plan approval, is considered by the Table as integral to the Fort St. John Land and Resource Management Plan.

2.2 Agriculture

Agriculture dates back to the late 1800's when the first settlers began arriving in the area. These early farmers depended on income from a variety of sources including forestry, fur trapping and agriculture. Since the most productive agricultural lands are in the Taylor and Baldonnel area, the village of Taylor was the dominant agricultural settlement until the 1940's. Today, more than 800 farmers occupy 4,700 square kilometers, or 9% of the Plan area. The North Peace area of BC is similar to the prairie agricultural regions to the east. Cereal crops, beef cattle and specialty field crops form the bulk of the agricultural operations.

The Peace River region accounts for over one third of the Province's Agricultural Land Reserve (ALR). About one half of those lands are in the Fort St. John LRMP area. Most ALR Crown lands tend to be of lower agricultural capability than lands already in production, but are often well suited to forage production.

Agriculture is an important component of the economic and social fabric of the Plan area. The industry provides about 13% of direct employment. It also sustains a local pool of skilled, adaptable workers for other industries such as guide outfitting, forest harvesting, wood processing, oil and gas exploration and development, and infrastructure maintenance for roads and railways.

Agriculture is subject to wide swings in profitability due to global commodity supply and demand. The dramatic improvement in agricultural commodity prices during the mid 1990's will create pressure to bring more land into agricultural production.

The LRMP Working Group recognizes the need for agricultural expansion on ALR lands. Integrated land use will be accommodated wherever possible and feasible.

The Fort St. John LRMP adopts the general management direction that within the Agricultural Land Reserve, agriculture will have a high priority. Compatible land and resource uses will be permitted and multiple land and resource uses encouraged, where appropriate and achievable. Crown lands with appropriate agriculture potential will be

made available to potential users under the BC Crown Lands Agricultural Policy. The integrity of the Agricultural Land Reserve will be protected under existing legislation and regulations.

The Fort St. John LRMP adopts the general management direction of conserving soil productivity. Agricultural soil productivity will be maintained through implementation of practices contained in the Agriculture Land Reserve Guidelines and policies.

2.3 Range

The Peace River area is one of North America's highest capability areas for cow/calf production. The ranching sector has grown considerably over the past few years. Like agriculture, ranching contributes to the stability of north eastern communities. It provides job opportunities and helps maintain a skilled and adaptable labour pool for other industries.

The LRMP Working Group recognizes that the Coordinated Resource Management Planning (CRMP) process is an important process for the early identification of operational issues and concerns in order to accommodate grazing and other interests into more detailed plans. The strategic direction from this LRMP is that these types of processes will be used to resolve potential conflicts between grazing and other resource values and interests.

The Fort St. John LRMP adopts the general management direction that the ranching sector will have increased access to grazing opportunities through utilization of prescribed burning and range clearing in forested areas of low value for timber production. The Fort St. John LRMP endorses the establishment of funding (such as a grazing enhancement fund) for the Fort St. John planning area to meet the grazing objectives of the proposed land use plan.

The Fort St. John LRMP adopts the general management direction of controlling the spread of noxious weeds. This will be achieved through implementing noxious weed control plans and enforcing compliance with the Weed Act.

2.4 Forest Management

Approximately 24% of the Plan area is suitable for timber harvesting, with the majority of the harvest coming from Crown regulated forest lands. Private holdings, primarily agriculture and mostly located in the vicinity of the Peace River are also sources of timber. The current allowable annual cut of 2,015,000 m³/yr is divided more or less equally between coniferous (1,100,000 m³/yr) and deciduous (915,000 m³/yr) species.

Legislation to protect the commercial forest land base of British Columbia was proclaimed in July 1994. The Forest Land Reserve Act creates a Forest Land Reserve

(FLR) similar to the Agriculture Land Reserve (ALR). Crown forest lands and suitable privately managed forest lands will be included in the reserve. Protected Areas, ALR and private lands not being managed as forest lands will not be included in the reserve. It is anticipated that following the Fort St. John Land and Resource Management Planning process, the Forest Land Reserve will be used to designate suitable forest lands.

Canadian Forest Products Ltd. (Canfor) and Fibreco Export Inc. (a division of Slocan Forest Products) are the two major forest licensees operating within the area. Canfor - FortSt. John Division produces about 165 million board feet of lumber and 85,000 metric tonnes of pulp chips each year. Another Canfor mill in Taylor produces about 65 million board feet of studs and specialty products and 52,400 tonnes of pulp chips.

Fibreco, the second major wood user, produces pulp at its Taylor mill. The company purchases chips from Canfor and other primary wood industries. Fibreco plans to upgrade the mill within the next two to three years to use hardwood as well as softwood chips. This will add flexibility in changing market conditions. The upgrade will double the mill capacity from 180,000 metric tonnes to 360,000 metric tonnes per year. When the expansion occurs, Fibreco will require its own woodlands operation to harvest mostly aspen timber. The Fibreco facility is one of three in BC using a chemithermomechanical process (which does not use chlorine in the bleaching process) and one of two that can utilize both hardwood and softwood chips.

The Fort St. John LRMP adopts the general management direction of managing forests in the Fort St. John Forest District for a variety of forest values by encouraging forest harvesting patterns and block sizes which emulate the natural disturbance patterns found within the planning area. Flexible harvesting activities, including utilizing variable rotation ages in mature stands, will be utilized to accommodate other resource values and optimize sustained yield. Where ecologically and silviculturally appropriate, the evaluation of a range of silvicultural systems at the landscape level will be encouraged. In addition, forest harvesting activities and timing will be undertaken with sensitivity to ungulate wintering habitat.

Forest soil productivity will be maintained through implementation of practices contained in the Forest Practices Code and the Agriculture Land Reserve Guidelines and policies.

2.5 Energy

North eastern British Columbia is the only area of the province that currently produces oil and gas. The Fort St. John area, has been a center of energy exploration and development since the 1950's.

The northeast oil and gas fields lie within the Western Canada Sedimentary Basin. The recent discovery of large gas deposits in the south foothills area has stimulated more interest in the natural gas potential within the Fort St. John LRMP area. The outlook for the energy sector is encouraging, with slow and steady growth expected. Exploration remains very active and substantial reserves have been identified.

Energy is the dominant economic sector in the planning area and it will likely maintain that position for the foreseeable future. The energy sector provides 23 % of the jobs in the plan area.

The City of Fort St. John has a well developed infrastructure and is the main supplier of goods and services to the energy sector. Westcoast Energy operates a natural gas processing plant in the neighboring village of Taylor.

The LRMP working group wishes to optimize opportunities for safe, efficient and environmentally-sound exploration and development of oil and gas resources for the economic benefit of the planning area and the province. To meet this challenge, the LRMP Working Group has adopted a general management direction that will apply to all RMZ's.

The Fort St. John LRMP adopts the general management direction of maintaining opportunities and access for oil and gas exploration, development and transportation. Oil and gas exploration and development activities will be integrated with other resource user activities. Exploration and development of petroleum resources will be permitted within the appropriate regulatory framework for environmentally responsible development of surface and sub-surface resources.

2.6 Recreation and Tourism

The Fort St. John planning area supports a wide range of public and commercial outdoor recreation and tourism opportunities. This sector depends on the land, water, fish and wildlife resources to provide outdoor recreation experiences for residents and non-resident visitors. Tourism provides 13% of the employment and 4% of the income within the planning area.

The historic Alaska Highway is the dominant travel route. Tourists enroute to or from Alaska enjoy the scenic areas along the main travel corridors. Improving these sites will encourage travelers to stop and explore the area and generate additional tourism revenues. Business travel is also another important tourism component because of Fort St. John's role as a regional economic center.

Tourism in the region is growing in both revenues and employment. The industry will have a bright future, providing that the scenic quality of major travel corridors and natural settings is maintained. Much of the tourism and recreational use focuses on outdoor activities. Popular activities such as hunting and snowmobiling rely on natural settings and the presence of wildlife and fish.

The Commercial Backcountry Recreation Policy administered by the Ministry of Environment, Lands and Parks allows for commercial businesses to obtain a form of tenure in the backcountry. Backcountry enterprises such as guide outfitting are taking advantage of the new policy by applying for tenures to increase the viability of outdoor/nature based wilderness tourism opportunities which in turn will serve to increase the longevity of their businesses.

The Fort St. John LRMP adopts the general management direction of managing a wide spectrum of public and commercial recreation and tourism values, opportunities and activities. This will be achieved by managing, recognizing and identifying existing recreational use and by identifying future opportunities. In order to protect the outdoor experience, access will be carefully planned and recreational activities will be managed to minimize the effects on scenic and recreational values. The Ministry of Forests and the Ministry, of Environment, Lands and Parks (BC Parks) will manage public recreational facilities, areas and trails (including trails noted within the plan), including important scenic areas. Commercial backcountry recreation opportunities and tenures will be established consistent with: RMZ objectives and strategies, existing inter-agency referral processes, in consultation with user groups, as identified within the Commercial Backcountry Recreation Policy. Wildlife populations will be managed to provide opportunities for non-commercial hunting. This will be achieved through strategies in more detailed plans that complement the wild4fe management policies and practices to sustain wildlife.

2.7 Access

The Fort St. John LRMP aims to find a balance in order to maintain wilderness characteristics and fish and wildlife habitats over time, while permitting resource development, including resource road development. Road access for industrial activity is an acceptable use of the land, and will be subject to regulations, objectives and strategies.

An example of enhanced access management (for RMZ's such as Besa-Halfway-Chowade, Graham North, Graham South and Lower Sikanni-Fontas Valley) is the following strategy adopted to address the conservation of other resource values when planning and developing access.

More detailed planning will be used to identify significant fish, wildlife and other resource values. Where there is significant risk that these resources may be impacted, access may be limited, restricted or in special circumstances, prohibited.

The intent of these strategies is to encourage the identification of other resource values and to incorporate the conservation of these values into site specific access management planning and development. This strategy may result in management prescriptions such as limiting the use of roads and routing new access away from critical habitat areas.

Where new access proposals conflict with the conservation of other resource values and where these conflicts are determined by resource managers to be significant (high risk), access may be limited, restricted, or in some special circumstances, prohibited. Under these circumstances, proponents (and, as appropriate, resource management agencies) are guided by this LRMP to identify alternatives of lower risk to the resource values identified (for example, a critical habitat component) using the best information available. This information will be used by land and resource managers within established regulatory review processes.

In addition, the Fort St. John LRMP has directed that new access routes will be appropriately managed so that unnecessary access routes are deactivated. For the term of this general management direction, access routes means new roads, linear utility corridors (old and new) and seismic lines. The Fort St. John Working Group endorses requesting resource managers to establish a consultative process to address the 'non-routine' deactivation of routes that may be required for industrial or non-industrial purposes. The plan follows the spirit and intent of the Muskwa-Kechika Access Management Area (AMA) that was designated under the Wildlife Act (BC Reg. 218/94). The AMA restricts public off-road vehicular access to designated roads in order to protect wildlife and habitat. Industrial access is allowed subject to a permit being issued by MELP.

The intent is not to develop and implement additional consultation processes for all road deactivation such as road deactivation that is already required under statute or regulation. The intent is to ensure that major access routes proposed for deactivation are not later required for some other access purpose. Road deactivation planning will allow for notification of tenure holders and stakeholders.

The Fort St. John LRMP adopts the general management direction of maintaining or enhancing access to Crown land by the residents of this province, subject to specific Resource Management Zone objectives and strategies.

2.8 Fish and Wildlife

2.8.1 Fish

Fish populations can be divided into two categories: residents of the Peace River watershed and residents of the Liard River watershed.

The area supports twelve species of sport fish. The most abundant are mountain whitefish, Arctic grayling, rainbow trout, lake whitefish and walleye. There are also substantial populations of bull trout, northern pike, goldeye, yellow perch and burbot. Common non-sport species include the long nose sucker, large-scale sucker, white sucker and the northern squawfish. Forage fish living in the streams and lakes of the area include: the spoonhead and slimy sculpins, spottail shiner and redbside shiner.

Fish populations tend to have slow growth rates and late maturation's. Exploitation rates have historically been low, resulting in populations of large, old fish. During the past decade, however, several species such as Arctic grayling and bull trout appear to be diminishing in presence and population size in many watersheds.

Bull trout and pearl dace are blue-listed (threatened) species. Pearl dace are found in the Beaton River drainage, specifically in Charlie Lake. Bull trout, one of the most prized sport fish, makes extensive migrations through the main stems of the Halfway, Peace and Beaton Rivers. Populations of bull trout in the Halfway River watershed may be suffering from over exploitation and habitat degradation, linked to resource development activities.

Williston and Dinosaur Lakes are reservoirs created by the W.A.C. Bennett and Peace Canyon dams. They have been stocked with kokanee salmon. Twenty-eight other lakes in the Peace and Liard River watersheds have also been stocked since 1975. Most of these lakes were stocked with rainbow or brook trout and some were stocked with cutthroat trout. Kokanee salmon, brook trout and cutthroat trout are all introduced species (not native) to the planning area.

The Fort St. John LRMP adopts the general management direction of maintaining the opportunity for the sustainable harvest of fish and wildlife resources by maintaining sufficient habitat of appropriate capability to sustain populations. In addition, sustain resident opportunities to harvest fish and wildlife.

2.8.2 Wildlife

The Fort St. John planning area boasts a great diversity and abundance of habitat types and wildlife species. Many of these have provincial or international importance.

Part of the western portion of the plan area encompasses the largely undeveloped Muskwa-Kechika area. The Muskwa-Kechika area is considered by many to be globally significant for wildlife due to substantial populations of large mammals including four species of large carnivores and eight species of ungulates. This area represents one of the best opportunities in BC to protect an intact, functional large mammal ecosystem.

Ungulate populations have special significance due to their natural abundance and history of use. This area supports thriving populations of mule and white-tailed deer, caribou, elk, moose, Stone's sheep, mountain goats and the only free-ranging Plains bison population in the province. Transplant programs have allowed elk and bison to successfully occupy new ranges. Trends suggest that elk, bison and deer populations are increasing.

Carnivore species in the planning area include black bear, grizzly bear, coyotes, wolves, wolverine and cougars. Furbearers such as squirrel, mink, weasel, marten, lynx, beaver and fisher are common. Many are commercially harvested.

Upland game birds include the Sharp-tailed, Ruffed and Blue grouse and several species of ptarmigan. Provincially significant wetlands provide habitat for the Canada and Snow Goose, Trumpeter Swan and numerous duck species such as the Mallard, Blue-winged Teal and Bufflehead Ducks. These wetlands are important due to their size, stability and natural biodiversity. Avian predator species include the Gyrfalcon, Bald Eagle, Boreal Owl and Broad-winged Hawk. Songbirds found in the planning area include the American Robin, European Starling, Yellow-headed Blackbird and several species of waxwings.

This area is home to five provincially red-listed (endangered) bird species: the Bay-breasted Warbler, the Cape May Warbler, the Connecticut Warbler, the Sharp-tailed Sparrow and the Upland Sandpiper. Only one mammal species, a bat, has been designated as red-listed, the Northern Long-eared Myotis.

Several species within the planning area are provincially blue-listed (threatened). Nine of these are birds: The American Bittern, the Black-throated Green Warbler, the Canada Warbler, the Palm Warbler, the Philadelphia Vireo, the Sandhill Crane, the Short-eared Owl, the Surf Scoter, and the Trumpeter Swan. Seven blue listed species are mammals including: the black backed shrew, northern bog lemming, fisher, grizzly bear, wolverine, Stone's sheep and Plains bison.

Yellow-listed species that have a regional importance include: White-tail deer, elk, Northern flicker, Golden Eagle and the Great Horned Owl.

Wildlife species in the planning area require a variety of habitats to sustain their populations. Important wildlife habitats in the planning area include interior mature and old-growth forests, riparian areas along lakes, rivers and streams, subalpine and alpine areas, major wetlands and south facing grasslands. The value of each of these habitats varies for each species and within each zone. Each RMZ description highlights important habitat characteristics representative of that zone and then identifies objectives and strategies to sustain those habitats.

The Fort St. John LRMP adopts the general management direction of ensuring that the habitat needs for red & blue-listed (rare & threatened), and yellow-listed (regionally significant) species are provided for. The habitat needs of these species will be addressed as a priority at the landscape and stand level. Rare habitats (aquatic and terrestrial) and plant communities will be identified and mapped and considered for establishment as wildlife habitat areas.

2.9 Biodiversity

Biodiversity is the diversity of plants, animals and other living organisms in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems and the functional and evolutionary processes that link them. Biodiversity can be described at the genetic, species and ecosystem levels.

Genetic diversity refers to the different forms (alleles) of genes present in a particular population of living things. Many forms of a gene are present in a genetically diverse population. Genetically diverse populations are able to adapt swiftly when local conditions change. A population which is not genetically diverse (e.g. an inbred or isolated population) has only a few forms of each gene. This makes it vulnerable to genetic diseases and less able to adapt to environmental changes.

Species diversity refers to the number of different species in a particular area. When species become extinct, species diversity diminishes. Each species has its own particular set of environmental conditions under which it can live and breed, and chooses its habitat accordingly. Species diversity depends on the number of different habitats present. British Columbia has the highest diversity of wildlife species in Canada, due to its habitat diversity.

Ecosystem diversity refers to the number of different habitats available within a particular ecosystem. Ecosystem diversity is directly reflected in species diversity. Human activities tend to split, isolate and eliminate certain types of habitat while maximizing others. Conserving ecosystem diversity means maintaining sufficient areas of all naturally occurring habitats to allow all the species that are associated with those habitats to survive.

Biodiversity is threatened by:

- ➔ loss of habitat due to fragmentation and alienation.
- ➔ habitat degradation.
- ➔ direct impacts on specific plant and animal species such as consumptive use by people.

Maintaining biodiversity depends of:

- ➔ the protection and connectivity of large areas as ecological benchmarks at the regional level.
- ➔ providing habitat variety and connectivity at the landscape (watershed) level.
- ➔ management practices at the stand (site) level.

The Fort St. John LRMP Table chose to establish strategic direction for biodiversity management to guide more detailed planning processes (landscape unit planning, forest development plans, etc.) in two ways:

by establishing a general biodiversity emphasis for each of the Resource Management Zones (RMZ's). The biodiversity emphasis options, based on government guidelines, are consistent with the recommended intensity of forest management activities within the RMZ and other non-conflicting land and resource uses. The biodiversity emphasis listed for each RMZ will be used with other landscape level biodiversity guidelines to guide the selection of biodiversity emphasis options at the landscape unit level.

establishing priorities for landscape level planning. Four RMZ's were selected as high priorities: Trutch Creek, Graham South, Graham North and Lower Sikanni - Fontas Valley.

It is the Table's intent to provide some strategic direction to the designation of biodiversity options at the landscape level and to prioritize landscape level planning within the planning area.

The Fort St. John LRMP adopts the general management direction of conserving biodiversity, rare ecosystems, plant communities and habitat types. This will be achieved by identifying and mapping rare ecosystems, plant communities and habitat types and considering them for incorporation into more detailed plans with designations such as sensitive areas or wildlife habitat areas and managing them with ecologically appropriate silvicultural systems. The goal will be further achieved by maintaining larger patches of unfragmented mature and older seral stage forests, where

appropriate, and ensuring connectivity between important habitat types by using naturally occurring corridors (e.g. riparian areas).

2.10 Culture and Heritage

The Fort St. John planning area is the location of the oldest prehistoric site in BC (Charlie Lake Cave), the oldest historic site (original Fort St. John) and, along with Dawson Creek and Fort Nelson, the oldest paleontological sites in BC.

In the Fort St. John planning area, natural heritage resources consist of palaeontological sites, containing the fossilized remains of past life forms.

Archaeological sites in the area range from surface or thinly buried scatterings of stone tools and/or flakes indicating where these tools were manufactured or repaired to sites that may include features, such as the remains of cooking hearths and post molds where temporary shelters and food drying racks were erected.

Historical sites of interest date from the early fur trade and homestead period.

The cultural heritage resources reflect past and present uses by aboriginal and non aboriginal peoples. Three categories of resources are evident: archaeological sites containing physical remains of past human activity; historical sites often consisting of built structures or localities of events significant to living communities and; traditional use sites which often lack the physical evidence of human-made artifacts or structures, but maintain cultural significance to living communities.

The Fort St John LRMP adopts the general management direction of protecting culture and heritage resources. This will be achieved through the application of the Forest Practices Code, Heritage Conservation Act, Agreement of the Management of Cultural Heritage Resources and the Archaeological Impact Assessment Guidelines to identify and maintain culture and heritage resources.

2.11 Minerals

Northeastern BC has significant mineral resource potential, but the area is currently under explored.

Mineral exploration, development¹ and mining² are temporary uses of the land. Mining proposals are subject to comprehensive review and approval processes. Only small areas of land are used for development but access to large areas is essential for exploration.

This plan confirms that mining and related road developments are acceptable uses of the land, outside of Protected Areas. These activities will be subject to the regulatory framework over the entire area. The existing review and approval processes will ensure that mining will avoid, minimize or mitigate impacts on identified resource values.

These impacts will be consistent with the level of management prescribed for each resource management zone within this plan.

Advanced exploration and development activities clearly have impacts on small areas. This plan directs that the impacts of those activities will be accommodated wherever possible.

Further direction for access related to mineral exploration and development is provided in the general access management section of this plan and other general and specific objectives and strategies.

The Fort St. John LRMP adopts the general management direction of maintaining opportunities and access for mineral exploration, development and transportation. Mineral exploration and development activities will be integrated with other resource user activities. Revisions to standards of practice and permitting processes will be implemented in order to address evolving management issues, to provide consistency with the Forest Practices Code (FPC) where required, and to ensure timely and efficient permitting. Localized impacts of advanced exploration and development activities within the existing legislative framework will be accommodated wherever possible.

Wherever possible, requirements of the Forest Act and the FPC permits and licenses will minimize impacts on the land base. Visual quality for mineral exploration and development projects will be managed through the Mines Act. For proposed mine developments captured by the provincial Environmental Assessment Process, the assessment process will consider RMZ objectives. For small mines and quarry development, zone objectives will be addressed by the multi-agency regional mine development review process.

2.12 Water

Water resources are found in two main physiographic regions; the Western Cordillera and the Interior Plain. There are three distinct limnological (fresh water) regions, the Peace River Basin, Fort Nelson-Hay River Basin and the Rocky Mountains. The major drainage areas are the Peace River and Liard River watersheds. Major tributaries include the Sikanni Chief River, the Beaton River, the Halfway River, the Chowade River, the Graham River, the Ettithun River and the Fontas River. Major lakes include Charlie Lake and the mountain lakes – Redfern, Fairy and Trimble, and the Alberta plateau lakes - Chinchaga, Ekwan, Tommy, Etthithun and Strom lakes.

Natural springs resulting from perched water tables are common throughout the southern portion of the planning area. Several of these springs are used by rural residents as community water supplies. Groundwater reserves within the region are scarce and their use is limited for domestic water supplies.

Communities, oil and gas industries and a pulp mill are the largest water users. Water for rural domestic uses, irrigation, stock watering, conservation of waterfowl and dust

control is generally diverted from small streams or overland runoff that has been collected in dugouts.

Community water supplies require special consideration to maintain a high quality of drinking water and community health. Water supplies for Hudson's Hope, Taylor and several downstream Alberta communities, are pumped from the Peace River. First Nations communities along the Halfway, Doig and Blueberry Rivers also draw water from these systems. Charlie Lake previously supplied water to the City of Fort St. John. However, growing demand for water has led the City of Fort St. John to begin drawing groundwater from a site adjacent to the Peace River.

The Fort St. John LRMP Table has established RMZ-specific objectives and strategies for maintaining stream flows, water quality and water quantity. Resource Management Zones with high existing or potential levels of resource development and significant fisheries values have strategies that indicate priorities for watershed assessments (see Fish, 2.8). The following RMZ's are priorities for watershed assessment: Besa-Halfway-Chowade, Bluegrave-Horseshoe, Crying Girl, Graham South, Graham North, Grassy-Minaker, Kobes Creek, River Corridors, Lower Sikanni-Fontas Valley and Trutch Creek.

The Fort St. John LRMP recognizes the importance of the headwaters of major rivers in the Rocky Mountains as the initial source of clean water for current and future generations. It is recommended that operational activities not significantly alter the water quality, quantity or downstream flow regime.

The Fort St. John LRAIP adopts the general management direction of maintaining water supplies for licensed domestic water users and community waterworks licensees, and striving to maintain the natural stream flow regime (timing of flow, water quality and quantity) for watercourses, recognizing that natural hydrologic processes are beyond the control of resource managers. As well, land and resource developments within community water supply areas will be managed to maintain water quality and quantity.

These goals will be achieved by: 1) establishing and maintaining instream flow requirements and hydrologic regimes; 2) determining the equivalent clear-cut area (ECA 's) thresholds for specific watersheds on a priority basis; 3) identifying high priority watersheds and using the appropriate levels of watershed assessment to determine potential effects, prescriptions and rehabilitation measures; 4) identifying and establishing water quality monitoring sites (parameters to be monitored could include any or all the following: turbidity, stream flow, water temperature, conductivity, faecal and total coliform counts) and; 5) identifying smaller watersheds in settled areas with significant licensed water use and a high intensity of present or future forest resource development as having potential for community watershed designation under the Forest Practices Code of British Columbia Act.

2.13 Air Quality

Air quality within the planning area is relatively good. Exceptions occur near isolated discharges of sulfur compounds. Sulphur dioxide (SO₂) and total reduced Sulphur (TRS) compounds from oil and gas processing facilities and downwind of major industrial incinerators (beehive burners) associated with the wood processing industry. Smoke from forest fires, slash burning and habitat enhancement is also a routine concern of many residents.

The Fort St. John LRMP adopts the general management direction of maintaining air quality. This will be achieved by complying with Provincial legislation.

2.14 Trapping

The diverse landscapes within the planning area host a variety of commercially harvested furbearers including marten, lynx, beaver, coyote and fox. There are 71 registered traplines, or portions of traplines, covering the entire planning area. Although most furbearers are relatively abundant, low fur prices limit the current harvest.

Although, not important from a regional employment perspective, trapping remains socially important, especially among First Nations communities where traplines are often held by families.

A concern for many trappers is the need for adequate notification of pending land and resource developments that could potentially have a negative impact on their interests. The Ministry of Environment, Lands and Parks issues and administrates trapping tenures. In recent years, BC Environment provided resource developers with trapper information, however, due to the *Freedom of Information Act*, BC Environment can no longer release trappers personal information.

Other resource management agencies, such as the Ministry of Employment and Investment (Energy Resources Division - formerly Energy, Mines and Petroleum Resources) have initiated a Trapper Notification Program to ensure that trappers are adequately notified of pending development. To participate in the program, trappers must authorize the release of their personal contact information.

The Fort St. John LRMP adopts the general management direction of maintaining trapping opportunities. This will be achieved by honoring existing tenures and managing furbearer habitats and populations. Critical furbearer habitat for priority species (marten, fisher and lynx) will be identified and incorporated into more detailed plans. In order to reduce conflicts, trappers will be notified in a timely manner under the Trapper Notification Program of industrial land and resource development activity taking place within their tenure area. It will be a priority to maintain traditional modes of transport used by registered trapline holders to harvest fur on their traplines. Trapline tenure holders will retain the right to transfer traplines.

2.15 Guide Outfitting

There are seven active guide outfitters in the planning area primarily in the western portion of the Forest District. Guided hunts and fishing experiences for non-residents are the primary source of income for the industry. In recent years some guides have expanded their operations and successfully marketed non-hunting activities such as guided hikes, trail rides and wildlife viewing. New hunting or non-hunting activities should be considered through the Commercial Backcountry Recreation (CBR) application process.

The Commercial Backcountry Recreation Policy (CBR Policy) administered by the Ministry of Environment, Lands and Parks, allows commercial businesses to obtain a form of tenure in the backcountry. Backcountry enterprises, including guide outfitting are applying for tenures to increase the viability and scope of their outdoor, nature-based wilderness tourism businesses.

The Fort St. John LRMP adopts the general management direction of maintaining guide outfitting opportunities. This will be achieved by recognizing and honoring the existing tenures, managing fish and wildlife habitat and populations, and providing opportunities for the expansion of non-hunting wilderness tourism activities through the CBR Policy.

2.16 Visual Quality

Visual quality levels or objectives are the extent to which the visual or scenic value of a landscape is altered compared to the pre-existing or natural condition. While resource development drives the economy of the Fort St. John planning area, community recognizes the importance of maintaining the aesthetic values of the forest landscape. Development in the energy and forestry sectors can occur while managing the visual quality associated with important recreational areas, rivers and streams and important natural features. Some important areas identified for visual quality management are the Peace River, Alaska Highway Corridor and major backcountry access routes into the Besa-Halfway-Chowade, Graham North and Graham South RMZ's.

The Fort St. John LRMP adopts the general management direction of managing visual quality in scenic areas identified as having a high capability for tourism or recreational use. Visual quality will be managed through existing legislation and regulation including the Visual Quality Objective management system of the Ministry of Forests. Where established, Visual Quality Objectives (VQO 's) will apply to timber harvesting and should guide incidental timber harvesting associated with other resource user activities. Identified scenic areas will have their site specific Visual Quality Objectives met in accordance with the Forest Practices Code. It should also be noted that Visual Quality Objectives may change over time, due to new inventory information and changing public values.

2.17 Communications, Transportation and Utilities

The planning area is traversed by a number of communication, transportation and utility corridors. Infrastructure is important in the development of resources within the planning area. Corridors, which provide a means for recreation and motorized access, can also create fragmentation of habitats. In recent years, there has been more cooperation between resource management agencies and industry in planning, developing and rehabilitating these corridors.

The Fort St. John LRMP adopts the general management direction of maintaining existing communication, transportation and utility corridors and sites. Where feasible, future development will be directed to established corridors and sites. Where new development of corridors and sites are required, these will be coordinated with other users. Corridor maintenance and upgrading activities must also take place with sensitivity to high capability wildlife habitat, visual and recreational values and visual quality objectives.

¹Development means final stages of advanced exploration, construction of production facilities and production of minerals.

² Mining means both mineral exploration and development

3.0 RESOURCE MANAGEMENT ZONES

3.1 Introduction

One of the major aspects of the LRMP is the subdivision of the planning area into Resource Management Zones (RMZ's). The boundaries for each zone were determined by the Working Group based on a number of considerations including topography, existing land use and access, Agricultural Land Reserve (ALR) boundaries, environmental concerns and resource values. Each of the zones has a unique set of resource values, objectives to maintain or enhance those values and a number of strategies to be implemented to achieve the objectives. Along with the General Management Direction adopted by the LRMP Table, the Resource Management Zones provide geographically focused, strategic direction for all land and resource development in the planning area.

A central theme of this LRMP was to develop integrated strategies to maximize compatibility between objectives within RMZ's. All known values were considered in the development of the objectives and strategies for each zone.

The Fort St. John LRMP subdivides the planning area into 27 Resource Management Zones (RMZ's). Each RMZ is further classified into provincial land use categories which reflect the general management regime for each RMZ. The RMZ's and categories are listed below:

RMZ Name	Provincial Land Use Category
----------	------------------------------

Agriculture/Settlement Area	Agriculture/Settlement
Alkman-Deadhorse	Enhanced Resource Development
Grazing Reserves	Enhanced Resource Development
Jedney	Enhanced Resource Development
Kobes Creek	Enhanced Resource Development
Upper Cameron	Enhanced Resource Development
Bluegrave-Horseshoe	General Resource Management
Chinchaga	General Resource Management
Conroy	General Resource Management
Crying Girl	General /Special Resource Management*
Farrell Creek	General Resource Management
Grassy Minaker	General Resource Management
Osborn	General Resource Management
Trutch Creek	General Resource Management
Two Bit Creek	General Resource Management
Alaska Highway Corridor	Special Management -Tourism/Visual Quality
Besa-Halfway-Chowade	Special Management - Fish and Wildlife Habitat, Wilderness Values and Backcountry Recreation
Graham North	Special Management - Fish and Wildlife Habitat, Wilderness Values and Backcountry Recreation
Cecil Lake and Boundary Lake	Special Management - Fish and Wildlife

	Habitat
Lower Sikanni - Fontas Valley	Special Management - Major River Corridors
Major River Corridors	Special Management - Major River Corridors
Peace River Corridor	Special Management - Major River Corridors
Graham South	Special Management - Fish and Wildlife Habitat
Charlie Lake Water Supply Area	Special Management - Community Water Supply
Graham-Laurier	Protected Area (Goal 1)
Milligan Hills	Protected Area (Goal 1)
Redfern - Keily	Protected Area (Goal 1)
Peace Boudreau	Protected Area (Goal 1, shared with Dawson Creek LRMP)
Sikanni Chief Canyon	Protected Area (Goal 2)
Sikanni Chief Falls	Protected Area (Goal 2)
Pink Mountain	Protected Area (Goal 2)
Sikanni Old-Growth	Protected Area (Goal 2)
Ekwan Lake	Protected Area (Goal 2)
Chinchaga Lake	Protected Area (Goal 2)
Beatton-Doig Canyon	Protected Area (Goal 2)
Peace River Sites	Protected Area (Goal 2)

* It was a decision of the Table that the western half of Crying Girl be classified as Special Management and the eastern half as General Resource Management

In summary, the planning area can be subdivided into broad Provincial Land Use Categories as follows (percentages approximate only):

Agriculture/Settlement	12%
Enhanced Resource Development	20%
General Resource Management	46%
Special Management	14%
Protected Areas	4%
Major River Corridors	4%

Broad Provincial Land Use Category Descriptions

The Agriculture/Settlement Provincial Land Use Category includes land:

- ➔ currently used or proposed for settlement under an Official Community Plan.
- ➔ primarily planned and managed by local government under the Municipal Act.
- ➔ currently used, or with future development potential, for agriculture and range.
- ➔ used for agriculturally compatible activities such as mineral exploration, oil and gas exploration and development; transportation, utility and communication corridors; recreational developments and forest management.
- ➔ the majority of the land is in the Agricultural Land Reserve.

The Enhanced Resource Development Provincial Land Use Category includes lands:

- ➔ with existing or with future potential suitability, for intensive resource development with due consideration to the management of other resource values.
- ➔ where a high priority has been designated for a special or combined resource management emphasis (such as high intensity forest management regime or range management emphasis).
- ➔ where investments in resource development and enhancement are encouraged in full compliance with the existing regulatory regime.

The General Resource Management Provincial Land Use Category includes lands:

- ➔ to be managed for a wide range of resource values.
- ➔ where strategies (including guidelines and subsequent management prescriptions) for achieving non-extractive resource objectives may modify resource development.

- ➔ where conflicts between land uses are managed in an effort to integrate resource development with environmental and conservation values.
- ➔ where investment in resource development and enhancement may be encouraged in areas with few land use conflicts.

The Special Management Provincial Land Use Category is subdivided into specific land use categories based on the major resource values to be given a high priority in land and resource planning and development. It is recognized that these lands contain extractive resource values, the exploration and development of which may be of significant social and economic benefit to the province. Resource development is permitted but must consider and address all significant values identified. The intent is to assess risk to the identified values and to adequately manage any conflict. Resource values have been subdivided as follows:

Tourism and Visual Quality: lands within this Provincial Land Use Category are to be managed to established visual quality objectives, in support of significant tourism and scenic values, identified along a major transportation route.

Fish and Wildlife Habitat: lands within this Provincial Land Use Category have significant fish and/or wildlife values and habitats of regional and/or provincial significance.

Wilderness and Backcountry Recreation: lands within this Provincial Land Use Category have significant wilderness values which support a variety of commercial and non-commercial recreational opportunities.

Major River Corridors: lands within this Provincial Land Use Category are identified major river valleys that have significant fish and wildlife habitat, recreation, tourism and scenic/visual quality values.

Community Water Supply: lands within this Provincial Land Use Category have been identified as important watersheds where the management of land and resource development should not negatively affect water quality in major licensed waters sources.

The **Protected Area** Provincial Land Use Category includes all Goal 1 and Goal 2 lands established for protection under the Protected Area Strategy. Lands within this category:

are Protected Area Strategy (PAS) Goal 1 and 2 areas protected for their natural, culture and heritage, and/or recreational values.

incorporate a range of existing values and land uses, as defined by the LRMP Table, that are recommended for inclusion in any subsequent Protected Area (such as existing land and resource use activities: non-commercial hunting and fishing, guide outfitting, trapping, grazing in support of guide outfitting, camping and hiking).

do not permit logging, mining, hydroelectric development, oil and gas exploration and development.

4.0 PROTECTED AREAS

4.1 Background

In 1993, the Province formalized the Protected Areas Strategy for British Columbia. The strategy was designed to expand the system of Protected Areas from 6% to 12% of the province's land base by the year 2000.

There are two distinct types of Protected Areas.

- ➔ Goal 1 Protected Areas are established for representativeness. They may protect viable, representative examples of the natural diversity of the province such as major terrestrial, marine and freshwater ecosystems, characteristic habitats, hydrology and landforms, and/or characteristic backcountry recreational and culture and heritage values of each ecosystem.
- ➔ Goal 2 Protected Areas represent special features. They are set aside to protect the special natural, culture and heritage and recreational sites, including rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological and palaeontological features, outstanding or fragile culture and heritage features, and outstanding outdoor recreational features such as trails.

In June 1995, the Resource Management (RMD) directed the seven established LRMP's and the Mackenzie Planning Table in the Prince George Forest Region to recommend an aggregate of 9% of the region for Protected Area Status. The Fort St. John LRMP Table was later directed to provide 4% of its planning area toward the regional goal of 9%. Prior to completion of the Fort St. John LRMP, only 0.09% of the planning area land base was in Protected Areas.

Potential Protected Areas were identified through the Regional Protected Area Team (RPAT), a group of representatives from local government agencies. RPAT identified a set of Areas of Interest (AOI's) which met the Goal I and Goal II requirements. The LRMP Table then used this information to finalize proposed Protected Area boundaries and prioritize areas for protection.

Future Protected Area Management Plans are expected to provide further operational detail to the stated LRMP objectives and strategies for each Protected Area.

The Fort St. John LRMP recognizes that trapping, hunting, fishing and guide outfitting are acceptable uses within Protected Areas. Where tenured activity is permitted, it is assumed to include the provision for transfer in accordance with existing policies.

The Fort St. John LRMP Table proposed 11 areas for Protection Status, which total 4.3 percent of the land base or approximately 202,000 hectares. These areas have been accepted by government and are now approved protected areas.

4.2 Protected Areas Within the Fort St. John LRMP

Eleven Goal 1 and Goal 2 areas have been approved for protection. They vary in size from 98 hectares to approximately 100,000 hectares. They represent a diverse sample of the local landscape and are meant to capture a sample of the ecological, recreational and cultural values found within the planning area. The Chinchaga, Redfern-Keily and Ekwan Lake AOI's were recommended for protection by local First Nations.

4.2.1 Peace River - Boudreau Protected Area

The Peace River - Boudreau Protected Area is located southwest of the City of Fort St. John. It incorporates a major portion of the southerly bank of the Peace River Valley, Boudreau Lake, the lower Moberly River Valley and the islands at the confluences of Maurice Creek and the Moberly Rivers with the Peace River.

This Goal 1 Protected Area is shared between the Fort St. John and Dawson Creek LRMPs. The islands located within the Peace River are within the Fort St. John Forest District while the balance of the lands within the proposal are within the Dawson Creek Forest District.

The key features of the area include:

- ➔ representation of the Peace Lowland Ecosection
- ➔ representation of the moist warm variant of the Boreal White and Black Spruce (BWBSmwl) biogeoclimatic zone;
- ➔ an important historic site - the location of the first European settlement in mainland British Columbia known as Rocky Mountain Fort;
- ➔ several archaeological sites of significance;
- ➔ a portion of a historical travel corridor, the Peace River;
- ➔ a significant portion of mixed species forest typical of this biogeoclimatic zone and the Peace River Valley;
- ➔ critical swan nesting sites near pothole lakes
- ➔ alluvial cottonwood - spruce ecosystems
- ➔ a large proportion of the area is high capability ungulate winter range;
- ➔ the area has regionally important recreation values (boating, canoeing, hunting, fishing, bird watching, etc.).

The protected area captures significant petroleum resources and potential resource development. It also captures a portion of the area currently under the BC Hydro and Power Authority's flood reserve for the Site 'C' hydro-electric development. Several oil and gas tenures, gravel reserves, transmission and utility corridors exist within the boundary of the Protected Area.

The Fort St. John LRMP Table has recommended that the BC Government protect the Peace River islands from development using appropriate legislation (islands currently within the proposed Goal 1 Protected Area and BC Hydro and Power Authority's flood reserve) until BC Hydro confirms their plans for further hydro-electric developments on the Peace River. In addition, the Fort St. John Table recommended that the BC

Government consider advising BC Hydro to re-evaluate their hydro-electric development proposals on the Peace River prior to the onset of a future LRMP process within an eight year time frame.

Further, the Fort St. John Table recommends that the Fort St. John LRMP portion of the Peace-Boudreau Goal 1, be considered as part of a Protected Area recommendation from the Dawson Creek LRMP. The Fort St. John proportion is a small part of the overall proposal and will be greatly influenced by the much larger area within the Dawson Creek planning area. It is more efficient to consider the entire proposal as one proposed Goal 1 Protected Area. If adopted by the BC Government, management direction and implementation would also be an outcome of the Dawson Creek LRMP process.

4.2.2 Goal 1 Approved Protected Areas

Milligan Hills Protected Area

The Milligan Hills Protected Area is located near the British Columbia - Alberta boundary and includes the headwaters of the Chinchaga drainage in the eastern section of the Milligan Hills. The total area is 7,931 hectares.

The key features of this area include: representation of wet cool Boreal White and Black Spruce (BWBSwk2) in the planning area; woodland caribou habitat for endangered Alberta populations; representation of the Clear Hills Ecoregion.

Milligan Hills Values: recreation, wildlife, fish, access, biodiversity

Objectives	Strategies
RECREATION	
<ul style="list-style-type: none"> ➔ provide a full range of recreation opportunities. ➔ maintain and enhance ecological integrity in areas subject to resource impacts from recreational use. 	<ul style="list-style-type: none"> ➔ incorporate existing recreational activities and assess potential for the development of new recreational opportunities in a Protected Area Management Plan (additional motorized recreational pursuits, etc.). ➔ address the effects of recreational activity on ecological integrity in a Protected Area Management Plan (e.g. wildlife disruption, damage to plant communities and water quality).
WILDLIFE	
<ul style="list-style-type: none"> ➔ maintain furbearer habitat for priority species (e.g. fisher, marten, lynx). 	<ul style="list-style-type: none"> ➔ identify critical furbearer habitat and incorporate into a Protected Area Management Plan.

	<ul style="list-style-type: none"> ➔ identify and map high capability ungulate wintering areas in a Protected Area Management Plan. ➔ incorporate the maintenance of high capability ungulate wintering habitat (e.g. thermal and escape cover, sustainability of forage and browse) into a Protected Area Management Plan. ➔ incorporate habitat protection criteria for grizzly bears in a Protected Area Management Plan (as these criteria are developed). ➔ identify and map medium and high quality grizzly bear habitat, in a Protected Area Management Plan on a priority basis.
BIODIVERSITY	
<ul style="list-style-type: none"> ➔ maintain functioning and healthy ecosystems in the Resource Management Zone. ➔ restore and rehabilitate negatively affected ecosystems. 	<ul style="list-style-type: none"> ➔ the general biodiversity emphasis is high. ➔ identify and prioritize negatively affected ecosystems for potential restoration and rehabilitation.
FISH	
<ul style="list-style-type: none"> ➔ maintain fish habitat and water quality for priority fish species (e.g. bull trout, grayling and red and blue listed species). 	<ul style="list-style-type: none"> ➔ identify and map critical fish habitat (e.g. pools, migration patterns, spawning and rearing areas). ➔ incorporate the protection of fish and fish habitat in a Protected Area Management Plan.
PROTECTED AREA	
<ul style="list-style-type: none"> ➔ to protect, over the long-term for ecological representation and natural, culture, heritage, and recreation values, 	<ul style="list-style-type: none"> ➔ designate the area under appropriate legislation, consistent with "Protected Areas" definition (PAS Document, 1993) SO that logging, mining, oil and gas development and exploration, and hydro dams are not allowed uses. ➔ ensure that the Protected Area

	<p>Management Plan respects the natural, cultural, heritage and recreation values identified by the LRMP Table. The values include: public recreation, hunting and fishing, culture - identified First Nations values; wilderness, wildlife, trapping, ecological representation and fisheries.</p>
--	---

Graham-Laurier Protected Area

The Graham-Laurier Protected Area is an RMZ approximately 100,000 ha in size and encompassing most of the undeveloped upper reaches of the Graham River watershed. This area lies to the north of the Peace Arm of Williston Lake. It's western boundary is the Continental Divide.

The Protected Area incorporates Christina Falls and that portion of the Graham River watershed above the confluence of Poutang and Needliam Creeks. The eastern portion also includes that —portion of the Emmerslund Creek watershed within the planning area.

The Graham-Laurier RMZ is bordered to the north by the Besa-Halfway-Chowade and Graham North RMZ's (both are part of the area generally known as the Muskwa-Kechika Area) and in the east by the Graham South RMZ. This RMZ captures the vast majority of lands within the Graham watershed that are classified as "primitive" under the MOF Recreational Opportunity Spectrum (ROS).

The distinguishing Protected Area strategy (PAS), conservation, recreation and cultural values of this Protected Area include:

- ➔ high natural biodiversity (mix of forest cover types and age classes, moist riparian corridors, natural connectivity corridors between valley lowlands and alpine);
- ➔ significant medium and high capability habitat for caribou, grizzly bear, moose and furbearers;
- ➔ high fisheries values in the Graham River, tributary streams and Lady Laurier Lake;
- ➔ PAS biogeoclimatic zone representation of the Engelmann Spruce-Subalpine Fir moist and very cold variant (ESSFmv4) and Boreal White and Black Spruce wet and cool variant (BWBSwk2);
- ➔ Christina Falls special feature, including access to this significant tourist destination
- ➔ high existing and potential commercial (guide outfitting, trapping and commercial backcountry recreation) recreation values;
- ➔ high existing and potential non-commercial recreational opportunities (fishing, canoeing, hiking, hunting, snowmobiling, ATVing and horseback riding);

- ➔ First Nations traditional use values (Halfway River First Nation, Carrier-Sekani First Nation);
- ➔ captures several undeveloped watersheds (Poutang Creek, Guilbault Creek, Lapierre Creek, Horn Creek and Needham Creek, all tributary to the upper reaches of the Graham River);

This RMZ captures significant identified timber resources, mining and petroleum resources and potential for resource development. Several oil and gas exploration and grazing tenures exist within the boundary of this RMZ. No active mining claims are present although considerable mineral potential was identified along the western boundary of the protected area.

Graham - Laurier

Values: recreation, wildlife, fish, access, biodiversity, wilderness, grazing, water, trapping, First Nations, guide outfitting

Objectives	Strategies
RECREATION	
<ul style="list-style-type: none"> ➔ maintain guide outfitting opportunities. ➔ provide a full range of recreation opportunities. ➔ provide a full range of wilderness recreation opportunities. ➔ maintain opportunities for commercial and non-commercial livestock grazing associated with recreation. ➔ manage backcountry recreation and tourism opportunities in a natural or natural-appearing condition. 	<ul style="list-style-type: none"> ➔ develop strategies in a Protected Area Management Plan to complement the wildlife management policies and management practices of wildlife managers, to sustain wildlife and guide outfitting opportunities. ➔ identify and protect guide outfitting campsites and cabins. ➔ manage existing tenures and the associated grazing activities of guide outfitters to limit impacts and reduce risk to other resource values (keep grazing out of sensitive habitats, etc.). ➔ seasonal access (e.g. snowmobile) may be limited to address wildlife habitat needs. Recreation use should be addressed within the Protected Area Management Plan. ➔ manage the area consistent with the intent of ROS recognizing existing historical recreation activities.

	<ul style="list-style-type: none"> ➔ develop strategies to maintain a range of wilderness recreation opportunities across the Resource Management Zone in a Protected Area Management Plan. ➔ address issues of forage allocation among tenured users, residents and wildlife, within the Protected Area Management Plan. ➔ identify and manage appropriate grazing management activities (e.g. bums). ➔ the Protected Area Management Plan process will determine the areas that are suitable for backcountry and tourism expansion, while maintaining the objectives of the Resource Management Zone. Provide opportunities for development of backcountry facilities. Plan access in conjunction with tourism and recreation groups in the area. Tourism facilities and development will be matched with intended recreation experiences.
--	--

ACCESS

<ul style="list-style-type: none"> ➔ manage access to protect Protected Areas Strategy values, guide outfitting, recreation values and fish and wildlife and their habitats. 	<ul style="list-style-type: none"> ➔ in consultation with users, restrict the use of existing motorized access except along designated roads and trails to non-motorized and approved industrial uses to sustain other resource values (e.g. fish and wildlife populations and habitats, rare ecosystems).
---	---

WILDLIFE

<ul style="list-style-type: none"> ➔ maintain furbearer habitat for priority species (e.g. fisher, marten, 	<ul style="list-style-type: none"> ➔ identify critical furbearer habitat and incorporate in a Protected
---	--

<p>lynx).</p> <ul style="list-style-type: none"> ➔ maintain high capability ungulate winter habitat (e.g. elk, deer, moose, mountain sheep and mountain goat). ➔ maintain medium and high quality grizzly bear habitat. ➔ maintain caribou habitat. 	<p>Area Management Plan.</p> <ul style="list-style-type: none"> ➔ identify and map high capability ungulate wintering areas in a Protected Area Management Plan. ➔ consider establishing wildlife habitat areas (WHA's) in a Protected Area Management Plan, on a priority basis, to protect critical wintering habitat ➔ identify and map medium and high quality grizzly bear habitat, in a Protected Area Management Plan, on a priority basis. ➔ consider identifying and designating critical grizzly bear habitat areas, on a priority basis, as wildlife habitat areas (WHA's) in a Protected Area Management Plan. ➔ identify and map medium and high capability caribou habitat. ➔ consider identifying and designating critical caribou habitat areas, on a priority basis, as wildlife habitat areas (WHA's) in a Protected Area Management Plan.
--	--

BIODIVERSITY

<ul style="list-style-type: none"> ➔ maintain functioning and healthy ecosystems in the Resource Management Zone. ➔ restore and rehabilitate negatively impacted ecosystems. 	<ul style="list-style-type: none"> ➔ the general biodiversity emphasis is high. ➔ identify and prioritize negatively affected ecosystems for potential restoration and rehabilitation.
--	--

FISH

<ul style="list-style-type: none"> ➔ maintain fish habitat and water quality for priority fish species (e.g. bull trout, grayling and red and blue listed species). ➔ maintain high quality fisheries in 	<ul style="list-style-type: none"> ➔ identify and map critical fish habitat (e.g. pools, migration patterns, spawning and rearing areas). ➔ incorporate the protection of fish
--	--

<p>natural settings.</p>	<p>and fish habitat in a Protected Area Management Plan.</p> <ul style="list-style-type: none"> ➔ incorporate habitat protection criteria for bull trout in a Protected Area Management Plan (as these criteria are developed). ➔ minimize permanent access to remote lakes, streams and rivers with high quality fisheries.
<p>WATER</p>	
<ul style="list-style-type: none"> ➔ maintain the headwaters of major rivers and streams in a pristine, undisturbed condition. 	<ul style="list-style-type: none"> ➔ consider identifying and designating the highest order headwater tributaries of specific streams and rivers (in the Resource Management Zone) with a designation such as a sensitive area.
<p>PROTECTED AREA</p>	
<ul style="list-style-type: none"> ➔ to protect, over the long-term for ecological representation and natural, cultural, heritage, and recreation values, 	<ul style="list-style-type: none"> ➔ designate the area under appropriate legislation, consistent with "Protected Areas" definition (PAS Document, 1993) so that logging, mining, oil and gas development and exploration, and hydro dams are not allowed uses. ➔ ensure that the Protected Area Management Plan respects the natural, cultural, heritage and recreation values identified by the LRMP Table. The values include: public, commercial and backcountry recreation, hunting and fishing, culture - identified First Nations values; wildemess, wildlife, guide outfitting, trapping, ecological representation, fisheries, heritage - historic tails and existing trail networks etc.

The Redfern-Keily Protected Area is located approximately 40 km west of the Alaska Highway. This area includes the glacial waters of the Redfern, Fairy and Trimble Lakes, alpine basins and the icefields of the Besa River and Keily Creek watersheds (above the confluence of Keily Creek with the Besa River) of the Rocky Mountains and Foothills. Most of the area is within the Muskwa Foothills ecosection. The most northwestern portion is within the Eastern Muskwa Range ecosection. The total land area is 80,587 hectares.

Key features include: significant populations of Stone’s sheep, mountain goat, caribou, moose and elk. Extensive watersheds provide good moose habitat and areas of Class 1-capability habitat for caribou, Stone’s sheep and Rocky Mountain elk. The area contains important old-growth furbearer habitat and contains terrain and mixed spruce and pine forests representative of the high mountain valleys of the eastern flank of the Rocky Mountains. This is a typical glaciated landscape.

Generally the zone is non-roaded with some ATV access along corridors in the zone.

The RMZ contains significant First Nations values. Trails leading to Redfern Lake allow for a full range of outdoor recreation and backcountry recreation opportunities. Visual quality associated with the trails leading to Redfern Lake is a concern in this zone.

Redfern - Keily

Values: recreation, water, wildlife, visual quality, fish, wilderness, access, biodiversity

Objectives	Strategies
WILDLIFE	
<ul style="list-style-type: none"> ➔ maintain high capability ungulate winter habitat (e.g. elk, deer, moose, mountain sheep and mountain goat). ➔ maintain medium and high quality grizzly bear habitat. ➔ maintain caribou habitat 	<ul style="list-style-type: none"> ➔ identify and map high capability ungulate wintering areas in a Protected Area Management Plan. ➔ incorporate the maintenance of high capability ungulate wintering habitat (e.g. thermal and escape cover, sustainability of forage and browse) in a Protected Area. ➔ consider establishing wildlife habitat areas (WHAs) in a Protected Area Management Plan, on a priority basis, to protect critical wintering habitat. ➔ identify and map medium and high quality grizzly bear habitat, in a Protected Area Management Plan, on a priority basis. ➔ incorporate habitat protection criteria for grizzly bears, in a

	<p>Protected Area Management Plan (as these criteria are developed).</p> <ul style="list-style-type: none"> ➔ incorporate medium and high quality grizzly bear habitats and connectivity corridors, in a Protected Area Management Plan. ➔ identify and designate critical grizzly bear habitat areas as wildlife habitat areas (WHAs) in a Protected Area Management Plan. ➔ identify and map medium and high capability caribou habitat ➔ incorporate the maintenance of medium and high capability caribou habitat and connectivity corridors, in a Protected Area Management Plan. ➔ consider identifying and designating critical caribou habitat areas, on a priority basis, as wildlife habitat areas (WHAs), in a Protected Area Management Plan.
--	--

BIODIVERSITY

<ul style="list-style-type: none"> ➔ maintain functioning and healthy ecosystems in the resource management zone. 	<ul style="list-style-type: none"> ➔ the general biodiversity emphasis is high.
--	--

FISH

<ul style="list-style-type: none"> ➔ maintain fish habitat and water quality for priority fish species (e.g. bull trout, grayling and red and blue listed species). ➔ maintain high quality fisheries in natural settings. 	<ul style="list-style-type: none"> ➔ identify and map critical fish habitat (e.g. pools, migration patterns, spawning and rearing areas). ➔ incorporate the protection of fish and fish habitat in a Protected Area Management Plan. ➔ minimize permanent access to remote lakes, streams and rivers with high quality fisheries.
--	--

WATER

<ul style="list-style-type: none"> ➔ maintain the headwaters of major rivers and streams in a pristine, undisturbed condition. 	<ul style="list-style-type: none"> ➔ consider identifying and designating the highest order headwater tributaries of specific streams and rivers (in the Resource Management Zone) with
---	--

	a designation such as a sensitive area.
PROTECTED AREA	
<p>→ to protect, over the long-term for ecological representation and natural, culture, heritage, and recreation values,</p>	<p>designate the area under appropriate legislation, consistent with "Protected Areas" definition (PAS Document, 1993) 50 that logging, mining, oil and gas development and exploration, and hydro dams are not allowed uses.</p> <p>ensure that the Protected Area Management Plan respects the natural, culture, heritage and recreation values identified by the LRMP Table. The values include: public, commercial and backcountry recreation, hunting and fishing, culture -identified First Nations values: wilderness, wildlife, guide outfitting, trapping, ecological representation, fisheries, heritage - historic trails and existing trail networks, etc.</p>
VISUAL QUALITY	
<p>manage visually sensitive areas identified as scenic areas (including travel and recreation corridors as identified by the Ministry of Forests visual landscape inventory),</p>	<p>manage existing recreation sites by maintaining Visual Quality Objectives for trail systems, campsites and special feature. Establish acceptable limits of use (may include timing) e.g., migration pattern, reproductive cycles.</p>

4.2.3 Goal 2 - Approved Protected Areas

The Sikanni Chief Canyon is 4,266 hectares in size and captures portions of the Sikanni Chief Canyon and Buckinghorse River Canyons. A key feature within this Protected Area is the population of mountain goats that reside year round on the steep precipices above the Sikanni Chief and Buckinghorse Rivers. This is one of the few places in BC where mountain goats are found along larger rivers. Alluvial stands of white spruce along the Sikanni Chief River are another key feature.

The Sikanni Chief Falls is a recreational feature of local importance. A forest service recreation site within the Protected Area is popular with visitors attracted by the spectacular falls. As a bonus, this Protected Area captures known palaeontological sites upstream from the falls. This Protected Area encompasses 729 hectares.

Pink Mountain is the smallest of the Protected Areas at 100 hectares. This Protected Area captures a significant palaeontological site.

On the northern boundary of the planning area, the **Sikanni-Old Growth** Protected Area is 1,410 hectares. This proposal captures alluvial old-growth white spruce along the Sikanni Chief River. These large diameter spruce provide high quality wildlife habitat.

In the extreme north eastern portion of the planning area is the **Ekwan Lake** Protected Area of 1,892 hectares. This area was identified as having important First Nation values. In addition there are stands of spruce that provide wildlife habitat, including waterfowl habitat. Fish values in Ekwan Lake are high.

Several **sites along the Peace River corridor** are approved for protection. These sites are located from the mouth of the Beatton River to the British Columbia/Alberta boundary. These sites collectively total 557 hectares. They offer locally important recreational opportunities, as well as, protecting rare grassland ecosystems and mule deer winter range.

The **Beatton-Doig Canyon** is found at the junction of the Beatton and Doig Rivers. This site is 867 hectares in size and protects an excellent example of local steep cutbanks.

In the eastern portion of the planning area, an approved Protected Area is found around **Chinchaga Lakes**. This area was identified as having high First Nation values. This area is 1,389 hectares in size.

5.0 Socioeconomic & Environmental Assessment

5.1 Introduction & Overview Summary

This document summarizes the key conclusions reached by an independent assessment of the Land Use Plan. The socioeconomic work was undertaken by the Policy Branch of the Ministry of Employment and Investment (MEI), with assistance from Robinson Consulting & Associates and J. Paul & Associates; the environmental analysis was by Eliot Terry (R.P. Bio.) of Keystone Wildlife Research. The assessment also relied on input from the government's Inter-Agency Planning Team and Geographic Information Systems (GIS) area statistics provided by the Ministry of Forests (MoF) for the LRMP.

The starting point for the assessment is to define the "Base Case," i.e. the current/future socioeconomic and environmental trends associated with the "default land use regime" that would prevail in the absence of a Land Use Plan. Key initiatives that are assumed to occur in the Base Case are the current forest management regime as per MoF's Timber Supply Review (TSR) for the Fort St. John TSA (September 1995),

the Forest Practices Code (FPC), various "special management" initiatives of government (e.g. provincial interest in the Muskwa-Kechika area), and the provincial Regional Protected Areas Team (RPAT) recommended Protected Areas of 4.27%, which closely meets government's Protected Areas target of 4% (+ or - 0.25%) for the planning area. (The planning area is defined as the Fort St. John Forest District.) Note that while the RPAT areas did not restrict the LRMP from designating alternative areas for protection, due to current provincial policy (i.e. the Protected Areas Strategy, or "PAS"), these represent the best estimate of which lands would become Protected Areas in the absence of the LRMP.

A general indication of the implications of the Base Case and Land Use Plan is provided by the area roll-up of the GIS analysis:

	Protected Areas	Special RMZ	General RMZ	Enhanced Resource Development Zones
Base Case	4.3%	10%	34%*	52%**
Land Use Plan	4.3%	18%*	46%	32%**

* Includes 4% from "Major River Corridors" RMZ
(note that total planning area is 4,677,115 hectares)

** Includes 12% from "Agriculture/Settlement" RMZ

Few significant socioeconomic and environmental implications from the Base Case and the Land Use Plan are expected to occur in the next few decades. Rather, they will occur gradually over the long term and therefore are difficult to quantify. However, it should be stated at the outset that no existing jobs are expected to be lost as a result of either Base Case initiatives or the Plan, only that long term economic growth in the petroleum and forest industries may be somewhat less than otherwise would occur. At the same time, risks to wildlife populations and backcountry recreation/tourism activities are reduced due to the Forest Practices Code, new Protected Areas, and the Land Use Plan.

5.2 Key Socioeconomic Implications Petroleum Sector

The Petroleum Geology Branch of MEI estimates a "Status Quo" inventory of about 16.2 million cubic metres (in³) of proven oil, 4.4 Trillion cubic feet (Tcf) of proven gas, and 20.1 Tcf of potential gas reserves in the planning area. Most of the proven reserves and current industry activity lies in the Fort St. John catchment area, east of the Alaska Highway. Status Quo proven plus potential reserves could likely sustain current production rates for another 50-100 years, without accounting for improved technology, exploitation of coal-bed methane, etc. There are no significant implications of the Base Case land management regime for proven reserves, but the FPC (due to cost increases) and Protected Areas (since oil/gas activities are not allowed in parks) are expected to

preclude gas potential by 0.5 Tcf and 1.0 Tcf respectively - this implies a Base Case availability of 18.6 Tcf vs. the 20.1 Tcf in the Status Quo.

By 1991, the oil/gas sector accounted for about 22% of the planning area economy, or about 2000-2500 jobs, of which about 700 are in natural gas exploration/extraction and held by area residents. It is this portion of "upstream employment" that is the most sensitive to changes in Crown land use, since gas production is likely to continue to grow over at least the next 20 years, according to the Oil & Gas Section of MEI. Assuming these exploration/extraction jobs are proportionately linked to production volumes, this growth would likely result in 20-year average employment of about 900 in the absence of the FPC and PAS and over 800 with these initiatives taken into account in the Base Case.

In the Land Use Plan, again the only significant implications are to future potential rather than to proven reserves¹ or existing infrastructure/tenures. Most of the lost potential occurs in the promising northern foothills area west of the Alaska Highway, primarily in and around the Graham Protected Area and Besa Halfway Chowade RMZ. These impacts arise mainly because about 10% of the Highest Potential gas lands (with an estimated >100,000 m³/ha, covering 40% of the area) would be precluded by Protected Areas and 30% would be located in Special Resource Management Zones (SRMZs).

The Oil & Gas Section of MEI estimates that the Plan's management strategies in these and other Resource Management Zones (RMZs) will further reduce the availability of potential gas reserves from 18.6 to 16.5 Tcf (11%), since access is restricted and costs are increased. However, given the forecasted growth in the U.S. and Canada's future energy markets,² as noted above, the area's gas production is expected to increase over the next 20 years. The implication of the Base Case and Land Use Plan, then, is that given reduced and more costly options, the industry will have to move to higher cost reserves (sometimes outside of BC) sooner than it otherwise would, the implications of which should begin to occur within 5-10 years. Production will continue grow over this time, but at a slower pace than under a Status Quo regime.

It was also noted that in the Base Case an average of over 800 resident jobs in gas exploration/extraction is expected the next 20 years. Pro-rating the 11% in potential gas reserve reductions to this Base Case 20-year average employment level, it still appears that resident employment will exceed the latest estimate of 700 well into the future.

The 20-year total net present value of those BC government revenues which are estimated to be sensitive to Crown Land and Resource Management Planning (i.e. the sum of annual production royalties and land bonus bid revenues, discounted at a rate of 6%) is estimated to be \$1.51 billion in the Status Quo, \$1.40 billion in the Base Case, and \$1.23 billion with the Land Use Plan. Therefore the approximate "opportunity cost" of FPC, PAS, and the Land Use Plan on these revenues is a net present value of \$280 million or \$23 million annually (\$9 million for Base Case and \$14 million for the Land Use Plan) for 20 years; this represents about \$17 annually in foregone direct natural gas tax revenues per BC household (based on 1.373 million households in 1994).³ To further place these estimates in context, in 1993 and 1994 total oil and gas revenues

from the planning area were some \$205 million and \$286 million respectively. The Table below summarizes all the related production, employment, and revenue impacts.

Note that a small portion of these impacts could be mitigated due to the Plan recommendation that "directional drilling" (i.e. drilling underneath an area from a position outside the area) be allowed under five "Goal 2" Protected Areas: Sikanni Canyon, Sikanni Falls, Beatton Doig Canyon, Ekwan Lake, and Chinchaga Lakes, with the latter two being subject to First Nations review.

Estimated 20-year Average Impact of Base Case & Land Use Plan on Gas Potential, Direct Resident Employment, and BC Government Revenues for the Fort St. John Planning Area

	Status Quo Regime	Base Case PAS	Base Case FPC	Land Use Plan	Cumulative Result
Total Estimated Potential Gas Volume (Trillion cubic feet)	20.1	19.1 (-5%)	18.6 (-3%)	16.5 (- 10%)	16.5 (- 18%)
Average Total Direct Resident Exploration/Extraction Jobs over 20 years (1991 Jobs=~~700*)	909	863 (-5%)	836 (-3%)	746 (- 10%)	746 (- 18%)
Average Annual BC Government Revenue Cost in \$ millions(1994 Revenues=\$286 million)	0	\$9 mill.		\$14 mill.	\$23 mill.
Annual Revenue Cost per Household	0	\$6.55		\$10.20	\$16.75

* Estimated as 30% of 2300 total upstream jobs in the area, using MEL data that 30% of industry exploration expenditures are by BC firms. Also consistent with Ministry of Finance job estimates.

Sources: **MEI, CERI, & Fort St. John LRMP** Base Case Report (**ARA Consulting, March 1996**)

Hydro-Electricity

There is minimal employment related to the generation of hydro-electricity, and the "Site C" dam/reservoir proposal does not appear to be on BC Hydro's current planning horizon, notwithstanding that the flood reserve continues to exist. In the Base Case,

RPAT's recommended Protected Areas would likely preclude the development. In the Plan, however, the LRMP has recommended that the Environment and Land Use Act be used to designate the Protected Areas within the flood reserve so as to not preclude the project - the decision to proceed is therefore left with BC Hydro. However, the Plan recommends that Hydro review its intentions regarding this project within 10 years.

Forest Sector

This industry drives about 8% of the local economy, accounting for in the order of 600-700 direct jobs in harvesting, hauling, and processing as of 1991. As of December 31 1996, the Allowable Annual Cut was set at 1.1 million m³/yr (up 0.2 million m³/yr from the previous level) for coniferous supplies and remained

at 0.9 million m³/yr for deciduous. According to analysis undertaken by MoF staff for the 1995 Timber Supply Review (TSR), the sustainable coniferous Long Term Harvest Level (LTHL) is about 1.8 million m³/yr, without accounting for the FPC, PAS, or the LRMP. However, for deciduous, the sustainable LTHL is likely to decline to 0.6 million m³/yr gradually over the 50 years.

In both the Base Case and the Land Use Plan, very small amounts of both the coniferous and deciduous Timber Harvesting Land Base (THLB) are overlain by new Protected Areas and SRMZs - in the Plan, only 0.3% of deciduous and 2% of coniferous THLB is precluded by new parks, and 4% of deciduous and 12% of coniferous THLB is affected by SRMZs. As a result, according to MoF's timber analysis for the LRMP, the combination of the FPC and Protected Areas would reduce the coniferous LTHL to 1.5 million m³/yr and the Plan's management strategies cause a further decline to 1.3 million m³/yr. Both these amounts are above the current AAC, so while some potential opportunities are foregone, there are no impacts on existing jobs. For the deciduous harvest, there is virtually no difference between the 1995 TSR harvest flow and the projected harvests which account for the effects of the FPC, PAS, and the Plan - in all cases, the current harvest of 0.9 million m³/yr can be held for about 10 years, but by the fifth decade, the LTHL of just over 0.6 million m³/yr would be reached. It is noteworthy that very little of the deciduous supply is now being harvested, implying that the decline to LTHL should occur without noticeable adverse socioeconomic implications.

Mining

There are no existing mines and few exploration jobs in the planning area, with about 2% of the local economy (100-150 local jobs) dependent on mining/mineral processing as of 1991. There is also additional seasonal activity undertaken by exploration geologists from outside of the region. The Geological Survey Branch of MEI estimates that about 2% of the planning area consists of High Potential metallic mineral lands and there are 39 identified mineral occurrences, of which the most promising is the Robb Lake lead-zinc deposit (potential for 150 jobs over 20 years, but timing/probability of development is uncertain) located just north of the proposed Graham Protected Area.

In the Plan, 65% of the identified High Potential (Classes 8-10) metallic mineral areas and 37% of the occurrences are located in Protected Areas, which is not significantly

different from the Base Case. Approximately one-third of both High potential lands and occurrences are located in SRMZs, including the Robb Lake deposit in the Besa-Halfway-Chowade SRMZ. New Protected Areas and management strategies in the SRMZs (and certain other RMZs) will reduce access and increase costs for mineral exploration, but mineral exploration and mining remain allowable uses outside of Protected Areas. Also, much of the area is not well-explored, implying that significant activity may continue to occur or simply be diverted to less encumbered RMZs. While no existing resident mining jobs appear to be threatened, some potential opportunities may be foregone, however their nature, probability, and timing is not possible to assess.

Agriculture

The key activities are grain production and cattle ranching, and the sector accounted for about 7% of planning area incomes and 13% of the jobs. Grain production will not be affected since it occurs almost exclusively on private land. Cattle ranching has the potential to be impacted by Crown Land and Resource Management Planning initiatives such as the FPC, PAS, and/or the LRMP, given that significant amounts of grazing occurs on public land. In the Base Case, it is possible that some agriculture costs could increase due to the FPC.

The only mapped indicator available for the assessment is the 736,000 ha of land within the Agricultural Land Reserve, of which only 0.06% is located in Protected Areas and 6% is in SRMZs. Moreover, Ministry of Agriculture, Fisheries and Food (MAFF) staff estimate that only about 225,000 ha is currently being cultivated. While most of the rest is of lower capability or less accessible, any need for expansion caused by improving world markets would also likely render this 500,000+ ha of "agriculturally underutilized" more economically viable (not to mention arable lands outside of the ALR), implying that the implications of the Plan for the sector are not significant. In addition, grazing on Crown range is an allowable use outside of Protected Areas, and even if some tenures are located in Protected Areas, provincial policy has been to "grandfather" these activities.

However, MAFF staff are of the view that some additional cost increases will occur due to certain LRMP management strategies, primarily in the Cecil Lake Wetlands, Peace Corridor, Agriculture Settlement, Charlie Lake Water Supply Area, Major River Corridors, Aikman-Deadhorse, Cameron, Farrell Creek, and Kobes Creek RMZs. No existing jobs are expected to be impacted, however.

Tourism, Guide-Outfitting and Trapping

Tourism accounted for about 4% of planning area income and 10% of the jobs as of 1991, with much of the "front-country" activity being generated by business travellers in the energy and forestry sectors. Of the approximately 900 tourism jobs in the planning area, it is estimated that about 40-50 depend on relatively pristine "back-country wilderness values" for their livelihoods, most of whom are guide outfitters operating in one of the eight tenures which lie wholly or partly within the planning area. Even with the FPC and 4.27% of the area protected, it is likely that key wilderness values would continue to erode in the Base Case, placing these businesses a greater

risk over the long term without official management strategies in place to accommodate their interests.

Of the 500,000 to 600,000 ha in the planning area with little or no current access (as identified by the MoF Recreation Opportunities Spectrum and Undeveloped Watershed inventories), approximately one-quarter to one-third will be permanently protected from development with virtually all of the remainder in SRMZs. The Plan also offers specific strategies to control access into wilderness areas, protect fisheries/wildlife habitat, promote higher levels of visual quality in key travel corridors, and manage for backcountry recreation opportunities over and above the Base Case regime. While these designations and strategies will assist the backcountry tourism sector for at least the next few decades, given that 96% of the planning area will continue to be open to roads, seismic activity, etc., it is likely that wilderness values will continue to erode and place some of these businesses at risk in the long run, but at a slower rate than in the Base Case.

There are over 70 traplines in the area, and trapping is primarily a seasonal pursuit. Both the FPC and the Plan's management strategies to protect high quality furbearer habitat (primarily for lynx, marten, and fisher) will result in improved trends for this sector.

Communities and First Nations

There is no evidence to suggest that there will be job losses in any community within the planning area as a result of either Base Case initiatives or the Land Use Plan. While there may be some short term fluctuations in oil and gas exploration and related spin-off activities as investors become accustomed to the Forest Practices Code, new Protected Areas, and the Plan, it is likely that such changes are more related to volatile world prices/markets, rather than incremental changes in Crown land management regimes. In fact, the increase in certainty that should arise due to having a Plan with management objectives/strategies documented on a zone-by-zone basis could even have a positive effect on petroleum sector investor confidence.

If, however, there is some short-term economic volatility, the majority of the implications would occur in Fort St. John, as the 1991 Census/Ministry of Finance analysis indicates that 26% of its economy is driven by this sector, vs. less than 20% in Taylor and the remainder of the planning area, the latter relying more on forestry and agriculture.

In the longer term, as noted previously, any direct effects are likely to be manifested as somewhat lower economic and population growth than would otherwise occur, rather than declines in current economic activities. In addition, the new Protected Areas, Special Resource Management Zones, and Visual Quality provisions should enhance the viability of tourism (primarily backcountry tourism, near the area's smaller communities) in the foreseeable future.

Since there was not direct participation by First Nations in the LRMP process, and their interests are not mapped, it is difficult to assess the implications of the Base Case and Land Use Plan on the area's aboriginal peoples. However, the beneficial environmental

effects of PAS, the FPC, and the Plan's management strategies should protect the natural and spiritual values that are important to First Nations to a greater extent than would otherwise be the case.

5.3 Key Environmental Implications

Biodiversity & Ecosystem Representation

The environmental implications of implementing the Land Use Plan are generally positive. This is largely due to the reduced intensity of development in the eastern portions of the plan area vs. the Base Case and the allocation of significant amounts of land west of the Alaska Highway as SRMZs and Protected Areas.

East of the Highway, the Charlie Lake Water Supply Area, Peace River Corridor and Lower SikanniFontas Valley zones are allocated to SRMZ status whereas the Trutch zone will be managed as a General Resource Management Zone. A lower intensity of development in these areas should provide for more natural levels of biodiversity and moderately improves the outlook for species and habitats that occur within these zones. Overall, the allocation of land use zones, however, suggests the risks to biodiversity increases from west to east reflecting the greater intensity of resource development east of the Highway.

Some key management zones situated west of the Highway also receive lower intensity development designations under the Plan vs. the Base Case, i.e. Crying Girl, Graham South, Farrell Creek, and Bluegrave-Horseshoe. Those zones situated west of the Highway that will be managed as SRMZs (i.e., low intensity development) reflect the significant wildlife and wilderness values that occur in these watersheds. Managing the largest zone (i.e., Besa-Halfway-Chowade: 415 477 ha) west of the Highway to meet a High Biodiversity Emphasis, as well as the Protected Areas in the Redfern-Keily and GrahamLaurier, reduces the impact to fish and wildlife populations and poses relatively low to moderate risks for these values.

Thirteen Protected Areas (about 4.3% of planning area) would achieve representation in 7 of 9 ecosections and 8 of 9 subzone variants under the proposed Plan. Both the Base Case and proposed Plan lack representation of the Halfway Plateau ecosection. Although the RPAT Protected Areas in the Base Case would achieve similar ecosystem representation, the Plan reduces ecosystem representation of the Graham very moist cold Engelmann Spruce-Subalpine Fir biogeoclimatic subzone/variant (ESSFmv4) by about 8300 ha (such that 24% is protected vs. 29% in the Base Case) due to the reduction in size of the Graham-Laurier proposed Protected Area. Shifting this portion of the Graham from Protected Area to Special Management increases the risks to vulnerable species such as caribou and grizzly bears, however, access management strategies may partly mitigate the potential adverse effects.

Overall, the general management direction outlined in the Plan to incorporate ecosystem attributes into landscape-level plans' maintain connectivity, and minimize fragmentation indicate a reduced risk to biodiversity. These objectives and strategies will have the greatest benefit west of the Highway where many significant wildlife values occur.

Riparian Habitats

The Base Case trends for riparian communities is generally positive due to the implementation of the FPC Riparian Management Areas. Although Riparian Reserve Zones will protect habitats and ecological processes immediately adjacent to water bodies, the full benefit of maintaining forest cover in riparian areas will only be achieved if management practices recommended in the Riparian Management Zones are carried out. The Land Use Plan recognizes the high conservation values of riparian communities by allocating major riparian systems occurring in the River Corridors RMZ as Special Resource Management. In addition, by designating the Peace River Corridor and Lower Sikanni-Fontas Valley zones as SRMZs, the risks to riparian communities in these areas become relatively low. Although these changes are generally positive, proposed development in the Graham North and Graham South zones pose moderate risks to riparian connectivity. A more detailed planning process, however, may lessen the potential impact to these riparian communities by designing management practices that will partly mitigate the potential negative effects of timber harvesting and road development.

Red and Blue Listed Species

Although many smaller mammal and bird species listed as endangered or vulnerable will benefit from the FPC (e.g. Riparian Management Areas, Wildlife Tree Patches), other species such as caribou, grizzly bear and Northern goshawk need relatively large specially managed and/or Protected Areas from higher level plans to address their habitat requirements. In general, the Land Use Plan provides increased certainty that species listed as endangered (red-listed) or vulnerable (blue-listed) will receive adequate consideration during lower level planning processes compared to the Base Case. This is largely due to the clear direction provided by the management objectives and strategies in the Plan which provide direction for identification/mapping of critical wildlife habitats and designate Wildlife Habitat Areas (where required) to meet the needs of sensitive species during the development of landscape-level plans and stand-level prescriptions.

Grizzly Bear

The Land Use Plan allocates over 70% (vs. about 60% in the Base Case) of grizzly bear habitat as SRMZs (i.e., low intensity development) and about 21% to Protected Areas (vs. 22% in the Base Case), with no grizzly habitat falling within Enhanced Resource Development Management (high intensity) Zones. While there are some increased risks to bears from increased access (i.e., more bear-human conflict, poaching) into the Graham North and Graham South zones (given that somewhat less habitat is in Protected Areas vs. the Base Case), the RMZ strategies may partly mitigate the adverse effects.

Woodland Caribou

The four caribou management zones (Milligan Hills, Hackney Hills, Kobes Creek and Graham) identified in the 1995 TSR together with the RPAT Protected Areas suggest

minimal impacts to caribou populations in the Base Case. While the Base Case would likely maintain most key caribou habitat over the long term, declines are more likely in those caribou zones surrounded by General and Enhanced Resource Development Zones (i.e., Bluegrave-Horseshoe and Kobes Creek RMZs). Overall, the proposed Plan improves the outlook for woodland caribou over most of the planning area by providing specific management direction to maintain connectivity between seasonal ranges. However, moderate risks still remain in the approximately 20 % of caribou habitat managed in General Resource Management Zones.

Ungulate Winter Range

The planning area supports provincially significant populations of white-tailed deer, mule deer, caribou (both mountain and northern ecotypes), elk, Plains bison and Stone's sheep. Management strategies outlined by the Plan to identify critical Wildlife Habitat Areas provides for greater certainty that ungulate winter ranges will be adequately considered during landscape-level planning and the development of stand-level prescriptions.

Fisheries and Water Resources

The planning area supports 12 species of sport fish including whitefish, Arctic grayling, rainbow trout, lake whitefish and walleye. Other species of management concern include bull trout (blue-listed) which is believed to be declining in many watersheds. The Base Case implication for fisheries values, however, is generally positive due to the implementation of the FPC Riparian Management Zones and Watershed

Assessments

Specific management objectives related to fishery and water resources documented in the Land Use Plan, add further certainty that these environmental values will receive adequate protection.

Access Management

Many of the undeveloped watersheds situated in the western portion of the planning area, will be developed in the future. Increased access into undeveloped watersheds significantly increases the risks to fish and wildlife populations and can reduce wilderness values. However, as part of the MuskwaKechika area, management strategies (e.g. co-ordinated access management plans) outlined for the BesaHalfway-Chowade and Graham North zones will partly mitigate the potential adverse effects of increased road development on fish and wildlife populations in these areas.

¹ The only exception is that about 50% of the 8300 ha. of "Proven Oil Reserves > 500 m³/ha." is located in SMRZs, primarily in the Charlie Lake Water Supply Area RMZ. However, an objective in this RMZ is to "maintain opportunities for oil/gas exploration, development, and transportation."

² The forecast of North America 's natural gas supply and demand prepared by the Canadian Energy Research Institute (CERI) was used to also forecast production from the planning area..

³ Note that these estimated revenue "reductions" do not imply that revenues will decline vs. today's levels. Rather, since production is still expected to increase over the next 20 years even with the Plan, they are only an estimated reduction from what they otherwise may be under the Status Quo management regime.

6.0 IMPLEMENTATION

6.1 Declaration of the Fort St. John Land and Resource Management Plan as a Higher Level Plan

All or part of the Fort St. John LRMP that relate to operational forestry, may be declared a higher level plan under the Forest Practices Code of British Columbia Act (FPC). By law, operational plans must conform to those parts of an LRMP designated as higher level plans under the FPC. Operational plans provide a description of lands and resources. They also describe the location of, timing and type of management practices and prescriptions that will be used to manager use and conserve described lands and resources. Examples of forest management operational plans include Forest Development Plans and Range Use Plans.

In addition to the management of forest resources and those requirements stipulated under the FPC, the Fort St. John LRMP will guide other land and resource developments on Crown lands for a period of ten years. Developments affected by the plan, include water use and storage, land developments, recreation, guide outfitting, trapping, agriculture, fish, wildlife and surface and sub-surface mineral resources. Many existing and new planning mechanisms (such as existing statutes and regulations, approval and referral processes and new policies like the 2005 Initiative) used by resource management agencies will be guided by the strategic direction included within the plan.

The plan also provides a set of acceptable uses for Protected Areas. Management direction suggested by the Table as appropriate for areas designated under the Protected Areas Strategy will provide a framework for managing new Protected Areas.

6.1.1 Formal Designation - Muskwa-Kechika

6.1.1.1 Planning Table Recommendation

The Fort St. John Planning Table recommends that a portion of the planning area, specifically the BesaHalfway-Chowade, Graham-North, Graham-Laurier and Redfern-Keily resource management zones, be formally designated such that the following criteria are met.

1. Formal designation captures the intent of the objectives and strategies for the respective resource management zones.

2. Joint approval is required for off-site mineral pre-development plans (e.g. airstrips, access roads), pre-tenure plans for oil and gas, landscape unit plans for forestry or equivalent for all other tenured activities.
3. Dispute resolution mechanisms for pre- and post-tenures will be in accordance with administrative protocols in place, under development and/or to be developed. Examples include: pre-tenure 2005, Forest Practices Code and similar post-tenure mechanisms for mining.
4. Designation should not result in longer permitting time frames.
5. Ensure adequate government resources (inventory data, government staffing) are provided to allow for timely development of plans.
6. Formal designation is to facilitate management that will manage this area as a larger unit and not to make this area a 'Park' in waiting for a declaration.
7. Authority for operational planning and approvals remain within the jurisdiction of line agencies.
8. The intent is to ensure that wilderness characteristics and wildlife habitat are maintained (over time) while allowing resource development, including roaded resource development and timber harvesting.
9. Pre-development plans will be required for all new road construction.
10. The Environment Assessment Process should apply to all reviewable projects.
11. The Graham-Laurier and Redfern-Keily Protected Areas will be formally designated (e.g. Park Act, Environment and Land Use Act) but will be incorporated within the broader formal designation to ensure management consistency.
12. The Grahnam-Laurier and Redfern-Keily Protected Areas will be managed corporately by the government agencies including BC Parks, BC Environment, Ministry of Forests, and BC Lands.
13. An Advisory Body (based on the membership of sectors at the Fort St. John LRMP Table) will be created to solely advise on interpretation and intent of the Fort St. John LR.MP with respect to management issues within those RMZ's (Besa-Halfway-Chowade, Graham North, Graham-Laurier and Redfern-Keily) that form part of the area known as the Muskwa-Kechika.

6.1.1.2 Official Designation

The Muskwa Kechika Area, composed of protected areas and special management areas, is designated under the *Environment and Land Use Act* Order-in-Council No. 1367 dated December 11, 1997. This OIC establishes that:

"The management intent for the Muskwa Kechika Management Area is to ensure wilderness characteristics wildlife and its habitat are maintained over time while allowing resource development and use, including recreation, hunting, timber harvesting, mineral exploration and mining, oil and gas exploration and development. The integration of management activities especially related to the planning, development and management of road accesses within the Muslcwa Kechika Management Area is central to achieving this intent. The long-term objective is to

return lands to their natural state, as much as possible, as development activities are completed."

The OIC also;

- ➔ Describes the Muskwa Kechika Area.
- ➔ Establishes the Muskwa Kechika Management Plan and requires that the planning and management of Crown land and natural resources in the Muskwa-Kechika area must be conducted in accordance with the Muskwa-Kechika Management Plan.
- ➔ Requires that tenures and resource development approvals must be consistent with the MuskwaKechika Management Plan.
- ➔ Authorizes the requirement for joint approvals of tenures and resource development plans as indicated by the Muskwa-Kechika Management Plan.
- ➔ Requires approval of local strategic plans as a prerequisite to the issuance of resource development approvals for timber, oil and gas development and commercial recreation.
- ➔ Establishes the formation of an Inter-agency Management Committee who have responsibility for the planning, allocation and management of Crown land and natural resources in the Muskwa-Kechika, for the purposes of the implementation of the Muskwa-Kechika Management Plan.
- ➔ Recognizes that the Premier of BC may, in accordance with the provisions of the Muskwa-Kechika Management Plan, appoint an advisory board to assist in the implementation of the Muskwa-Kechika Management Plan.

Management within the Muskwa Kechika Area must now be consistent with the Muskwa-Kechika Management Plan. This plan will guide resource managers and statutory decision makers to ensure that the LRMP Tables' recommendations and government's decisions for this outstanding area are achieved.

6.1.2 Protected Area Designation Process

Legal descriptions for approved Protected Areas will be prepared jointly by BC Parks and BC Lands and subsequently signed off by the chair of the Omineca-Peace Inter-agency Management Committee. A complete land and tenure status report and clear documentation about the intent of special considerations of each Protected Area will be forwarded to the Land-Use Coordination Office.

6.2 Approved Policy Direction

The Fort St. John working group identified several issues that indirectly or directly affect land use within the Fort St. John Planning Area that were related to existing government policy. The following policy changes are recommended as part of this land use recommendation to government.

6.2.1 Commercial Backcountry Recreation

The management of public and commercial recreation within the western portion of the planning area was discussed at length by the Table. The Fort St. John LRMP directs the development and use of more detailed recreational use plans, to direct and manage commercial backcountry recreation (CBR) activities. The intent of this direction is to maintain a balance between non-commercial public use and other use.

- ➔ An inventory will be completed of existing and potential CBR opportunities to guide the allocation of future CBR tenures.
- ➔ Commercial backcountry recreation activities must be consistent with:
 - ➔ acceptable limits of change;
 - ➔ environmental sustainability;
 - ➔ greatest benefit to the local community, region and province;
 - ➔ equitable forage allocation between commercial and non-commercial use;
 - ➔ equitable allocation of suitable campsites.

6.2.2 Management of Approved Protected Areas within the Muskwa-Kechika

The Redfern-Keily and Graham-Laurier Protected Areas cover a large portion of the Protected Areas within the Fort St. John planning area. There are significant wildlife and recreational values found within these two areas and the Table has concerns regarding the future management of these areas. The Table directs that these large Protected Areas be managed differently than most other 'parks', given historical usage, and recommends the following considerations be incorporated in detailed recreation management plans for these two areas:

- ➔ that, for personal protection, the carrying and use of firearms be permitted outside of lawful hunting season,
- ➔ that permits not be required for non-commercial use of horses, until such time as they are required to protect other values within these protected areas,
- ➔ that horse use not be restricted to existing trails, unless required to protect other important values or to manage erosion or other issues,
- ➔ that there be no duplication or unnecessary increase in the number of permits for commercial operations in and adjacent to these Protected Areas, resulting from a change in land status associated with the Protected Area,
- ➔ that the Ministry of Environment, Lands and Parks and the Ministry of Forests undertake joint management of these Protected Areas; that a joint management strategy be established prior to designation of the Protected Areas and that the Park Act not supersede the management plan developed locally for these Protected Areas,
- ➔ that the majority of the proposed Protected Areas be managed as much for their inherent wilderness and wildlife values as for human use, and that human use be restricted as required to protect and manage these inherent values, and

- ➔ that there be a commitment of sufficient resources to ensure proper management of the Protected Areas proposed in this Plan.

6.2.3 Directional Drilling under Protected Areas

The Fort St. John LRMP directs that the sale of subsurface rights and drilling for petroleum resources be allowed under specific Protected Areas if doing so would not compromise the values for which the areas were protected. This does not include surface access through these Protected Areas. This policy would allow for some economic recovery of these sub-surface resources and would possibly mitigate possible compensation issues. It is the Tables' understanding that this would require a modification of existing government policy.

A subcommittee of the Environmental Conservation and Oil and Gas Sectors met in December 1996 to determine if the sectors could reach consensus on areas that might be appropriate for directional drilling under proposed Protected Areas in the Fort St. John, Dawson Creek and Fort Nelson planning areas. The group reviewed the proposed Goal 1 and 2 proposals and developed draft criteria for determining if directional drilling should be supported underneath proposed Protected Areas. The information was intended as a recommendation from the subcommittee to the Table. A list of their recommendations and criteria used to develop them are found in Appendix B.

6.2.4 Crown Land Agriculture Policy

The Table endorses any initiative taken at the provincial level to review the Crown Land Agriculture Policy to ensure that it is meeting the needs of both the agriculture sector and government.

6.2.5 Revision of Agricultural Land Reserve (ALR) Boundaries

The current Agricultural Land Reserve boundaries were created in 1974 at a scale of 1:50,000. The Table supports the intent of the Agriculture Land Reserve but has concerns that these reserve boundaries may not truly reflect the agricultural potential of land within the planning area. It is anticipated that the "working forests" will be incorporated into a Forest Land Reserve that will have these boundaries. Therefore the Table directs that the current ALR boundaries be refined at a more detailed scale to more accurately capture the lands agricultural capability.

6.2.6 Forest Land Reserve

The Forest Land Reserve (FLR) is an essential element of BC's Provincial land use strategy. The FLR is designed to retain forest land for timber production and related public values, and to discourage its conversion to urban uses. The Table directs that Crown land outside of the revised ALR boundaries be included in the FLR.

6.2.7 Grazing Enhancement Fund

The Fort St. John LRMP endorses the establishment of funding for the Fort St. John planning area to meet the grazing objectives of the land use plan.

The Fort St. John LRMP has developed strategies that are designed to minimize conflicts between livestock grazing and other resource users, but recognize that some mitigative strategies are required to deal with impacts of the Forest Practices Code (biodiversity and riparian management concerns) and wildlife guidelines established in the Plan area.

6.2.8 Site "C"

Since 1979, BC Hydro has held a flood reserve on a portion of the Fort St. John Planning area adjacent to the Peace River at an area known as the Site "C" flood reserve, an area previously identified as a potential darn site and reservoir. Above this dam site are several islands in the Peace that the Fort St. John Table would like to recommend for protection status. Current government policy regarding acceptable uses in Protected Areas clearly states that flooding would not be an acceptable use. Thus, full protection status would preclude future hydroelectric development opportunities. To this end the Table recommends the following:

- ➔ Any portion of these islands that are outside of the flood reserve be designated as Protected Areas.
- ➔ Areas within the flood reserve be designated under the Environment and Land Use Act such that resource development activities or tenures are precluded until such time as a decision is made on the Site "C" proposal.
- ➔ If the Site "C" flood reserve is cancelled, the areas designated under the Environment and Land Use Act, be upgraded to full protection status.

The current Site "C" flood reserve causes significant uncertainty in Land and Resource Management Planning within the Fort St. John area planning area. The Table therefore recommends that BC Hydro review its plans for Site "C" prior to any subsequent land use planning exercise, no later than 10 years from the approval date of this Plan.

6.2.9 Access and the Use of Gates

A considerable amount of the direction contained within this Plan relates directly or indirectly to the management of access to Crown lands. For a variety of reasons, this Plan directs that access be controlled in certain circumstances to protect other resource values such as wildlife or wilderness. There are a variety of measures that can be taken to achieve this objective depending on the exact nature of the access control required.

The Table has concerns that the use of gates for purposes other than public safety may lead to further complications if not used or monitored correctly. Problems in the past have been noted where certain individuals have gate privileges while others do not. To this end, the Table recommends the following with regards to the use of gates as an access control mechanism:

- ➔ Land managers should use alternate access control measures where they are feasible
- ➔ When gates are chosen as the tool to control access, it must be advertised with sufficient time for public concerns to be addressed.

6.2.10 ROS Primitive Management

Detailed planning will be required to develop access management strategies that maintain, over time, the current (1996) proportion/percentage of ROS "Primitive" land within the Besa-Halfway-Chowade Resource Management Zone.

6.2.11 Charlie Lake Licensed Water Supply Area

The Charlie Lake watershed has been identified as a significant source of water for these of residents of the planning area. There is a broad general concern that this watershed has been negatively affected by settlement and resource development. Although this has not been proven satisfactorily to date, some water users believe that water quality and quantity have been negatively affected.

The Charlie Lake watershed does not meet the intent of official community watershed designation under the Forest Practices Code. These guidelines were developed to protect water quality and quantity in smaller, heavily licensed watersheds (<500 km²) from less than adequate forest and/or range practices. The prescriptions as listed and described in the Community Watershed Guidelines would not significantly protect water quality and quantity as currently written. Designation of this watershed as a community watershed', although possible under a higher level plan such as an LRMP, would cause residents and industry unnecessary bureaucracy with little substantive protection for this important water source.

6.3 Roles and Responsibilities

6.3.1 Interagency Management Committee

The responsibilities of the Omineca-Peace Interagency Management Committee (IAMC) are to:

- ➔ co-ordinate and ensure plan implementation by the various resource agencies
- ➔ review and provide recommendations on proposed amendments, and
- ➔ reconvene the Table for plan interpretation or the implementation report.

6.3.2 Government Agencies

All applicable resource management agencies are responsible for:

- ➔ preparing an annual monitoring report on plan implementation,
- ➔ preparing an implementation matrix and action plan to ensure that strategies and objectives are implemented,

- ➔ reviewing more detailed plans and resource management plans to ensure consistency with the LRMP; and,
- ➔ distributing a copy of the approved plan to major licensed resource users, resource agency staff, stakeholders and interested public.

6.3.3 First Nations

Government is committed to work with First Nations on a government-to-government basis. The LRMP will be without prejudice to aboriginal rights and treaty negotiations. First Nations will be encouraged to play a direct role in the implementation and monitoring of the Plan.

6.3.4 Public

It is recognized that the public is an important contributor to the effective implementation and monitoring of the plan in partnership with the different government agencies and First Nations.

6.4 Direction for More Detailed Planning

More detailed plans include a wide range of planning processes including, but not limited to landscape unit plans, pre-tenure plans, resource plans, co-ordinated access management plans and Protected Area Management Plans. Where there is no detailed planning process for a defined area, plans will be developed by the appropriate agencies and will provide an opportunity for public review. Any concerns with specific resource management practices should be raised directly with the resource agency mandated to manage those specific values.

6.5 Criteria that Apply to More Detailed Plans

All parties with a key interest or stake in the plan must be invited and encouraged to:

- ➔ participate,
- ➔ strive for consensus through an interest-based decision making process, and
- ➔ ensure all subsequent plans are consistent with the LRMP.

7.0 Monitoring and Amendment

7.1 Plan Term & Review Schedule

The term of the LRMP will be 10 years with a formal review in 2002 (year 5). The scheduled amendment and review process to renew the LRMP will begin 2005 (year 8).

7.2 Monitoring Committee & Annual Reporting

The Fort St. John LRMP Table recommends that the LRMP Working Group be used as the plan's monitoring committee and assist the interagency management committee (IAMC) with reviewing an annual monitoring report.

The monitoring report will indicate how the objectives and strategies outlined in the Land and Resource Management Plan are being met through agency-specific resource management activities, more detailed planning processes and resource development plans or permits.

By 1998 and annually thereafter, the resource agencies will prepare an LRMP monitoring report for the LRMP Working Group to review. It will include:

- ➔ actions taken to conform with plan direction;
- ➔ compliance with plan requirements;
- ➔ instances where the intent of plan had to be clarified;
- ➔ an update on the schedule for more detailed planning.

The monitoring report will review and collate indicator information and assess how well the plan is meeting stated management objectives. Each appropriate government agency will be responsible for collecting and collating indicator information, revising the indicators as necessary, and raising issues that need to be addressed.

Following release of the Monitoring Report, the LRMiP Working Group will hold an annual meeting to review the report and solicit public comment. The meeting will be an opportunity for the public to raise issues that may require update or amendment of the plan.

7.3 Draft Monitoring Indicators

Monitoring indicators were developed by the Table for the majority of the strategies in the General Management Direction and within each RMZ. The indicators are considered to be a draft and may be refined by the resource management agencies responsible for implementing the plan. They have not been updated with the current management objectives and strategies.

7.4 Plan Amendment

Local or operational planning processes may, through more detailed mapping, research or public involvement, recommend changes to the Land and Resource Management Plan. The outcome of LRMP Monitoring Committee meetings may also be recommended amendments to the plan. These would be communicated by the LRMP Chairperson (or IAMC designate) to the Omineca-Peace Inter-agency Management Committee for their consideration.

7.4.1 Plan Updates (Minor Amendments)

Plan updates are any minor changes to the plan and may include:

- revision of wording;
- revised priorities for more detailed plans;
- small changes to boundaries of Resource Management Zones (maximum 500 ha) suggested by more detailed plans; and,
- refinements to objectives and strategies suggested by more detailed plans.

The annual Monitoring Report will contain proposed plan updates. The IAMC will be responsible for review and approval of suggested plan updates. All changes to the plan will be documented and circulated to public interest groups and major tenure holders.

7.4.2 Unscheduled (Major) Amendments

An unscheduled amendment is a major or significant change to the plan including: large changes to Resource Management Zone boundaries (500 ha or more); major revisions to objectives and/or strategies set out in the plan.

The LRMP Table, public or agencies may identify issues that require an unscheduled amendment. These will be identified in the Annual Report or at an annual meeting. When issues arise that require a major amendment, the IAMC will establish the schedule and Terms of Reference for the amendment process, consistent with existing legislation, regulations, and policies. The public will be involved in the plan amendment process.

Further direction will be provided by the Land Use Co-ordination Office (RMD) on what constitutes a major amendment to the plan.

7.4.3 Scheduled Amendments

A scheduled amendment will involve the review of the entire plan and include a detailed examination of significant revisions. The process to amend the plan will begin eight years following plan approval. The IAMC will establish the Terms of Reference for the amendment and review process, consistent with existing legislation, regulations and policies. The public will be involved in the amendment process.

7.4.4 Audit Process

An audit process should be developed so that the success of implementing the LRMP can be measured. One method that can be used is for the LRMP Chair and the I/T to contract with an independent auditor. Through interviews, field work or other methods, the auditor determine the success of implementation. The audits, which should require about one to two weeks work, could be carried out every two years, beginning in 1999, and ending with the 8 year review of the plan. Results of audits can be presented at the annual meeting.

7.0 Monitoring and Amendment

7.1 Plan Term & Review Schedule

The term of the LRMP will be 10 years with a formal review in 2002 (year 5). The scheduled amendment and review process to renew the LRMP will begin 2005 (year 8).

7.2 Monitoring Committee & Annual Reporting

The Fort St. John LRMP Table recommends that the LRMP Working Group be used as the plan's monitoring committee and assist the interagency management committee (IAMC) with reviewing an annual monitoring report.

The monitoring report will indicate how the objectives and strategies outlined in the Land and Resource Management Plan are being met through agency-specific resource management activities, more detailed planning processes and resource development plans or permits.

By 1998 and annually thereafter, the resource agencies will prepare an LRMP monitoring report for the LRMP Working Group to review. It will include:

- actions taken to conform with plan direction;
- compliance with plan requirements;
- instances where the intent of plan had to be clarified;
- an update on the schedule for more detailed planning.

The monitoring report will review and collate indicator information and assess how well the plan is meeting stated management objectives. Each appropriate government agency will be responsible for collecting and collating indicator information, revising the indicators as necessary, and raising issues that need to be addressed.

Following release of the Monitoring Report, the LRMP Working Group will hold an annual meeting to review the report and solicit public comment. The meeting will be an opportunity for the public to raise issues that may require update or amendment of the plan.

7.3 Draft Monitoring Indicators

Monitoring indicators were developed by the Table for the majority of the strategies in the General Management Direction and within each RMZ. The indicators are considered to be a draft and may be refined by the resource management agencies responsible for implementing the plan. They have not been updated with the current management objectives and strategies.

7.4 Plan Amendment

Local or operational planning processes may, through more detailed mapping, research or public involvement, recommend changes to the Land and Resource Management Plan. The outcome of LRMP Monitoring Committee meetings may also be recommended amendments to the plan. These would be communicated by the LRMP Chairperson (or IAMC designate) to the Omineca-Peace Inter-agency Management Committee for their consideration.

7.4.1 Plan Updates (Minor Amendments)

Plan updates are any minor changes to the plan and may include:

- revision of wording;
- revised priorities for more detailed plans;
- small changes to boundaries of Resource Management Zones (maximum 500 ha) suggested by more detailed plans; and,
- refinements to objectives and strategies suggested by more detailed plans.

The annual Monitoring Report will contain proposed plan updates. The IAMC will be responsible for review and approval of suggested plan updates. All changes to the plan will be documented and circulated to public interest groups and major tenure holders.

7.4.2 Unscheduled (Major) Amendments

An unscheduled amendment is a major or significant change to the plan including: large changes to Resource Management Zone boundaries (500 ha or more); major revisions to objectives and/or strategies set out in the plan.

The LRMP Table, public or agencies may identify issues that require an unscheduled amendment. These will be identified in the Annual Report or at an annual meeting. When issues arise that require a major amendment, the IAMC will establish the schedule and Terms of Reference for the amendment process, consistent with existing legislation, regulations, and policies. The public will be involved in the plan amendment process.

Further direction will be provided by the Land Use Co-ordination Office (RMD) on what constitutes a major amendment to the plan.

7.4.3 Scheduled Amendments

A scheduled amendment will involve the review of the entire plan and include a detailed examination of significant revisions. The process to amend the plan will begin eight years following plan approval. The IAMC will establish the Terms of Reference for the amendment and review process, consistent with existing legislation, regulations and policies. The public will be involved in the amendment process.

7.4.4 Audit Process

An audit process should be developed so that the success of implementing the LRMP can be measured. One method that can be used is for the LRMP Chair and the I/T to contract with an independent auditor. Through interviews, field work or other methods, the auditor determine the success of implementation. The audits, which should require about one to two weeks work, could be carried out every two years, beginning in 1999, and ending with the 8 year review of the plan. Results of audits can be presented at the annual meeting.

8.0 Interpretation and Appeal

From time to time, the LRMP Working group, public or agencies may become concerned about how the plan is being interpreted or about specific practices that are occurring. In all instances, the concerns will be dealt with in the same spirit that the plan was developed.

8.1 Interpretation of Land Use Objectives and Strategies

Where a concern is raised over land use objectives and strategies, the concern will be addressed directly to the affected agency(s). The responsible manager(s) will respond to the concern in writing. If the matter is not satisfactorily resolved, the concern will be forwarded to the Omenica-Peace Inter-agency Management Committee for resolution.

8.2 Appeal of Resource Management Practices

Where the public or agencies raise concerns with specific resource management practices that are occurring in the LRMP planning area, they will raise the issue directly with the affected agencies. Where there is an existing review or appeal process, the concern will be dealt with through it. For example, concerns over forest road construction will be dealt with under the Forest Practices Code.

8.3 Reconvening the LRMP Table

At the annual meeting and review, or if the LRMP Table is reconvened, the Table will have an opportunity to provide interpretation and input on specific issues relating to the Fort St. John LRMP. A group of Table members may make a request to the Inter-Agency Management Committee that the Fort St. John LRMP Table be reconvened to address specific issues related to interpretation of the plan.

APPENDIX A - Fort St. John LRMP Table Members¹

Sector	Representative
Environmental Conservation	Wayne Sawchuk
Guide-Outfitting	Ray Jackson
Hardwood Forest Industry	John Dymond
Hardwood Forest Industry	Lyle Mortenson
Heritage	Pat Westergaard
Labour	Allana MacAulay

Labour	Ron Wagner
Local Urban Government	Rob Fraser
Local Rural Government	Karen Goodings
Local Rural Government	Jean Leahy
Ministry of Agriculture, Fisheries and Food	Allan Blair
Ministry of Employment and Investment (Minerals)	Jainie Pardy
Ministry of Employment and Investment (Energy)	Tom Ouellette
Ministry of Environment, Lands and Parks (Environment)	Mike Lambert
Ministry of Environment, Lands and Parks (Lands)	Alex Ostapiuk
Ministry of Environment, Lands and Parks (Parks)	Don Roberts
Ministry of Forests	Andy Johnson
Non-Commercial Hunters and Anglers	Barry Holland
Petroleum and Natural Gas	Van Greig
Petroleum and Natural Gas	Rob Jefferies
Ranching	Larry Beale
Recreation	Ray Van Skiver
Small Business	Judy Thomas
Softwood Forest Industry	Dave Menzies
Tourism	Ella Fraser
Trapping	Arnold Churchill

APPENDIX B - Recommendations of Environmental Conservation and Oil and Gas Sector Sub-Committee on Directional Drilling under proposed Protected Areas

Criteria NOT supporting Directional Drilling beneath Protected Areas

1. designation objective relates to subsurface issues (e.g. hot springs);
2. size/shape of area too large to get seismic data (not technically feasible);
3. ecological values compromised by adjacent directional drilling activity;
4. spiritual and/or cultural values;
5. adjacent topography;.
6. drilling tech feasibility unsuitable;
7. highest pristine areas;
8. visual impact;
9. too small, intent agreed is that the boundary of either a large or small area should not preclude that area outside of the park from being developed - allow tenure sales of that portion of a DSU (drilling supply unit that falls outside a designated Class A Park, allow production from DSUs even where a portion of that DSU is taken up by a Protected Area;
10. not geologically prospective near term (indicated by geological trends and activity).

Criteria supporting Directional Drilling beneath Protected Areas

1. designation of PA for recreational cultural purposes (non-ecological values);
2. existing tenure in or adjacent to the Protected Area;
3. size/shape technically suitable for directional drilling;
4. existing access/infrastructure in or adjacent to Protected Area;
5. high term geological potential indicated by geological trends and activity;
6. where high pooling operations exist;
7. corridor/linear sites;
8. topography adjacent seems amenable;
9. technical directional feasibility.

Implementation Recommendations

1. Protected Areas where directional drilling is appropriate should be designated such that directional drilling be allowed otherwise they should be administered as a Class A Park.
2. List of Protected Areas and their suitability for directional drilling should be reviewed every 10 years. ELU Act sites would move into a Class A park designation where the directional drilling criteria no longer applies, where warranted - long term intent would be to get all ELU Act sites into Class A designation.
3. Long-term goal - to have all ELU Act sites moved to Class A park designation (Note: This may not be the intent at each of the three LRMP Tables).
4. No surface disturbance (including seismic).
5. ELU Act sites areas allow for subsurface oil and gas tenures - would allow for new subsurface tenures.
6. Allow tenure sales on the portion of the DSU which falls outside a designated Class A Park.
7. Allow production from DSUs even where a portion of the royalties and bonus points to Park management from the revenues from Protected Areas where directional drilling occurs.
8. where tenure already exists in a Protected Area it will be grandfathered under existing normal rules regarding access, voluntarily surrendered, expropriated by government or resolved under other yet to be determined mechanisms.

Fort St. John LRMP Recommendations

Rationale (Criteria numbered 1 through 10 for NOT supporting directional drilling or criteria numbered a through i in support of directional drilling) are included after each proposed Protected Area.

Appropriate	Not Appropriate
Sikanni Canyon (b, d, e)	Pink Mountain (9)
Sikanni Falls (d, e)	Silcanni Old Growth (5)
Ekwan Lakes (c, d and e subject to First Nations review)	Peace River Corridor Sites (9 including Golata Creek)
Beatton-Doig Canyon (b, e)	Milligan Hills (2, 3, 5)
Chinchaga Lakes (b, d and e subject to First Nations Cultural review)	Graham-Laurier (2)
	Redfern-Keily Creek (2, 3, 5)

ACCESS MANAGEMENT

the overall mandate for the administration of the planning, construction, maintenance, use and deactivation of present and proposed Forest Service Roads, operation roads and non-status roads on Crown Lands within or outside Provincial Forests (including Tree Farm Licences (TFL)), in conjunction with Timber Supply Analysis (TSA) and TFL plans, resource development plans and in addition to emergency pest and fire contingency plans.

(from: C.A.M.P, Coordinated Access Management Planning, A Guide to Planning & Control and Deactivation of Resource Roads on BC Crown Lands, MEL P/MOP, November 1994)

AGE CLASS

any interval into which the age ranges of trees, forests, stands or forest types is divided for classification and use; forest inventories commonly group trees into 20 year age class groups.

AGRICULTURAL CODE OF PRACTICE FOR WASTE MANAGEMENT

purpose of this Code is to describe practices for using, storing and managing agricultural waste that will result in agricultural waste being handled in an environmentally sound manner.

AGRICULTURAL LAND RESERVE (ALR)

established under the Land Commission Act in April, 1973. Principal objective is the preservation of Agricultural Land for farm use and encouragement for establishment and maintenance of family farms.

ALIENATE

to convey or transfer land from crown status to fee simple.

ALLUVIUM

sand, clay and other earth materials gradually deposited along river beds and floodplains.

AQUIFER

a water bearing stratum of permeable rock, sand or gravel.

ARCHEOLOGICAL SITES

locations that contain physical evidence of past human activity for which the application of scientific methods of inquiry (i.e. survey, excavation, data analysis) are the primary source of information. These resources do not necessarily hold direct associations with

living communities. Examples of archaeological sites include shell middens, lithic scatters, cache pits and pit house remains.

(from: Douglas Glaum personal communication, April 1996)

ASSEMBLAGES

collection or aggregate, a number of persons or things assembled.

AVIAN

of, or pertaining to birds.

BEST MANAGEMENT PRACTICES

accepted methods for controlling non-point sources pollution, may include one or more conservation practices.

BIODIVERSITY

or biological diversity, is the diversity of plants, animals and other living organisms in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, as well as the evolutionary and functional processes that link them. The underlying assumption of applying the biodiversity management approach is that all native species and ecological processes are more likely to be maintained if managed forests are made to resemble those forests created by the activities of natural disturbance agents such as fire, wind, insects and disease. The composition, size, age and distribution of forest types and structural characteristics of forest stands have been determined by these-natural processes. Applying biodiversity emphasis options to landscape units across a planning area is a key biodiversity management strategy. LRMP tables can indirectly assign biodiversity options to landscape units consistent with broad scale land use zonation using lower biodiversity emphasis. When landscape level biodiversity management options have been established, the requirement for maintaining biodiversity in individual strands can be determined from Biodiversity Field Guide.

(from: Biodiversity Guidebook September 1995)

BIODIVERSITY - LOWER LEVEL

lower biodiversity emphasis, first in a range of three landscape level options to maintain biodiversity. Where the primary management objectives are primarily socio-economic demands such as timber supply, the lower biodiversity emphasis option may be appropriate. Habitat is provided for a wide range of species, however, the pattern of biodiversity will be significantly altered. Accordingly, there is a relatively high risk that some native species will be unable to survive in a specific area.

(from: Biodiversity Guidebook September 1995)

BIODIVERSITY - INTERMEDIATE LEVEL

intermediate biodiversity emphasis, second option, essentially a trade-off between biodiversity conservation and timber production. The risk to eliminating certain species from an area is reduced.

(from: Biodiversity Guidebook September 1995)

BIODIVERSITY - HIGHER LEVEL

higher biodiversity emphasis, an option recommended for those areas where biodiversity conservation is a high management priority. It gives a higher priority to biodiversity conservation and has the greatest impact on timber supply.

(from: Biodiversity Guidebook September 1995)

BIODIVERSITY - STAND LEVEL

Stand level - **stand management to maintain biodiversity**, stand level recommendations for biodiversity are designed to maintain or restore important structural attributes such as wildlife trees (including standing dead or dying trees), coarse woody debris, tree species diversity and understory vegetation diversity.

(from: Biodiversity Guidebook September 1995)

BIOGEOCLIMATIC ZONES

are geographic areas having similar patterns of energy flow, vegetation and soils as a result of broadly homogeneous climate.

(from. Biodiversity Guidebook September 1995)

BLUE LISTED SPECIES

taxa that are considered to be vulnerable and "at risk", but not yet endangered or threatened. Populations of these species may not be in decline, but their habitat or other requirements are such that they are sensitive to further disturbance. The blue list also includes species that are generally suspected of being vulnerable, but for which information is too limited to allow designation in another category.

BROAD ECOSYSTEM UNITS

a permanent area of the landscape, meaningful to animal use, that supports a distinct kind of dominant vegetative cover, or distinct non-vegetated cover. These units are defined as including potential (climax) vegetation and any associated successional stages (for forests and grasslands).

BUFFER ZONE

a zone of vegetation around a sensitive area intended to filter impacts of adjacent activities, such as road building, on the resource being protected - some activities may be permitted within buffer zones. Often used in conjunction with **leave strips** - an undisturbed strip of vegetation around a sensitive resource area.

(from: Environmental Guidelines for Seismic and Drilling Operations in Northeast British Columbia (Interim), MELP, November 1994)

CAPABILITY MAPPING

a habitat interpretation for a species which describes the greatest potential of a habitat to support that species. Habitat potential may not be reflected by the present habitat condition or successional stage.

CARIBOU MANAGEMENT ZONE

areas where operable timber supply has been reduced to meet the requirements of caribou habitats.

CAPABILITY RATINGS (HABITAT) FOR UNGULATES (CLASSES 1 THROUGH 6)

Capability ratings are established on the ability of the land to meet the total needs of the ungulate species over the long term. In terms of food and cover needs, the ratings are based on the optimum vegetational stage (successional stage) that can be maintained assuming good management practices that do not degrade the environment or the land base.

- ➔ Class 1 Lands in this class have no significant limitations to the production of ungulates.
- ➔ Class 2 Lands in this class have very slight limitations to the production of ungulates.
- ➔ Class 3 Lands in this class have slight limitations to the production of ungulates.
- ➔ Class 4 Lands in this class have moderate limitations to the production of ungulates.
- ➔ Class 5 Lands in this class have severe limitations to the production of ungulates.
- ➔ Class 6 Lands in this class have limitations so severe that there is no ungulate production.

(Inter-agency Planting Team definition - primarily from the map legend from Northeast Coal Habitat Mapping, Resource Inventory Branch, Victoria. 1977-79)

CLEARCUTTING SILVICULTURAL SYSTEM

the process of removing all trees in a stand in one cutting operation. The previous stand is replaced with an even aged crop of new trees through planting and or natural regeneration.

COARSE WOODY DEBRIS

sound and rotting logs and stumps that provide habitat for plants, animals and insects and, are a source of nutrients for soil development.

(from: Biodiversity Guidebook September 1995)

COLIFORMS

bacteria present in the intestinal tracts of humans and other warm blooded animals and excreted in large numbers in faecal wastes. Water is not a natural medium for coliform organisms and their presence is indicative of faecal pollution. Total coliform counts are used as an indicator of the treatment adequacy in drinking water supply systems. Total coliforms include a wide variety of bacteria, many of which are not pathogenic and not associated with human waste. The faecal coliforms counts are specific for faecal pollution.

(from: Draft Community Watershed Guidebook March 1996)

COMMERCIAL ACCESS

roading or the use of roads in support of commercial non-industrial activities (tourism, guide outfitting, angling, etc.).

COMMUNITY WATERSHED (AS DESIGNATED BY THE FOREST PRACTICES CODE)

a watershed with a drainage area of not more than 500 km² that:

- a) is licensed under the *Water Act* for community water use, or
- b) is licensed under the *Water Act* for domestic water use and the holder of the license, the district manager, the designated environmental official and Minister of Health, all agree that the area should be regarded as a community watershed.

COMMUNITY WATERSHED PROTECTION GUIDELINES

recognize water quality, quantity and timing of flow as the principles in the community watersheds, and provide for their protection and enhancement by guiding and regulating resource management activities.

CONFLUENCE

place where streams meet.

CONIFEROUS

cone bearing evergreen trees or shrubs, usually with needle-shaped or scale-like leaves. The wood of coniferous trees is known as softwood (e.g. pine, fir and spruce).

CONSERVATION DATA CENTRE

a division of BC Environment that tracks species and plant communities that are considered threatened or endangered at the provincial, national or global level.

CRITICAL HABITAT

part or all of a specific place occupied by a wildlife species or a population of such species and recognized as being essential for the maintenance of the population or ecosystem processes. The habitats may be well defined, geographically concentrated, critical niches or species-specific critical ecological components widely distributed across the landscape.

(from: Draft Wildlife Habitat Areas Field Guide, October 1994)

CUTOVER

land cleared of trees.

DECIDUOUS

trees or shrubs, commonly broad leafed, that shed their leaves annually. The wood of deciduous trees is known as hardwood (e.g. aspen).

DFO

Federal Department of Fisheries and Oceans.

DIAMETER AT BREAST HEIGHT (DBH)

the diameter of a tree, measured at 1.3 m above the ground. A measurement taken at approximately breast height and used as the standard for describing the diameter of a tree.

DISCOURAGE

to hinder by disfavoring: deter.
to attempt to dissuade.

ECOSECTION

large, defined geographic units based primarily on landform and climate that are used to divide the province into large physiographic units.

ECOSECTION REPRESENTATION

the degree to which the area represents the biophysical features of the ecosection, especially its ability to capture the full range of biogeoclimatic units.

ECOSYSTEM

a community of animals, plants and bacteria and its interrelated physical and chemical environment.

ENCOURAGE

to spur on: stimulate.
to give help or patronage to: foster.

ENDANGERED

a species facing imminent extirpation or extinction, COSEWIC.

ENHANCE

to add or contribute to as: improve; increase.

ENSURE

to make sure, certain, or safe : guarantee.
making certain or inevitable of an outcome, but INSURE sometimes stresses the taking of necessary measures beforehand.

EQUIVALENT CLEAR CUT AREA (ECA)

term used to describe a second growth back in relation to its hydrological equivalence to a recent clear cut. As second growth develops, the hydrological impact on the site is reduced. The rate of reduction is expressed in proportion to the height of the second growth. On average, a stand must be at least 9 metres in height before a stand can be considered hydrologically recovered.

FACILITATE

to make easier.

FLYWAY

specific air route taken by birds during migration.

FOREST ECOSYSTEM NETWORK (FENS)

planned landscape zones that serve to maintain or restore natural connectivity within a landscape unit. FENS are contiguous networks of representative old-growth and mature forest and are composed of a variety of protected and classified areas (e.g., Protected Areas, old-growth management areas, riparian management areas and reserve zones, wildlife habitat areas and other sensitive areas such as unstable terrain, high visual quality or any other inoperable areas).

(from: Biodiversity Guidebook September 1995)

FOREST MANAGEMENT REGIME (LOW, MODERATE, OR HIGH INTENSITY)

A forest management regime (low, moderate or high intensity) is a general forest resource management statement incorporated into the majority of the resource management zones within the planning area. It is intended to describe the intensity of forest resource management activity (timber harvesting, road construction, silviculture, etc.) in a specific RMZ.

- ➔ **High intensity** areas are extensively logged and roaded with numerous tree plantations at various stages. Forest resource development is a major resource value within the zone. Timber licensees have made substantial investments (such as road construction) within the RMZ. A high level of industrial forestry activity is anticipated over the long term.
- ➔ **Moderate intensity** areas are currently logged or forecast for timber harvesting and subsequent forest management activities at a substantially lower level of intensity than in high intensity areas. Industrial forest activity is one of several resource values. Forest licensees have made some substantial investments into forest resource infrastructure within the zone. Forest resource development may not be the most prominent industrial activity in the RMZ.
- ➔ **Low intensity** areas have, to date, experienced minimal industrial forest management activity. Previous timber harvesting may not have occurred or have been completed and cutblocks may be in various stages of forest regeneration. In general, low intensity areas have higher biodiversity, conservation, recreation and wildlife values. Future timber harvesting and related forest management activity is anticipated but at a level less than in RMZ's with a moderate forest management regime.

(Source; IPT)

FOREST PRACTICE timber harvesting, road construction, road maintenance, road use, road deactivation, silviculture treatments, botanical forest product collect-ing, grazing, hay cutting, fire use, control, suppression and any other activity that is;

➔ carried out on land that is:

- i) Crown Forest Land
- ii) range land, or
- iii) private land that is subject to tree farm license or a woodlot license, and

➔ carried out by:

- i) any person (A) under an agreement under the Forest Act or Range Act, (B) for a commercial purpose under this Act or the regulations, or (C) to rehabilitate forest resources after an activity referred to in clause (A) or (B), or
- ii) the government.

(from: Forest Practices Code, April 1995)

FOREST PRACTICES CODE OF BRITISH COLUMBIA part of an overall strategy introduced by the provincial government for Land and Resource Management Planning and resource management in BC. The Code is based on the goal of sustainable use which includes:

- a) managing forests to meet present needs without compromising the needs of future generations,
- b) providing stewardship of forests based on an ethic of respect for the land,
- c) balancing productive, spiritual, ecological and recreational values of forests to meet the economic and cultural needs of peoples and communities, including First Nations,
- d) conserving biological diversity, soil, water, fish, wildlife, scenic diversity and other forest resources; and
- e) restoring damaged ecosystems

(from: Draft Administrative Guide for Strategic Planning, January 1995)

FRAGMENTATION a process whereby large contiguous forest patches are transformed into one or more smaller patches surrounded by disturbed areas. Fragmentation occurs naturally by fire, disease, wind and insect attack. It also occurs in managed forests, influenced by the rate of cut, cutblock size, cutblock distribution and silvicultural systems used to reforest. Fragmentation due to forest harvesting should be viewed and managed to mimic fragmentation resulting from natural disturbances. Fragmentation can lead to declines in biodiversity in three ways:

- a) the loss of habitat through the conversion of natural forest stands to managed forest stands,
- b) the increase in micro-climatic and biotic edge effects through the reduction in size of forest patches,
- c) the imposition of barriers to gene flow and dispersal through the increasing isolation of remaining forest patches.

(from: Biodiversity Guidebook September 1995)

GREEN-UP a cutblock that supports a stand of trees that:

- a) has attained the green-up height specified in the higher level plan for the area,
- b) in the absence of a higher level plan for the area, has attained a height that is 3 metres or greater.

(from: Green-Up Guidebook December 1995)

GROUNDWATER

subsurface water found in the zone of saturation.

GROUNDWATER RECHARGE

the inflow to an aquifer.

HABITAT

an area in which a plant or animal naturally lives; part of a broader unit, the ecosystem.

HEAD WATERS

the source and upper reaches of a stream, also the upper reaches of a reservoir.

HIGHER LEVEL PLAN (HLP)

In the broader context, higher level plans refer to plans, agreements or objectives as defined in the Forest Practices Code. They provide the strategic context for operational plans that determine the mix of forest resources to be managed in a given area. There are two main categories:

1. Plans that are directly enabled through Part 2 of the *Forest Practices Code of British Columbia Act*, including objectives for resource management zones, landscape units, sensitive areas and interpretive forest sites and recreation sites and trails.
2. Plans that are developed under non-Forest Practices Code legislation and policy. These include plans that are authorized by Cabinet, plans pursuant to Section 4(c) of the *Ministry of Forests Act* that have been authorized by a District Manager with direction from the chief forester and management plans, which may be designated as higher level plans by the chief forester for tree farm licenses, and by the regional manager for other agreements under the *Forest Act*.

The following is a hierarchy of higher level plans:

- a) plans approved by Cabinet or three Ministers (such as CORE Land Resource Management Plans)
- b) resource management zone objectives (such as those developed for an LRMP)
- c) landscape unit objectives
- d) sensitive area objectives
- e) plan under the Ministry of Forests Act.
- f) interpretive forest site, recreation site or trail objectives
- g) management plan

Note: By legislation, landscape unit and sensitive area objectives must be consistent with resource management zone objectives

HYDROLOGY

the science of the waters of the earth, water properties, circulation, principles and distribution.

IDENTIFIED WILDLIFE

those species at risk that the Deputy Minister of Environment, Lands and Parks or a person authorized by that deputy minister and the chief forester agree will be managed through a higher level plan, wildlife habitat area or general wildlife measure.

IMPROVE

to enhance in value or quality: make better, to use to good purpose, to advance or make progress in what is desirable, to make useful additions or amendments.

INDIGENOUS

existing, growing or produced naturally in a region

INDUSTRIAL ACCESS

roading and other infrastructure requirements related to the oil and gas, timber, mineral and trapping industries.

INSTREAM FLOW REQUIREMENT

the minimum amount of water required in a stream to maintain the existing aquatic resources and associated wildlife and riparian habitat.

INTEGRITY

an unimpaired condition; soundness, the quality or state of being complete or undivided; completeness.

LAKE CLASS

a designation, made by the district manager, for lakes with a riparian class of LI that indicates the width of a lakeshore management zone and practices that are appropriate within that zone.

LAKESHORE GUIDELINES

designates which management practices are acceptable within reserve and management zones.

(from: Lake Classification and Lakeshore Management Guidebook: Prince George Forest Region, November 1995)

LAKESHORE MANAGEMENT AREA

an area established adjacent to a lake with a riparian class of LI, consisting of a riparian reserve zone determined in accordance with the Forest Practices Code of BC, a lakeshore management area, and a lakeshore management zone.

LAKESHORE MANAGEMENT ZONE

portion of the lakeshore management area established by the district manager around a lake with a riparian class of Li, consisting of a riparian reserve zone or if there is no riparian reserve zone, that are located adjacent to the lake.

LANDSCAPE

a watershed or series of similar and interacting watersheds, usually between 10,000 and 100,000 ha in size.

LANDSCAPE UNIT

a planning area, generally up to 100,000 ha, delineated according to topographic or geographic features such as a watershed or series of watersheds and, as designated by a district forest manager.

(from: Biodiversity Guidebook September 1995)

LARGE WOODY DEBRIS

Woody debris functioning as fish habitat, during at least part of the year, with a diameter of 10 cm or greater and a length of 2 metres or greater.

LAND AND RESOURCE MANAGEMENT PLANNING

the sub-regional integrated resource planning process for British Columbia. LRMP considers all resource values and requires public participation, interagency coordination and consensus building in land and resource management decisions.

LIMNOLOGY

the branch of hydrology pertaining to the study of freshwater, especially ponds and lakes.

LINEAR DEVELOPMENT

straight line industrial development that is typical of powerlines, highways, gas lines and seismic activities.

LOCAL RESOURCE USE PLAN (LRUP)

district or landscape level plans providing objectives and guidelines for use and protection of valued resources. Examples include integrated watershed management plans, coordinated access management plans and wilderness/recreation plans.

MAINTAIN

to keep in an existing state (as of repair, efficiency, or validity); preserve from failure or decline. The intent of the Table is that "maintain" is not used in a strict, narrow, sense, to such an extent that no use or change in use is tolerated. It is recognized that natural processes do not preserve the natural environment in an unaltered state. Rather, changes occur over time and space, while they appear to be the same.

MANAGE

to handle or direct with a degree of skill or address, to treat with care; to exercise executive, administrative, and supervisory direction.

MATURE GROWTH

or **mature seral-stage**, is a forest composed primarily of co-dominant trees, with canopies that vary vertically, horizontally, or both. Generally refers to trees 80 to 120 years old or greater, depending upon species and site conditions. The age and structure of mature seral-stage forests varies significantly by forest type and from one biogeoclimatic zone to another. (from: Biodiversity Guidebook September 1995)

MAXIMIZE

to increase to a maximum;

to make the most of.

MEI

Ministry of Employment and Investment

MELP

Ministry of Environment, Lands and Parks

MOF

Ministry of Forests

MINIMIZE

to reduce to a minimum.

NATURAL DISTURBANCE TYPES (NDTS)

characterize areas with different natural disturbance regimes. Natural stand-initiating disturbances are those processes that largely terminate the existing forest stand and initiate secondary succession in order to produce a new stand. For the purpose of setting biodiversity objectives, five natural disturbance types are recognized as occurring in BC. These are:

NDT 1 - ecosystems with rare stand-initiating events,
NDT 2 - ecosystems with infrequent stand-initiating events,
NDT 3 - ecosystems with frequent stand-initiating events,
NDT 4 - ecosystems with frequent stand-maintaining fires,
NDT 5 - Alpine Tundra and Sub-alpine Parkland eco systems.
(from: Biodiversity Guidebook September 1995)

NATURAL STREAM FLOW

the flow of a stream as it would be if unaltered by upstream diversions storage, import, export or changes in upstream consumption use caused by development.

NON-POINT SOURCE POLLUTION

pollution discharged over a wide land area, not from one specific location.

NOT SATISFACTORILY RESTOCKED (NSR)

productive forest land that has been denuded and has failed, partially or completely, to regenerate either naturally or artificially.

OLD GROWTH MANAGEMENT AREA (OGMA)

mapped-out special management areas that contain or are managed to replace specific structural old-growth attributes. They are intended to capture old-growth or mature seral stages within landscape units to meet retention objectives and can be harvested (using timber harvesting and silvicultural practices consistent with management objectives for the OGMA) when equivalent old -seral stage areas are available. (from: Biodiversity Guidebook September 1995)

OLD GROWTH

or **old-seral stage** is a climax forest that contains live and dead trees of various sizes, species, composition and age class structure. The age and structure of old growth forests varies significantly by forest type and from one biogeoclimatic zone to another. (from: Biodiversity Guidebook, September 1995)

OPERATIONAL PLAN

details the logistics for development. Methods, schedules and responsibilities for accessing, harvesting, renewing and protecting the resource are set out to enable site specific operations to proceed. These include Forest Development Plan, Logging Plan, Access Management Plan, Range Use Plan, Silviculture Prescription, Stand Management Prescription and Five Year Silvicultural Plan.

(from: Higher Level Plans: Policies and Procedures, May 1996)

PARTIAL RETENTION

Partial retention is a practice designed to meet MOF Visual Quality Objectives (VQO). The partial retention VQO requires that alterations remain visually subordinate to the characteristic landscape. Repetition of the line form, colour and texture is important to ensure a blending with the dominant elements. In the managed forest, partial retention may apply to areas where landscapes are of aesthetic importance and where management activities generally can match the landscape character and do not cause obvious intrusion (e.g. where landscapes can absorb change).

(Source; MOF VQO policy)

PATCH

a stand of similar-aged forest that differs in age from adjacent patches by more than 20 years. The term is used in landscape level planning to either refer to the size of an opening created by a natural disturbance that led to even-aged forests or an opening created by cutblocks.

(from: Biodiversity Guidebook September 1995)

PLANT COMMUNITY

an abstract unit based on sample plots of climax vegetation that possesses similar vegetation structure and native species composition and occurs repeatedly in similar habitats.

POLLUTION

any alteration in character of quality of the environment which renders it unfit or less suited for certain uses.

POTABLE

water fit for human consumption without further treatment.

PRESCRIPTION

a set of detailed directions for managing habitat for identified wildlife.

(from: Draft Managing Identified Wildlife Guidebook February 1996)

PRESERVE

to keep safe from injury, harm, or destruction protect, to keep up and reserve for personal or special use.

PRIORITY FISH SPECIES

freshwater game fish species such as kokanee salmon, rainbow trout, bull trout, walleye and burbot.

(from: Fish-Stream Identification Guidebook July 1995)

PROMOTE

to contribute to the growth or prosperity of; further.

PROTECTED AREA

areas such as provincial parks, federal parks, wilderness areas, ecological reserves, and recreation areas that have protected designations according to federal and provincial statutes. Protected Areas are land and fresh-water to marine areas set aside to protect the province's diverse natural and cultural heritage.

PROVIDE

to make a proviso or stipulation, to make preparation to meet a need; to supply something for sustenance or support.

QUANTIFY

to make explicit the logical quantity of; to determine, express, or measure the quantity of.

RARE ECOSYSTEM

an ecosystem (either site series - sites capable of producing the same late seral or climax plant communities within a biogeoclimatic zone or variant, or surrogate - to elect as substitute) that makes up less than 2% of a landscape unit and is not common in adjacent landscape units. (from: Biodiversity Guidebook September 1995)

RED-LISTED SPECIES

the taxa on the red list are either extirpated, endangered or threatened, or are being considered for such status. Any indigenous taxon (species or subspecies) threatened with imminent extinction or extirpation throughout all or a significant portion of its range in BC is endangered. Threatened taxa are those indigenous species or subspecies that are likely to become endangered in BC if factors are not reversed.

REGIONALLY IMPORTANT SPECIES

species that are not red or blue-listed, that require management practices that differ from standard integrated resource management guidelines in order to fulfill critical habitat needs; or locally or regionally threatened or declining species or those that may reasonably be expected to decline without protection of critical habitats.

RECOGNIZE

to acknowledge formally; as to admit as being of a particular status; to acknowledge the de facto existence or the independence of, to acknowledge or take notice of in some

definite way as: to acknowledge with a show of appreciation; to acknowledge acquaintance with.

REHABILITATION

re-establish to condition of good health.

RESERVE

to hold in reserve: keep back, to set aside an area of forest land, that by law or policy, is not available for timber harvesting or production. (from: Biodiversity Guidebook September 1995)

RESOURCE MANAGEMENT OBJECTIVES

These statements apply to specific resource management zones and are derived by the LRMP working group to sustain or enhance identified resource values. They provide direction to future land use resource management activities within a resource management zone (RMZ). (Source; IPT)

RESOURCE MANAGEMENT STRATEGIES

These are generally strategic-level resource management prescriptions that apply to specific resource management zones. These strategies or actions are derived by the LRMP working group to achieve resource management objectives..(source: IPT)

RESOURCE MANAGEMENT ZONE (RMZ) a land use designation category under the Forest Practices Code that establishes strategic objectives and special requirements to guide subsequent sub-regional/local and operational planning. (Source: IPT)

RESTORATION ecological restoration is the process of repairing damage caused by humans to the diversity and dynamics of indigenous ecosystems. **RIPARIAN LAKE CLASSES** determined by lake size and the biogeoclimatic zone within which it occurs. Depending on these characteristics, the lake is given a designation of either L1, L2, L3 or L4. (from: Riparian Management Area Guidebook December 1995) **RIPARIAN HABITAT** a distinct wildlife habitat zone located in riparian areas (land adjacent to the banks of rivers, streams, lakes and wetlands). Riparian areas are dominated by continuous high moisture content and influenced by adjacent upland vegetation. They incorporate ecosystems that are biologically diverse, frequently containing the highest number of plant and animal species found in a forest. Riparian areas provide critical habitats, home ranges and travel corridors for wildlife and serve to maintain ecological linkages throughout the forest landscape by connecting hillsides to streams and upper-elevation stream headwater areas to valley bottoms. (from: Draft 2 - Riparian Management Area Guidebook March 1995) **RIPARIAN MANAGEMENT AREA** an area determined in accordance with the Forest Practices Code Riparian Management Areas, that;

- a) is adjacent to a stream or wetland, or lake with a riparian class of L2, L3 or L4, and
- b) consists of a riparian management zone and, depending on the riparian class of the stream, wetland or lake, a riparian reserve zone.

(from: Draft 2 - Riparian Management Area Guidebook March 1995) **RIPARIAN MANAGEMENT ZONE** an area adjacent to a stream, wetland or lake where constraints to forest practices apply for the purpose of maintaining the integrity of the stream, wetland or lake and associated wildlife habitat. (from: Draft 2 - Riparian Management Area Guidebook March 1995) **RIPARIAN RESERVE ZONES** an area adjacent to a stream, wetland, or lake, within the Resource Management Zone, where no forest practices may occur. (from: Draft 2 - Riparian Management Area Guidebook March 1995) **ROS (RECREATION OPPORTUNITY SPECTRUM) DELINEATION CRITERIA** ROS classes are determined by considering the three basic criteria of remoteness, size and evidence of humans.

- ➔ **Remoteness:** Remoteness from the sights and sounds of human activities is used as one of the criteria for the opportunity to experience greater or lesser amounts of social interaction and primitive to rural influences as one moves across the spectrum. To identify remoteness, delineate all roads, railroads and trails on the base map or overlay. Distinguish between two levels of roads: primitive roads and better-than-primitive roads. Trails with motorized use are included in the primitive road category.
- ➔ **Road Classification:** For roads which are difficult to classify into the primitive road or better than-primitive road categories, apply these definitions:
 - a) better-than-primitive roads are constructed and maintained for the use of highway-type vehicles having more than two wheels;
 - b) primitive roads are not constructed or maintained for vehicles primarily intended for highway use.
- ➔ **Road Patterns:** In most cases all roads and trails are mapped. In areas with dense road patterns it may not be necessary to identify each road for ROS class delineation. Based on main roads alone, the entire area may be road-influenced and become the same ROS class. In these cases only the roads along the periphery of the densely roaded area are needed to define the Recreation Opportunity Spectrum class boundaries.
- ➔ **Traffic Volume:** Although volume of traffic may vary widely on the better-than-primitive roads, depending upon the specific road involved, volume need not be recorded on the base map or overlay. The physical presence and sight of a road, even with no traffic on it still affects the visitor experience, and is accounted for through the Recreation Opportunity Spectrum criteria. If traffic volume results in sounds from a road at distances greater than the line of sight, then sound may become

the determinant criterion in delineating the appropriate ROS class.

- ➔ **Water Travel:** Where motorized water travel routes provide the only access, consider them in a manner similar to primitive roads. These specialized types of access may also provide a basis to determine the need for subclasses within the ROS continuum.

ROS (RECREATION OPPORTUNITY SPECTRUM) CLASSES		
Class	Remoteness	Evidence of Human Activity
Primitive	> 8 km from a 4-wheel drive road > 5000 hectares	<ul style="list-style-type: none"> ➔ very high probability of experiencing solitude, closeness to nature, self-reliance and challenge ➔ unmodified natural environment ➔ very low interaction with other people ➔ little on-the-ground evidence of other people ➔ restrictions and controls generally not evident ➔ non-motorized access and travel on trails, cross-country and waterways ➔ generally no facilities except where required for safety &

		<p>sanitation</p> <ul style="list-style-type: none"> ➔ generally no site modification
Semi-Primitive Non-Motorized	<p>> 1 km from a 4-wheel drive road > 1000 hectares</p>	<ul style="list-style-type: none"> ➔ high probability of experiencing solitude, closeness to nature, self-reliance and challenge ➔ natural or natural-appearing environment ➔ low interaction with other people ➔ some on-the-ground evidence of other people, some site controls ➔ non-motorized access and travel on trails, cross-country and waterways ➔ facilities may be present for signing and for sanitary and safety needs

		<p>using natural, rustic materials wherever possible</p> <ul style="list-style-type: none"> ➔ minimal to no site modification
Semi-Primitive Motorized	<p>> 1 km from a 2-wheel drive road</p> <p>> 1000 hectares</p>	<ul style="list-style-type: none"> ➔ moderate opportunity for solitude, closeness to nature; high degree of self-reliance and challenge in using motorized equipment ➔ natural or natural-appearing environment ➔ low interaction with other people ➔ some on-the-ground evidence of other people, some on-site controls ➔ motorized access on trails, primitive roads & cross-country may occur ➔ limited facilities for signing, sanitary and safety needs using natural, rustic materials wherever possible ➔ minimal site

		modification
Road Resource Land	often within 1 km of a 2-wheel drive road with gravel or dirt surface	<p>opportunities for both privacy and social interaction;</p> <p>feelings of independence and freedom</p> <p>natural environment may be substantially modified</p> <p>on-the-ground evidence of other people, some on-site controls</p> <p>access and travel is by motorized vehicle</p> <p>facilities generally present; natural, rustic materials preferred</p>

SCENIC AREA

any visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process carried out or approved by the district manager.

SELECTION SILVICULTURE SYSTEM

this process has the following characteristics:

- a) harvesting timber at specified repeated intervals,
- b) harvesting single scattered individuals or small groups of individual trees,
- c) encouraging relatively frequent establishment of regeneration in canopy gaps,
- d) encouraging and maintaining an uneven canopy and an uneven-aged stand structure of at least three well-represented age classes,
- e) including intermediate cuttings in immature age classes, concurrent with the harvest of mature timber or otherwise, during the cutting cycle, to meet specified stand management goals.

SENSITIVE AREAS

Sensitive areas are sites on Crown land that, due to special circumstances, require special management or measures, different from adjacent lands, to conserve forest resources.

Sensitive areas are generally less than 1000 ha in size and are established under the Forest Practices Code under the authority of a District Manager in consultation with the designated environment official. (Inter-agency Planning Team definition - primarily from the 'Higher Level Plans: Policy and Procedures'. Forest Practices Code of British Columbia, Queens Printer, Victoria, June 1996.)

SENSITIVE SPECIES

those plant or animal species susceptible or vulnerable to activity impacts or habitat alterations.

SEQUENTIAL DEVELOPMENT

method by which industrial forestry development proceeds across the landscape so as to minimize the negative effects of development and related access on other non-industrial resources such as wildlife habitat or recreational values. Development and rehabilitation is completed in one area before new areas are developed.

SERAL STAGES

the stages of ecological succession of a plant community, e.g. from young stage to old stage. The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment becomes altered over time.

SILVICULTURAL SYSTEMS

a planned cycle of activities by which a forest stand, or group of trees, is harvested, regenerated and tended over time. Silvicultural systems use such practices as clearcutting and selection.

SPECIAL MANAGEMENT AREA

a land use designation under the plan used to identify areas where enhanced levels of management are required to address sensitive values such as fish and wildlife habitat, visual quality, recreation and cultural heritage features, etc. The management intent is to maintain these values while allowing compatible human use and development.

SPECIES AT RISK

(a) any wildlife species that in the opinion of the deputy minister of MELP or a person authorized by that deputy minister is threatened, endangered, sensitive or vulnerable,
(b) any threatened and endangered plants or plant communities identified by the deputy minister of MELP or a person

(b) authorized by that deputy minister, as requiring protection, and (c) regionally important wildlife as determined by the deputy minister of MELP or a person authorized by that deputy minister.

STAND

a community of trees with common characteristics; one stand can be distinguished from another by age, species, site type and other characteristics.

STAND ATTRIBUTES

components of a forest stand that are to be retained to maintain biodiversity. These components include: dead wood, standing dead trees, coarse woody debris, large living trees, tree species diversity, structural diversity and forest soils. (from: Biodiversity Guidebook September 1995)

STAND LEVEL

the level of forest management at which a relatively homogeneous land unit can be managed under a single prescription, or set of treatments, to meet well-defined objectives.

STIMULATE

to excite to activity or growth or to greater activity.

STRUCTURAL

components of a forest stand (including living and dead standing trees, canopy architecture and fallen trees) which together determine stand structure. (from: Biodiversity Guidebook September 1995)

SUITABILITY MAPPING

a habitat interpretation that describes the current potential of a habitat to support a species. Habitat potential is reflected by the present habitat condition or successional stage.

THREATENED OR ENDANGERED SPECIES

indigenous species that are either threatened or endangered, and identified as 'red-listed' by the Ministry of Environment, Lands and Parks.

(from: Biodiversity Guidebook September 1995)

TOPOGRAPHY

the general configuration of the land surface, including relief and position of natural and man-made features.

TRADITIONAL USE SITES

any geographically defined site that has been traditionally used by one or more groups of people for some type of activity. These sites will often lack the physical evidence of human-made artifacts or structures, but will maintain cultural significance to a living community of people. Traditional use sites are usually documented with the assistance of oral, historical and archival sources. Examples of such sites include: sacred sites, ritual bathing pools, resource gathering sites and sites of a legendary of past event of cultural significance.

(from: Douglas Glaum communication, April 1996)

TRIBUTARY

a stream that contributes its water to another stream or body of water.

TURBIDITY

describes the cloudy or hazy characteristics of water which is usually due to the presence of suspended particles of silt and clay.

(from: Draft Community Watershed Guidebook March 1996)

UNGULATE

a hooped mammal.

VIABLE POPULATION a population that can withstand the normal cycle of environmental factors without going to extinction.

(from: Biodiversity Guidebook September, 1995)

VISUAL QUALITY OBJECTIVE

a resource management objective established by the district manager or contained in a higher level plan that reflect the desired level of visual quality based on the physical characteristics and social concerns for the area.

VULNERABLE SPECIES

species that are not threatened or endangered but are sensitive and particularly at risk, and identified as 'blue-listed' by the Ministry of Environment, Lands and Parks.

(from: Draft Wildliffe Habitat Areas Field Guide, October 1994)

WATER LEVEL STREAM FLOW

measure of the water flowing in the stream at any point in time.

(from: Draft Community Watershed Guidebook March 1996)

WATER QUALITY PARAMETERS

includes turbidity, bacteria counts (total and faecal coliforms), and water level streamflow. These would be used to characterize existing water quality conditions and to establish a reference database for future comparison.

(from: Draft Community Watershed Guidebook March 1996)

WATERSHED

an area drained by a particular stream or river. A large watershed may contain several smaller watersheds.

WATERSHED ASSESSMENT

an evaluation of the cumulative impact that proposed activities and developments would have on stream flows, suspended sediment, landslide and stream channel stability within the watershed. The assessment has three levels:

Level I: reconnaissance level analysis; identifies watersheds at risk and cumulative effects and identifies specific hazards that need to be addressed, such as peak flows, suspended sediment and landslides.

Level II: an overview channel stability assessment, only conducted on streams that have a high impact based on Level I analysis.

Level III: detailed field investigation by a watershed specialist on highly impacted streams and is used to develop management prescriptions to mitigate hydrological impacts.

WETLAND

swamp, marsh or other similar area that supports natural vegetation that is distinct from the adjacent upland areas. More specifically, an area where a water table is at, near, or above the surface or where soils are water saturated for sufficient length of time that excess water and resulting low oxygen levels are principle determinants of vegetation and soil development.

WILDERNESS

This word has a different meaning for different people and is therefore difficult to define. One definition is:

an area of land generally greater than 1000 ha that predominantly retains its natural character and on which human impact is transitory, minor and in the long-mn substantially unnoticeable. (from 'Managing Wilderness in Provincial Forests' - A

Summary of the Policy Framework December 1989. Province of British Columbia, Ministry of Forests)

WILDLIFE

(a) a vertebrate that is a mammal, bird, reptile or amphibian prescribed as wildlife under the Wildlife Act, S.B.C. 1982, c.57 (b) a fish, or including (i) any vertebrate of the order Petromyzoniformes (lampreys) or class Osteichthyes (bony fishes), or (ii) any invertebrate of the class Crustacea (crustaceans) or class Mollusca (mollusks), from or in the non-tidal waters of the Province, and (c) an invertebrate or plant listed by the Minister of Environment, Lands and Parks as an endangered, a threatened or a vulnerable species, and includes the eggs and juvenile stages of these vertebrates, invertebrates and plants.

WILDLIFE CAPABILITY

capability is the potential of a habitat unit to produce an animal species under specified technological controls, irrespective of the numbers of that species that are currently being produced on that unit (Demarchi et al. 1990).

WILDLIFE HABITAT ARE

a unit of land necessary to meet the habitat requirements of one or more species of identified wildlife. (from: Biodiversity Guidebook September 1995)

WILDLIFE MANAGEMENT ARE

areas of critical wildlife habitat or rare ecosystems that are administered by the Wildlife Branch, BC Environment. WMAs are not equivalent to wildlife habitat areas (WHAs).

WILDLIFE TREE

a standing live or dead tree with special characteristics that provide wildlife habitat for the conservation or enhancement of wildlife. Characteristics include large diameter and height for the site, current use by wildlife, declining or dead condition, value as a species, valuable location and relative scarcity. (from: Biodiversity Guidebook September 1995)

WILDLIFE TREE PATCH

synonymous with a **group reserve** and is an area specifically identified for the retention and recruitment of suitable wildlife trees. It can contain a single wildlife tree or many. (from: Biodiversity Guidebook September 1995)

WOODLOT LICENCE

a licence issued to an individual to manage a specific area of Crown Timber, plus any private woodlands the individual owns. Requires the holder to file a management plan and to harvest at a pre-determined date.

YELLOW-LISTED SPECIES

species identified by the Ministry of Environment, Lands and Parks that require a management emphasis on a regional basis. (from: Conservation Data Centre)

APPENDIX D - Draft Monitoring Indicators by Interest

Strategy	Indicator	Methods & Assumptions	Data Sources
ENERGY			
<ul style="list-style-type: none"> ➔ allow exploration and development of resources within appropriate regulatory framework. ➔ maintain and enhance opportunities for environmentally responsible development of surface and subsurface resources. ➔ ensure development activities and associated access are undertaken with sensitivity to visual and recreational values (e.g. exploration development planning will recognize 	<ul style="list-style-type: none"> ➔ # of tenures 1996 vs. 2001. ➔ # of proven reserves 1996 vs. 2001. ➔ money from tenure sales. ➔ km of shot seismic. ➔ # of WA's issued. ➔ # of wells drilled. 	<ul style="list-style-type: none"> ➔ ongoing monitoring. 	<ul style="list-style-type: none"> ➔ MEI

<p>existing topography and ground conditions to reduce impact on visual and recreation values as much as practical).</p> <ul style="list-style-type: none"> ➔ promote low impact seismic exploration. ➔ encourage efficient and rational subsurface resource development to minimize surface disturbances and maximize subsurface resource utilization. 			
<p>minimize impact of industry on local residents by continuing to work with industry to lower emissions and decrease visual impacts.</p>	<ul style="list-style-type: none"> ➔ Air Quality complaints received 1996 vs. 2001 ➔ # of consultation group meetings per year. 	<ul style="list-style-type: none"> ➔ quantify and establish trends in public's perception of air quality 	<ul style="list-style-type: none"> ➔ BCE ➔ PRRD
<ul style="list-style-type: none"> ➔ ensure oil and gas exploration and development activities are undertaken 	<ul style="list-style-type: none"> ➔ # of pre-tenure plans completed. 	<ul style="list-style-type: none"> ➔ preplanning is better for wildlife and their habitat. 	<ul style="list-style-type: none"> ➔ MEI ➔ BCE

with sensitivity to wildlife and wildlife habitat.			
<ul style="list-style-type: none"> ➔ all new-cut seismic exploration in environmentally sensitive areas shall be heli-portable unless it can be conclusively demonstrated that conventional seismic exploration will not cause significant environmental impacts. 	<ul style="list-style-type: none"> ➔ amount of conventional seismic in high biodiversity RMZ's 1996 ➔ vs. 2001. 	<ul style="list-style-type: none"> ➔ quantify use of heli-portable seismic. 	<ul style="list-style-type: none"> ➔ MEI
<ul style="list-style-type: none"> ➔ promote site specific assessments to minimize number of wells in riparian areas. 	<ul style="list-style-type: none"> ➔ number of wells in riparian management areas 1996 vs. 2001. 	<ul style="list-style-type: none"> ➔ decreasing or increasing number of wells in riparian areas. 	<ul style="list-style-type: none"> ➔ BCE referral

TIMBER

<ul style="list-style-type: none"> ➔ quantify the timber harvesting land base and develop policies to reduce the permanent loss of net forest land to roads, landings, 	<ul style="list-style-type: none"> ➔ net timber harvesting land base 1996 vs 2001 ➔ amount of roads, landings, seismic lines, wellsites removed from timber 	<ul style="list-style-type: none"> ➔ quantify trends in timber harvesting land base. 	<ul style="list-style-type: none"> ➔ Road ➔ Access and ➔ Density ➔ Information ➔ GIS Data ➔ MOF Forest Inventory
---	---	---	--

seismic lines, wellsites and other developments	harvesting land base.		
<ul style="list-style-type: none"> ➔ establish general forest production targets for landscape units within the Resource Management Zone (RMZ) consistent with (choose one): I. low intensity, or II. moderate, or III. high ➔ intensity forest management regimes. 	<ul style="list-style-type: none"> ➔ silviculture activities and/or expenditures ➔ landscape units and biodiversity options. 	<ul style="list-style-type: none"> ➔ increased silvicultures are associated with higher timber management 	<ul style="list-style-type: none"> ➔ forest cover maps ➔ GIS data ➔ MOF ISIS ➔ licensee MLSIS
page 191			
<ul style="list-style-type: none"> ➔ ensure all forest management activities are undertaken with sensitivity to their effects on visual quality ALASKA HIGHWAY 	<ul style="list-style-type: none"> ➔ % of visual quality corridor in non-Greened-Up stage. 	<ul style="list-style-type: none"> ➔ quantify impacts to VQO's along the Alaska Hwy. 	<ul style="list-style-type: none"> ➔ MOF
<ul style="list-style-type: none"> ➔ develop a long term 	<ul style="list-style-type: none"> ➔ completion and multi- 	<ul style="list-style-type: none"> ➔ areas sensitive to 	<ul style="list-style-type: none"> ➔ MOF

<p>plan to manage access and forest management activities incorporating a form of sequential development to accommodate and address the concerns of other tenure holders and resource users .GRAHAM SOUTH, GRAHAM NORTH.</p>	<p>agency approval of Graham Total Resource Plan address multiple values. Plan to include operational access management strategies.</p>	<p>resource development approval subject to a total resource plan.</p>	<ul style="list-style-type: none"> ➔ BCE ➔ MEI
--	---	--	--

RECREATION

<ul style="list-style-type: none"> ➔ manage recreation sites by maintaining visual quality for trail systems, campsites and special features. 	<ul style="list-style-type: none"> ➔ ha in visual sensitive areas where VQO is Retention or Partial Retention 1996 vs. 2001. ➔ Public perception of visual quality along trail systems, campsites and special features, 	<ul style="list-style-type: none"> ➔ public perception of visual quality is estimated by the % of the population that would perceive and area to be visually preferred or liked. ➔ public includes residents and visitors. 	<ul style="list-style-type: none"> ➔ MOF recreation staff. ➔ Perception Rating System (developed by Kamloops LRMP, 1994) based on studies relating public preference to levels of visual impact. ➔ GIS date. ➔ public perception can be gained from open houses,
--	---	--	--

			questionnaires, etc.
<ul style="list-style-type: none"> ➔ identify and provide opportunities for the use of suitable Crown land for commercial recreation development and use. 	<ul style="list-style-type: none"> ➔ ha of Crown land developed for resort and wilderness tourism, ➔ # of commercial backcountry recreation proposals approved. ➔ level of compliance with the CBR Policy. 	<ul style="list-style-type: none"> ➔ quantify extent and nature of developed opportunities. 	<ul style="list-style-type: none"> ➔ BC Lands
<ul style="list-style-type: none"> ➔ identify areas of high recreation use or significance, for development at lower level planning stages. 	<ul style="list-style-type: none"> ➔ % of plan area mapped 1996 vs. 2001. 	<ul style="list-style-type: none"> ➔ this indicator needs to ➔ utilize MOF Recreation Opportunity Spectrum mapping/inventory and recreation features inventory. ➔ relies heavily on professional judgement and communication with various recreation groups. 	<ul style="list-style-type: none"> ➔ Tourism Capability mapping ➔ ROS -MOF ➔ Recreation Features Inventory - MOF.
<ul style="list-style-type: none"> ➔ develop strategies in lower level plans (e.g. landscape 	<ul style="list-style-type: none"> ➔ wildlife harvest data. ➔ hunter days. 	<ul style="list-style-type: none"> ➔ manage wildlife through strategies developed in 	<ul style="list-style-type: none"> ➔ BCE

<p>unit plans) to complement the wildlife management policies and management practices of wildlife managers, to sustain wildlife and guide-outfitting opportunities.</p> <ul style="list-style-type: none"> ➔ identify and protect guide-outfitting campsites and cabins. ➔ seasonal access (e.g. snowmobile) may be limited to address wildlife habitat needs. A Recreation Use Plan is recommended to address this issue. 	<ul style="list-style-type: none"> ➔ # of landscape level plans completed 1996 vs. 2001. 	<p>Lower Level plans.</p>	
<ul style="list-style-type: none"> ➔ manage existing tenures and manage the associated grazing activities of guide-outfitter to limit impacts and reduce risk to other 	<ul style="list-style-type: none"> ➔ range use (horse use) plans completed that address sensitive habitats 1996 vs. 2001. 	<p>quantify conflicts. monitoring of range tenures associated with guide-outfitting activities.</p>	<p>BCE MOF Range Staff</p>

<p>resource values (keep grazing out of sensitive habitats, etc.).</p>			
<p>develop strategies in lower level plans to maintain a component of the land base classified as ROS 'primitive' land (intent: maintain opportunities for a wildemess recreation experience) remains, recognizing that this component may change in location over time as roads are built and deactivated,</p>	<p>% of planning area in primitive and semi-primitive non-motorized (SPNM) and semi-primitive motorized (SPM)</p>	<p>relative diversity of recreation opportunities is estimated by predicting the % change of the area in the following ROS classes: primitive, SPNM and SPM.</p>	<p>Recreation Opportunity Spectrum (ROS) Classification System. professional judgement.</p>
<p>incorporate existing recreational activities and assess potential for the development of new recreational opportunities in lower level plans</p>	<p>user satisfaction, number of recreation users, number of new sites, # of landscape level plans and/or Parks Master plans or -</p>	<p>recreational opportunities to be incorporated into landscape plans</p>	<p>Tourism Data MOF</p>

(additional motorized recreational pursuits, etc.). maintain public access to XXX.	Recreation Use plans completed-1996 vs. 2001 that incorporate recreation concerns.		
provide for motorized recreation access to similar destinations as currently allowed,	km of motorized recreation access corridors 1996 vs. 2001.	quantify motorized recreational use.	MOF BCE
develop a grazing plan to address issues of forage allocation among tenured users, residents and wildlife.	# of forage allocation plans completed 1996 vs. 2001.	quantify grazing plans to address forage allocation issue.	MOF
identify and manage appropriate grazing management activities (e.g. bums).	# (ha) of wildlife and range bums 1996 vs. 2001.	quantify wildlife and range burns - establish trends.	MOE BCE
coordinate existing recreation through lower level planning (e.g. Coordinated Resource Management Plans).	# of active CRMPs 1996 vs. 2001.	CRMPs are used to address local resource conflicts.	MOF BCE MEI

integrate recreational activities with grazing and resource extraction GRAZING RESERVES,	# of reported conflicts between visitors, ranchers and industry (Problem wildlife committee).	quantify conflicts.	BC Environment Wildlife Branch
---	---	---------------------	--------------------------------

AGRICULTURE & RANGE

develop range use plans according to the Forest Practices Code.	# or Range Use Plans completed 1996 vs. 2001.	range use plans tool to address conflicts.	MOF
encourage an increase in range production, giving preference to integrated use.	AUM's 1996 vs. 2001	quantify range use.	MOF Range staff
minimize tree/grass/cattle conflicts through integrated management practices.	# of active CRMPs 1996 vs. 2001	CRMPs are used to address local resource conflicts.	BCE MOF MEI
encourage range use plans that will deal with the safety concerns associated with domestic stock within the highway corridor,	# of reported accidents and near-accidents involving vehicle/livestock conflicts 1996 vs. 2001.	quantify wildlife and vehicle accidents.	ICBC MOF

<p>allow Crown lands with suitable agricultural potential to be designated for agricultural development and use within the appropriate regulatory framework.</p>	<p># of Ag leases approved,</p>	<p>quantify trends in agricultural land use of Crown land.</p>	<p>MAFF BC Lands</p>
<p>ensure the integrity of the Agricultural Land Reserve through the Agricultural Land Commission Act and Regulations. support the purpose and the intent of the Agriculture Land Reserve (ALR) and the conversion of high quality agricultural land through existing processes.</p>	<p>ha in ALR amount of land in ALR 1996 vs. 2001.</p>	<p>quantify trends in AIR change applications.</p>	<p>ALC MAFF PRRD</p>
<p>encourage management plans to reduce wildlife/agriculture conflicts.</p>	<p>number of reported conflicts/year 1996 vs. 2001 (to Problem Wildlife</p>	<p>quantify conflicts</p>	<p>BCE MAFF MOF</p>

	Committee). # of management plans completed. % success in range use plans meeting AUM targets.		
in forested areas of low value for timber production, encourage conversion to range through clearing and prescribed burning.	ha of low value forested areas converted to range land 1996 vs. 2001.	quantify gains to grazing land base.	MOF Burn Plans
allow for the transfer and renewal of existing tenures. applications for new agriculture and range tenures will be reviewed on a site specific basis.	# of tenures 1996 vs. 2001. # of tenures transferred. # of applications for new agriculture and range tenures 1996 vs. 2001. # of lower level plans completed (Range Use Plans, etc.).	confirm tenure transfer and quantify. quantify trends in the # of agriculture and range proposals.	MOF BC Lands MOF BC Lands MAFF
ACCESS			
encourage shared	km of unused	quantify trends in use	MOF

<p>access.</p> <p>encourage deactivation and rehabilitation of unused roads, particularly within visible areas.</p> <p>require winter access unless need for all-season access can be conclusively demonstrated through lower level planning.</p> <p>coordinate access at the Coordinated Resource Management Plan (CRMP) level.</p> <p>maintain existing access including provisions for upgrading.</p> <p>deactivate all temporary linear development.</p> <p>minimize new access development.</p> <p>encourage consistent road construction standards</p>	<p>roads not deactivated 1996 vs. 2001.</p> <p># and area of temporary roads deactivated year (area, ha).</p>	<p>and deactivation of roads.</p>	<p>BCE MEI</p>
--	---	-----------------------------------	--------------------

<p>between industries. deactivate all new non-permanent motorized access adjacent to critical wildlife habitat.</p>			
<p>restrict the development of permanent motorized access adjacent to critical wildlife habitat.</p>	<p># of pre-tenure plans/ landscape plans completed 1996 vs. 2001.</p>	<p>prevent occurrence.</p>	<p>MEI MOF BCE</p>
<p>in consultation with users, restrict the use of existing motorized access except along designated roads and trails to non-motorized and approved industrial uses to sustain other resource values (e.g. fish and wildlife populations and habitats, rare ecosystems).</p>	<p># of km's of access corridors with access restrictions 1996 vs. 2001.</p>	<p>quantify and describe access restriction.</p>	<p>BCE MOF</p>

<p>upon cessation of tenure holder's activities, return linear development (e.g. roads, pipeline and utility corridors - not seismic lines) to a vegetative state which over time approximates natural conditions using reclamation, rehabilitation, recontouring, bridge removal and where possible, native species.</p>	<p>ha (%) of linear developments rehabilitated upon completion of activities 1996 vs. 2001.</p>	<p>quantify nature and extent of utility, pipeline and road corridor deactivation.</p>	<p>BC Lands MEI MOF</p>
<p>a lower level planning process will identify significant fish and wildlife and other resource values. Where there is a significant risk that these resources may be impacted,</p>	<p># of landscape level/ pre-tenure plans completed 1996 vs. 2001.</p>	<p># a lower level plan should address any conflicts.</p>	<p>MOF MEI BCE</p>

access may be limited, restricted or, in special circumstances, prohibited.			
---	--	--	--

WILDLIFE			
<p>identify and map high capability ungulate wintering areas at the landscape level 1996 vs. 2001.</p> <p>incorporate the maintenance of high capability ungulate wintering habitat (e.g. thermal and escape cover, suitability of forage and browse) into landscape level plans.</p> <p>establish wildlife habitat areas (WI-IA's) at the landscape level, to protect critical wintering habitat.</p> <p>plan and develop new access routes that avoid direct disturbance within, or in close proximity to, high</p>	<p>amount of high capability ungulate habitat mapped in the planning area 1996 vs. 2001.</p> <p># of WHA's identified in 5 Year Plans.</p>	<p>quantify and describe species present.</p>	<p>BCE</p>

<p>capability ungulate wintering habitat.</p>			
<p>identify and map medium and high quality grizzly bear habitat, at the landscape level, on a priority basis,</p> <p>plan and develop access to avoid medium and high quality habitats and/or human/bear interactions (e.g. winter access with summer deactivation, exploration and development activities supported by helicopters rather than roads).</p> <p>identify and designate critical grizzly bear habitat areas as wildlife habitat areas (WI-IA's).</p>	<p>% of medium and high capability grizzly bear habitat mapped in the planning area 1996 vs. 2001.</p>	<p>quantify and describe habitat present.</p>	<p>BCE</p>
<p>incorporate medium and high quality grizzly bear habitats and connectivity corridors into</p>	<p># of FENS 1996 vs. 2001.</p> <p># of pre-tenure and/or landscape unit plans completed 1996</p>	<p>lower level plans to address conflicts.</p>	<p>BCE</p>

<p>landscape level plans.</p> <p>minimize impacts on grizzly bear habitat by ensuring that critical habitat areas are linked by connectivity corridors or forest ecosystem networks (FENs) (where biologically and ecologically appropriate).</p>	<p>vs. 2001.</p>		
---	------------------	--	--

BIODIVERSITY

<p>the general biodiversity emphasis is:</p> <p>(i) low, or (ii) intermediate, or (iii) high</p> <p>this Resource Management Zone is a high priority for the initiation of landscape level planning. Landscape level plans will identify and map a number of ecosystem attributes (e.g. rare ecosystems, habitats and</p>	<p># of landscape units with approved biodiversity emphasis 1996 vs. 2001.</p> <p># of landscape/pre tenure plans completed 1996 vs. 2001.</p>		<p>BCE MEI MOF BC Lands</p>
---	--	--	---

<p>plant communities, ecosystem representation, biogeoclimatic zones and variants, wildlife habitat classes, critical habitats, environmentally sensitive and wildlife habitat areas for identified wildlife) and incorporate strategies to sustain these attributes.</p> <p>identify and maintain existing predator-prey systems through the identification and establishment of connectivity corridors at the landscape level.</p>			
<p>identify and prioritize negatively affected ecosystems for potential restoration and rehabilitation,</p>	<p># of FRBC watershed restoration proposals/completions 1996 vs. 2001.</p>	<p>Watershed Restoration projects to restore ecosystems.</p>	<p>MOF BCE</p>
<p>CULTURE AND HERITAGE</p>			
<p>recommend an inventory of known resources (cultural and heritage /</p>	<p>% of planning area mapped at 1:20 000 scale 1966 vs. 2001.</p>		<p>MOF MET First Nations Ministry</p>

heritage sites and trails) and designation of significant localities within the zone.			of Tourism
---	--	--	------------

MINERALS

ensure mineral exploration activities are undertaken with sensitivity to visual and recreation values.	application of permit conditions as required.	field inspections as required.	MEI
provide input to lower level planning as required.	# of inputs into lower level planning.		MEI
inventory and map current aggregate deposits and develop potential maps.	# of reports of aggregate resource sites. # of potential maps produced.		MEI MELP
encourage rehabilitative measures on un-reclaimed sites located in visually sensitive area,	# of sites identified. # of reclamation projects completed.		MEI MOF MELP
road building into currently unroaded areas will be permitted when it can be demonstrated that road access is required and subject of review and approval	# of new roads built into currently unroaded areas.		MEI

<p>through established procedures and applicable legislation.</p>			
<p>FISH</p>			
<p>identify and map critical fish habitat information (e.g. pools, migration patterns, spawning and rearing areas).</p>	<p># of stream and rivers with mapped habitat information 1996 vs. 2001.</p>	<p>quantify mapped fish inventory information.</p>	<p>BCE</p>
<p>incorporate the protection of fish and fish habitat into landscape level plans.</p> <p>incorporate 'Managing Identified Wildlife Guidebook' habitat protection criteria for bull trout into landscape and stand level plans (as these criteria are developed).</p> <p>determine equivalent clearcut area (ECA) threshold levels for streams with bull trout and incorporate into landscape level plans.</p>	<p># of landscape level or pre-tenure plans completed 1996 vs. 2001.</p>		<p>BCE</p>

<p>identify priority watersheds for Level I and/or II watershed assessments to determine potential negative impacts to fish habitat, riparian areas and water quality from land development activities.</p>	<p># of Level I or Level II watershed assessments completed 1996 vs. 2001.</p>	<p>quantify and describe the # of/and aerial location of Level I and II assessments.</p>	<p>BCE</p>
<p>minimize permanent access to remote lakes, streams and rivers with high quality fisheries.</p>	<p>number or % of streams and lakes classified as wilderness, walk-in, and road inaccessible 1996 vs. 2001.</p>	<p>quantify trends in the improvement or restriction of access to remote lakes.</p>	<p>BCE</p>
<p>WATER</p>			
<p>establish instream flow requirements, lake volumes and stage, wetland levels and determine water quality baseline information for high priority streams, rivers, lakes and wetlands.</p> <p>incorporate licensed water use data and instream flow/lake level needs for fish and aquatic</p>	<p># of lower level plans (landscape and pre-tenure plans) completed 1996 vs. 2001.</p>	<p>a lower level plans should address any conflicts.</p>	<p>BCE - water management</p>

organisms into landscape level plans.			
implement an appropriate level of watershed assessment to determine potential negative impacts to water quality.	# of watershed assessments completed.	# of watershed assessments are used to identify problem areas.	BCE
identify and designate water bodies with significant licensed withdrawals of potable water as Forest Practices Code designated Community Watersheds (where appropriate).	# of Forest Practices Code designated Community Watersheds 1996 vs. 2001.	the application of FPC Community Watershed protection criteria-will protect water supply.	BCE
identify sensitive groundwater recharge areas.	# of sensitive groundwater recharge areas identified and mapped 1996 vs. 2001.	quantify and locate ground-water sensitive (FPC designation) areas	BCE
manage resource development within sensitive groundwater recharge areas to minimize negative effects on groundwater quality and quantity.	# of landscape level/ pre-tenure plans completed in the planning area 1996 vs. 2001.	quantify trends in managing development around and in areas designated as sensitive ground-water recharge areas.	BCE

PROTECTED AREAS

<p>ensure that (future) management plans for the Protected Area respect the natural, cultural, heritage and recreation values identified by the LRMP Table. The values include (insert relevant values identified by the Table).</p>	<p># of high value Goal 2 local biological, geological, hydrological and cultural features with Protected Areas 1996 vs. 2001.</p> <p># of Park Master plans completed for PA's in the planning area 1996 vs. 2001.</p>	<p>the Table identifies high value features for their area.</p> <p>meant to cover features not covered in other indicators such as high valued fish and wildlife habitat features and high valued recreation and cultural features.</p>	<p>BC Parks BCE All agencies</p>
--	---	---	--

VISUAL QUALITY

<p>follow Ministry of Forests and other agencies processes' for visual landscape inventories, and setting Visual Quality Objectives in identified scenic areas.</p> <p>identified scenic areas will have their site specific Visual Quality Objectives reviewed and approved in lower level plans in accordance with the Forest</p>	<p># of, area (ha) and description of VQO's in planning area.</p> <p># of landscape level plans that incorporate visual quality concerns 1996 vs. 2001.</p>	<p>visual quality assessments help identify and protect VQOs.</p>	<p>MOF MEL</p>
---	---	---	--------------------

<p>Practices Code.</p> <p>a visual landscape inventory will be carried out by Ministry of Forests to determine the visual sensitivity of the scenic areas. Visual Quality Objectives will be established in accordance with the Ministry of Forests visual landscapemanagement system. Forest practices proposed in those scenic areas will be designed and carried out in the field consistent with achieving the Visual Quality Objectives.</p> <p>review existing openings and structures to rehabilitate to a less obtrusive impact e.g. modify openings, use of low visibility colours on structures or install tree breaks.</p> <p>manage visual quality from</p>			
---	--	--	--

<p>both river and highway viewpoints.</p> <p>manage visual quality in areas adjacent to designated Protected Areas, maintaining the values identified in the Protected Areas Strategy or significance, to be managed for lower level planning stages.</p>			
---	--	--	--