



Terms of Reference for Developing the North Saskatchewan Regional Plan



Additional copies of the report are available at:

Environment and Sustainable Resource Development
Land Use Secretariat
9th floor, Centre West Building
10035 - 108 Street
Edmonton, AB
T5J 3E1

www.landuse.alberta.ca

ISBN: 978-1-4601-1716-3 (printed version)

978-1-4601-1717-0 (online version)

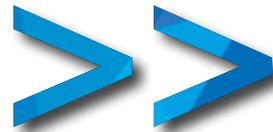
Printed May 2014



This document is printed on paper
from a responsibly managed forest.



Table of Contents



1.	Introduction	1
	Alberta's Land-use Framework	1
	What is the Purpose of Regional Planning?	2
	The Purpose of the Terms of Reference for Developing the Regional Plan	3
	Regional Plan Milestones	4
2.	Overview of the North Saskatchewan Region	5
	Drivers of Change	8
	Growing Economy	8
	Growing Population	10
3.	The North Saskatchewan Regional Plan	11
3.1	Vision, Outcomes and Strategic Directions	12
3.1.1	Proposed Vision for the Region	12
3.1.2	Proposed Regional Outcomes	13
3.1.3	Proposed Strategic Directions for the Regional Plan	14
3.1.4	Responsibility of RAC	14
3.2	Healthy Economy Supported by our Land and Natural Resources	15
3.2.1	Economic Considerations	15
3.2.2	Responsibility of the Government of Alberta	21
3.2.3	Responsibility of RAC	21
3.3	Healthy Ecosystems and the Environment	22
3.3.1	Environmental Considerations	22
3.3.2	Responsibility of the Government of Alberta	30
3.3.3	Responsibility of RAC	31
3.4	People-friendly Communities with Ample Recreational and Cultural Opportunities	34
3.4.1	Social Considerations	34
3.4.2	Responsibility of the Government of Alberta	37
3.4.3	Responsibility of RAC	38
3.5	Summary of RAC's Recommendation Areas	39



Appendix A: Role of the Regional Advisory Council	41
Appendix B: The Regional Planning Process	44
Appendix C: Policy Guidance	49
Appendix D: Overview of the North Saskatchewan Region	51
Appendix E: Government of Alberta's Land-use Classification System and Management Intents	74
Appendix F: Glossary	75



Introduction



Alberta's Land-use Framework

In response to Alberta's remarkable growth over the past years, the Government of Alberta started a comprehensive initiative to develop a new land-use planning system for the province. The Land-use Framework ushers in a new approach to managing lands and natural resources to achieve Alberta's long-term economic, environmental and social goals. The framework was developed in consultation with Albertans and provides a blueprint to guide us in making land and natural resource decisions. The Land-use Framework is about better managing our growth, not stopping it. It is designed to ensure good stewardship of Alberta's lands and resources, so that future generations of Albertans benefit from the province's natural beauty and prosperity, just as we do today.

The Framework establishes three desired outcomes:

- A healthy economy supported by our land and natural resources
- Healthy ecosystems and environment
- People-friendly communities with ample recreational and cultural opportunities

These outcomes recognize that Alberta's economic, environmental and social goals are interdependent. A balanced approach to achieving our goals will require identifying priorities and making decisions about how, where and when Alberta's lands and resources are to be used for the greatest benefit to Albertans.

To support us in making these important decisions, the Land-use Framework commits to the development of seven regional land-use plans, based on seven land-use regions. This regional approach recognizes the great diversity of Alberta's landscapes.

The *Alberta Land Stewardship Act* was created to clarify the roles, responsibilities and processes of land-use decision-makers and established the legal basis for the development and implementation of regional plans.



Figure 1:
Land Use Regions



What is the Purpose of Regional Planning?

The Government of Alberta has numerous policies and strategies to guide natural resource development, support economic growth, guide development of municipalities, and protect the natural environment. Regional plans will integrate these policies and strategies at the regional level and provide the policy direction and clarity needed to help decision-makers at the federal, provincial, and local levels make decisions that collectively reflect and support the regional needs and values of Albertans. Airsheds, watersheds, biodiversity, transportation and utility systems, and the success of many industries can cross regional boundaries. Regional plans will balance regional and provincial considerations and consider how choices made in one region will impact other regions and jurisdictions.

Regional plans paint a picture of how Albertans want the region to look and grow over several decades. Regional plans will focus on, and help address, the most pressing land and resource concerns in the region, any policy conflicts and gaps, and will plan for future activities, opportunities and challenges anticipated in the region. With a planning horizon of 50 years, regional plans will provide specific strategies and actions to be completed within the next five to 10 years.

Alberta's Integrated Resource Management System (IRMS)

IRMS is a shift in approach, designed to provide a more holistic view to manage and monitor our natural assets. The IRMS is the means by which Alberta will achieve responsible resource stewardship. The system examines the relationships and impacts of managing multiple resources and forms of land use to support more comprehensive decision-making.

The IRMS is a scalable system established and operational at the provincial level as well as at the regional and sub-regional levels. The four functions of the IRMS are:

1. Strategic intent;
2. Establishment of common policy and outcomes;
3. Providing policy assurance through the regulatory system; and
4. Monitoring, assessing and reporting on the achievement of outcomes.

At the provincial level, the functions of the IRMS are delivered through the following four key GoA mechanisms:

1. **Provincial Mandate, Legislation and Policies** – Provides guidance and direction to ensure planning and decision-making at all levels are informed and completed in a manner that aligns with and supports the achievement of the provincial vision and goals.
2. **Land-use Framework Regional Plans** – Provides the strategic outcomes and policy direction to allow for a cumulative effects management approach to resource management that reflects the unique needs of a region, as well as the broader provincial needs.



3. **Environmental Monitoring and the Alberta Environmental Monitoring, Evaluation and Reporting Agency** – Tracks progress and informs management action through an open, transparent, centrally coordinated and science-based system.
4. **Regulatory Enhancement and the Alberta Energy Regulator** – Provides effective assurance of outcomes, demonstrates commitment to environmental management and public safety, and improves efficiency by eliminating duplication.

To support this purpose, regional plans will identify and define the following for each region:

- a shared vision;
- strategic directions identifying the priority areas of focus;
- economic, environmental, and social outcomes for the region; and
- strategies and actions that will be implemented to achieve them.

Although the regional plan will not necessarily direct activities on lands under federal jurisdiction, such as First Nations reserve lands, national parks and military lands, it must recognize the long-term needs and plans for these areas. Similarly, regional plans must consider and, where possible, align policies with adjacent regions so that they are mutually supportive.

Regional plans will be developed and implemented from a cumulative effects management perspective by setting and integrating the economic, environmental and social outcomes Albertans want to see from resource development and managing cumulative development to achieve these outcomes. Regional plans will set environmental parameters that will be linked to provincial monitoring, assessment and reporting programs.

The Purpose of the Terms of Reference for Developing the Regional Plan

The Terms of Reference for Developing the North Saskatchewan Regional Plan specify what is inside and outside the scope of a regional plan by providing guidance on the economic, environmental, and social factors that are to be considered as the Regional Advisory Council (RAC) prepares its advice to Cabinet and as the Government of Alberta prepares the regional plan.

Additional information supporting this Terms of Reference is available in the Appendices as follows:

- Appendix A: Role of the Regional Advisory Council – Defines and scopes the roles of the Government of Alberta and of RAC.



- Appendix B: Regional Planning Process – Establishes a clear framework and process by which this regional plan will be developed.
- Appendix C: Policy Guidance – Identifies the provincial policies that will be integrated through this regional plan.
- Appendix D: Overview of the North Saskatchewan Region – Describes the current state of the region.

Regional Plan Milestones

Milestones for the development of the North Saskatchewan Regional Plan are as follows:

1. Cabinet provides guidance for the development of the plan through the Terms of Reference for Developing the North Saskatchewan Regional Plan, which contains the proposed vision, outcomes and strategic directions for the region.
2. Public, stakeholder and Aboriginal consultations on the Terms of Reference for Developing the North Saskatchewan Regional Plan will be held, using the Government of Alberta's consultation process to gather input on the issues – Phase 1 consultations.
3. RAC considers the input from Phase 1 consultations and provides advice on key priorities based on cabinet guidance.
4. The Government of Alberta releases an online survey to gather feedback on RAC's Recommendations to Government.
5. The Government of Alberta drafts the North Saskatchewan Regional Plan considering the input received from the consultation process, the recommendations provided by RAC and the feedback from Albertans on RAC's recommendations.
6. Public, stakeholder and Aboriginal consultations on the draft regional plan will be held, using the Government of Alberta's consultations process to gather feedback on the draft plan – Phase 2 consultations.
7. Feedback from the consultation process will inform further work on the regional plan.
8. Final, comprehensive draft of the North Saskatchewan Regional Plan will be submitted to Cabinet for final review and approval.



Overview of the North Saskatchewan Region



The North Saskatchewan Region has a large and diverse landscape, containing the Rocky Mountains, rolling foothills and parkland. The region is located in central Alberta and has an area of approximately 85,780 square kilometres, or just under 13 per cent of Alberta's total land base. The region is bordered by Saskatchewan to the east, British Columbia to the west, the Upper Athabasca and the Lower Athabasca Regions to the north, and the South Saskatchewan and Red Deer Regions to the south (see Figure 2: North Saskatchewan Region).

In the far west are the eastern slopes of the Rocky Mountains and foothills. Much of this area is forested and contains a diverse habitat that supports a wide range of wildlife and plants. This part of the region serves as a major source of recreation and tourism for the entire province. It is home to Banff National Park, Canada's first national park, and is a prime destination for domestic and international visitors. The town of Banff lies within the national park and is the most southerly populated centre in the region.

The foothills are home to grizzly and black bears, cougars and hundreds of other species, and also provide important opportunities for recreation and tourism. Other significant industries in this area include forestry, oil and gas extraction, and ranching. Urban centres such as Rocky Mountain House and Banff serve as important economic and recreation hubs for this part of the region.

The foothills give way to parkland in the central part of the region, which forms a broad transitional area between the drier grasslands to the east and the boreal forest to the north, and spans a significant portion of the region. This part of the region has seen the greatest population growth and the most agricultural and industrial development.

The northern areas of the region contain a mix of forests and low-lying wetlands. In the south and east, a mix of aspen forests and cultivated lands dominate, giving way to grasslands that stretch to the Saskatchewan border. Oil and gas, recreation, tourism and agriculture are key activities in this part of the region.

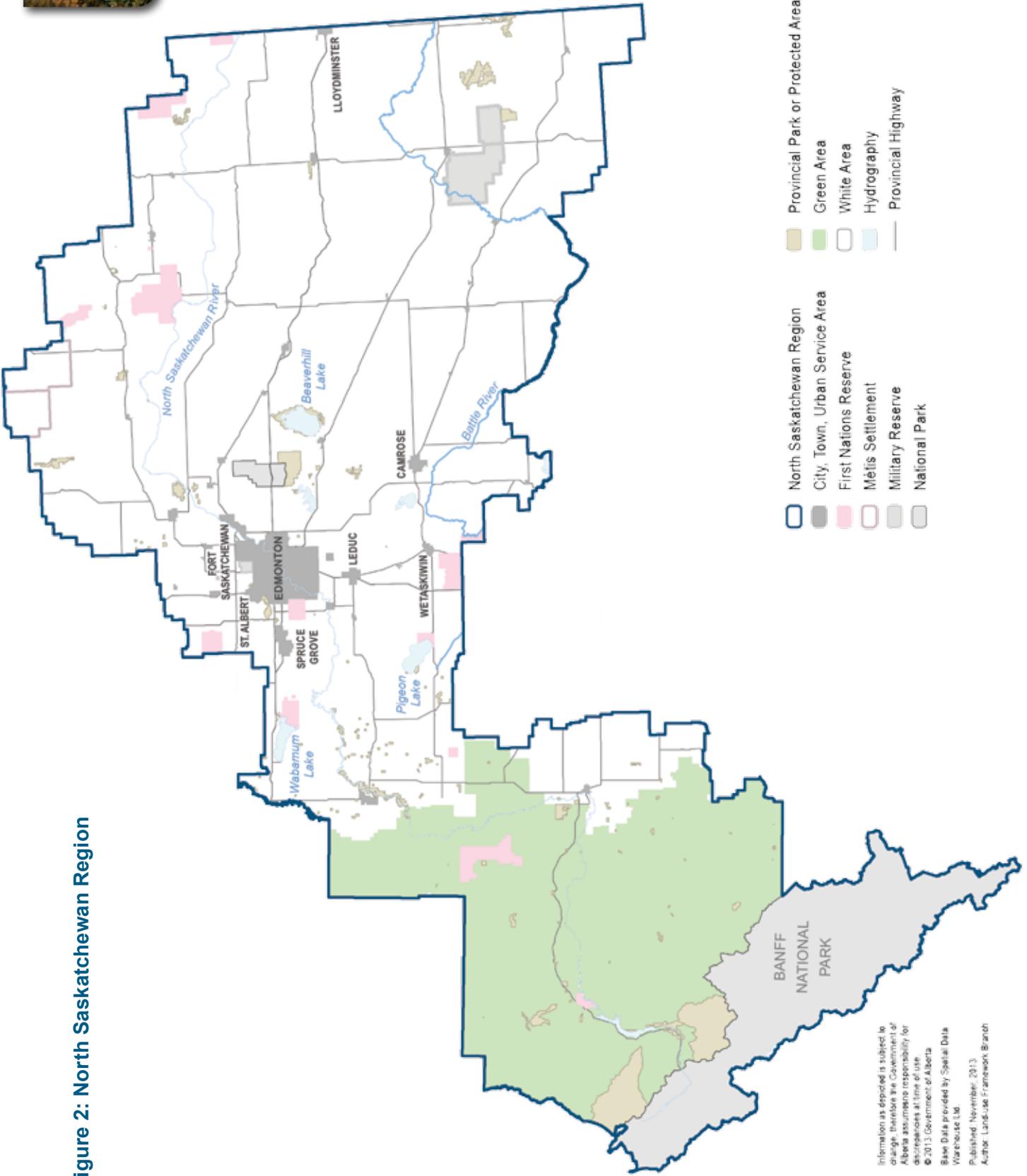


Figure 2: North Saskatchewan Region

Information included is subject to change. The Government of Alberta assumes responsibility for discrepancies at time of use.
 © 2013 Government of Alberta
 Base Data provided by Spatial Data Warehouse Ltd.
 Published November, 2013
 Author: Land-Use Framework Branch



The North Saskatchewan Region contains the watersheds of the North Saskatchewan River, the Battle River and Sounding Creek. Small portions of the Bow, Red Deer, Athabasca and Beaver River basins are also found in the planning region, but their areas are limited. The North Saskatchewan River is a glacial-fed river originating in the Rocky Mountains while the Battle River's headwaters originate within the southern extent of the boreal forest at Battle Lake. The confluence of the Battle and North Saskatchewan rivers is near North Battleford, Saskatchewan. For this reason, the Battle and North Saskatchewan River basins are separate river basins within Alberta, and are managed independently of one another, including within transboundary agreements in place with Saskatchewan.



North Saskatchewan River

Historic landscape change in the North Saskatchewan Region has been extensive and largely driven by settlement, agricultural expansion, and industrial development. The construction of the national railroad, combined with federal policies aimed at settling Western Canada, supported the conversion of much of the region's native parkland into cultivated agricultural land.

Today, privately owned land comprises more than 60 per cent of the region. This includes lands owned by homeowners, farmers and private companies. The remaining lands are publicly owned lands, most of which are managed by the Government of Alberta for watershed protection, timber production, wildlife and fisheries, and recreation. Public lands are also used for agriculture, oil and energy development and other purposes, and are important for First Nations' practice of treaty rights. The federal government also administers lands in the region. These include Elk Island and Banff national parks, Rocky Mountain House national historic site, 20 Indian reserves, and the Canadian Forces bases located in Wainwright and Edmonton. About two per cent of the region's land base is managed as recreation and parks areas.

The region is home to a diverse population and a vibrant economy. Located at the heart of the region is Edmonton, Alberta's capital city, which is surrounded by 23 urban and rural municipalities. Together these



24 communities comprise the Capital Region, which has a population of approximately 1.12 million people. The Capital Region is located at the north end of the Calgary-Edmonton corridor, and is considered the gateway to northern Alberta and the Canadian North, particularly for the airline, oil and gas and mineral industries.

Drivers of Change

Understanding the current state of the region is foundational to defining what we want for the future of the region. This includes identifying the regional drivers, opportunities and challenges so that informed decisions can be made on how to set forward a strategic path to achieving the vision and outcomes Albertans desire for the region.

The two main drivers of land use in the North Saskatchewan Region are the growing economy and growing population. The abundant supply of natural resources in the North Saskatchewan Region is a large and significant contributor to the growing regional and provincial economy and has attracted people who want to live, work and recreate in the region.

Growing Economy

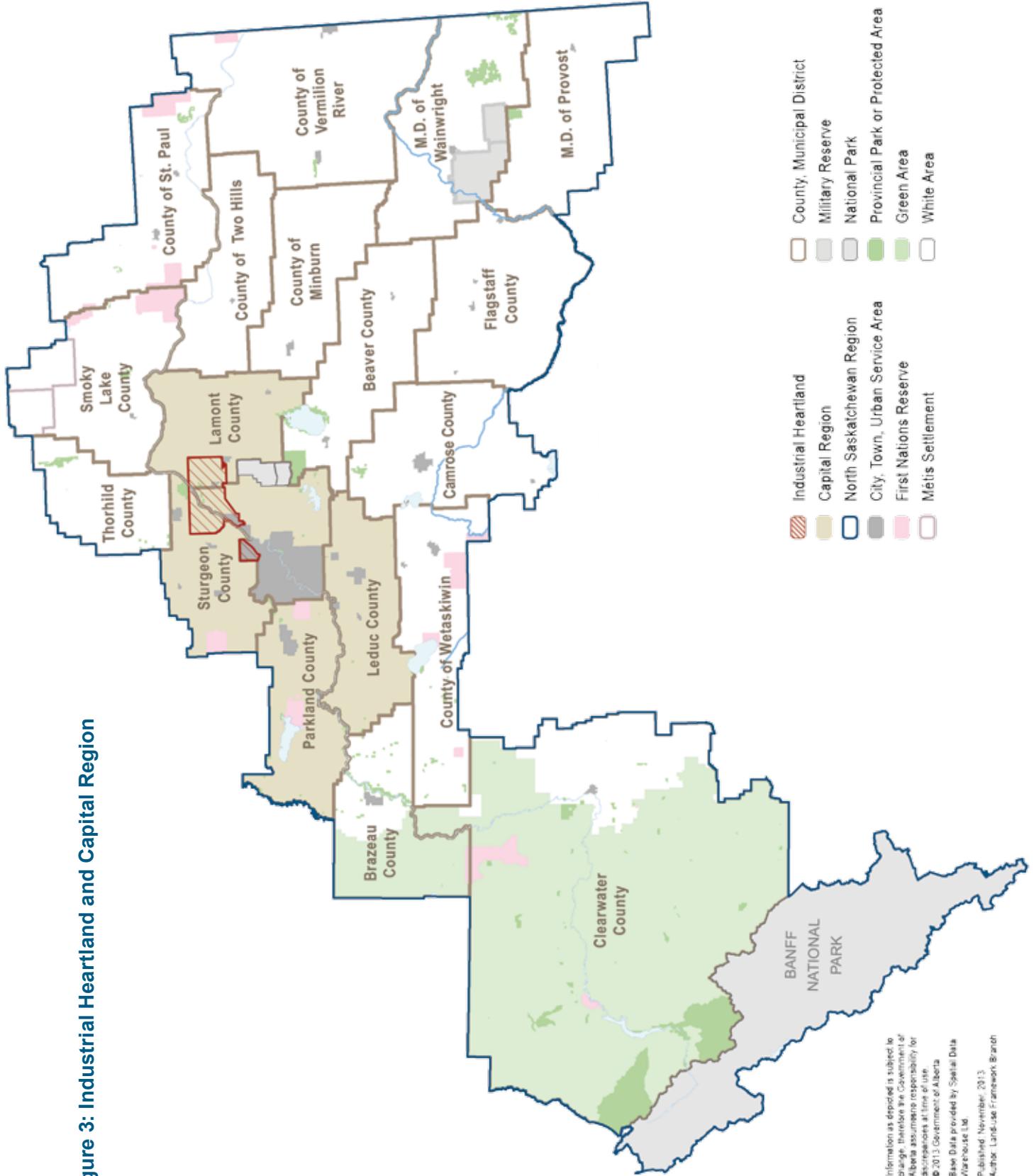
The gross domestic product (GDP) for the North Saskatchewan Region grew steadily between 2000 and 2012. The average annual growth rate is 3.1 per cent. The majority of growth has occurred within the boundaries of the Capital Region, which alone grew at an annual rate of 3.8 per cent. During the same period, GDP for the entire province grew at an average rate of 2.8 per cent per year. At this rate of growth, the GDP of the North Saskatchewan Region is expected to double in approximately 23 years.

Industries driving economic activity across the region, such as energy, agriculture, tourism, forestry and other services, continue to grow. The Industrial Heartland in the Capital Region is a major growth node (Figure 3: North Saskatchewan Region: Industrial Heartland and Capital Region) and contains the largest concentration of industrial activity in Alberta, covering about 582 square kilometres.

The cumulative impact of human activity is a growing concern for the region, particularly in areas of significant ecological importance and areas with prime agricultural land. The ecologically important eastern slopes of the Rocky Mountains, which provide central Alberta with much of its water supplies, are facing growing pressures from industrial development and recreational demand. Rural and agricultural lands are increasingly under pressure from urban expansion, rural residential development and industrial development, as evidenced by the agricultural lands that have been converted to non-agricultural uses.



Figure 3: Industrial Heartland and Capital Region



Information as depicted is subject to change therefore the Government of Alberta assumes no responsibility for discrepancies at time of use.
 © 2013 Government of Alberta
 Base Data provided by Spatial Data Warehouse Ltd.
 Published November, 2013
 Author: Louis-Georges Framework Branch



Growing Population

Today, an estimated 38 per cent of the province's approximately four million people live in the region and more than 66 per cent live in the region's urban areas. Forecasts estimate that some parts of the North Saskatchewan Region will grow by more than 30 per cent between 2006 and 2026. In particular, the Smoky Lake/St. Paul area is projected to grow by more than 40 per cent over the period as more oil sands projects in the neighbouring Lower Athabasca Region are developed to the northeast.

The Capital Region has experienced the greatest share of population growth in the region. Its population is expected to double by 2041. As energy development intensifies in the north, and in consideration of the significant opportunities for energy development, upgrading and refining in the area, the Capital Region is expecting to be home to a greater proportion of the Edmonton - Calgary corridor population.

Population growth heavily influences land use, environmental effects and recreational opportunities throughout the region and the growing population trend is expected to continue for the foreseeable future. Managing the effects of population growth will require strategies to ensure the efficient use of land, conservation of landscapes, and effective management of air, water and biodiversity.



The North Saskatchewan Regional Plan



The regional plan will consider the following broad topics:

- Maintaining growth opportunities for key economic sectors and seeking opportunities to diversify the economy, in balance with environmental considerations

- Effectively managing, air, water, land and biodiversity in the region and seeking opportunities to sustain biodiversity and ecosystem function in the region wherever possible. To address this topic, the plan will focus on:
 - Environmental Management Frameworks
 - Sub-regional/ Issue-specific Plans
 - Land-use Policies
 - Land-use Priorities

- Maintaining quality of life for residents within the region and seeking opportunities to increase recreational and cultural experiences, in balance with environmental considerations, and seeking opportunities to better consider and include the perspectives and values of aboriginal peoples in planning initiatives.



The sections below describe the responsibilities of the Government of Alberta and RAC in developing the North Saskatchewan Regional Plan.

3.1 Vision, Outcomes and Strategic Directions

3.1.1 Proposed Vision for the Region

The vision describes the desired future for the region and aligns with the broader provincial vision of the Land-use Framework.

The proposed 50-year vision for the North Saskatchewan Region:

The North Saskatchewan Region is a dynamic hub with a diverse and prosperous economy. Citizens, industry, governments and Aboriginals share responsibility for stewardship of our air, water, biodiversity, land and natural resources in a way that ensures current needs are met without compromising opportunities for future generations. A diverse economy provides enduring employment and contributes to the prosperity of all Albertans.

The region is home to Alberta's capital city of Edmonton, which includes the Industrial Heartland, a central area housing significant oil sands-related facilities (bitumen upgraders and petrochemical facilities), and is also a central hub for the movement of goods and access to markets. The energy, forestry and agriculture sectors are vibrant economic drivers in the region and consistently maintain or expand production of traditional export products, while pursuing additional business opportunities. Featuring the culturally and historically significant North Saskatchewan River and the Rocky Mountains, a strong tourism industry builds on the competitive advantage offered by the diversity of important Aboriginal, historical, cultural and natural assets.

The region's air, water, land and biodiversity are sustained while ecosystems remain healthy and fully functioning. This is supported by integrated approaches to sustainable management with shared stewardship. There are both working landscapes and conservation areas to reflect the values and needs of Albertans. Through their traditional knowledge, Aboriginal people share their intimate understanding of the environment.

vision



3.1.2 Proposed Regional Outcomes

Outcomes provide clarity to the regional vision. They are broad qualitative result statements from social, economic and environmental perspectives, describing what Albertans desire for the region. Like the regional vision, the outcomes for the region align with the Land-use Framework.

The proposed regional outcomes for the North Saskatchewan Region, in alignment with the three provincial outcomes of the Land-use Framework, are as follows:

Provincial Outcome: Healthy economy supported by our land and natural resources

Regional Outcome: • The region's economy is growing and diversified

Provincial Outcome: Healthy ecosystems and environment

Regional Outcomes: • Air quality is managed to support human and ecosystem needs through shared stewardship

- Watersheds are managed to support healthy ecosystems and human needs through shared stewardship
- Biodiversity and ecosystem function are sustained through shared stewardship

Provincial Outcome: People-friendly communities with ample recreational and cultural opportunities

Regional Outcomes: • Community development needs are anticipated and accommodated

- Aboriginal peoples and their rights are considered and included in land-use planning development and implementation
- The quality of life of residents is enhanced through increased opportunities for recreation, active living, and the preservation and promotion of the region's unique cultural and natural heritage



3.1.3 Proposed Strategic Directions for the Regional Plan

Strategic directions provide guidance on the areas the plan should focus on in order to achieve the desired regional vision and outcomes.

For the North Saskatchewan Region, the Government of Alberta has identified the following priority areas of focus to guide the regional plan:

- Continuing economic growth for key economic land-use sectors and seeking opportunities to access new markets;
- Managing air quality through continued collaboration;
- Advancing watershed management;
- Conserving and maintaining the benefits of biodiversity;
- Advancing conservation and integrated management of Crown land;
- Supporting and enabling stewardship and conservation on private lands;
- Supporting growing communities through enhanced planning and collaboration;
- Promoting efficient use of land by minimizing the amount of lands taken up in the built environment;
- Considering the rights of aboriginal peoples and including them in land-use planning; and
- Providing recreation and tourism opportunities and preserving and promoting the region's unique cultural and natural heritage.

3.1.4 Responsibility of RAC

The RAC will provide advice on the following:

- The vision, outcomes and strategic directions proposed for the North Saskatchewan Region.

In providing its advice, RAC should consider whether the proposed vision, outcomes and strategic directions reflect the interests of the region.



3.2 Healthy Economy Supported by our Land and Natural Resources

Regional Outcome:

- The region's economy is growing and diversified

3.2.1 Economic Considerations

The rural areas of the region are home to significant agriculture, mining, forestry and tourism activities. In the major urban centres, widely diversified economies have developed with strong education, financial services, manufacturing, tourism, and information technology sectors.

The sections below describe the economic opportunities and challenges in the region for consideration during the development of the regional plan.

Energy, Value-Added Energy – Refined/Upgrading Petroleum and Petrochemicals

The region contains abundant energy resources, including conventional oil and natural gas, coal, renewable energy and other fuel sources. As well, oil sands (unconventional oil or bitumen) are present in the Cold Lake portion of the region. There has been a long history of petroleum and natural gas exploration in the North Saskatchewan Region and this has led to extensive industrial development throughout the production areas.

Refining hydrocarbons into petrochemicals and petroleum products is the value-added portion of the energy industry. While some petroleum and natural gas is exported directly to other markets, much of the resource remains in the province for further upgrading and processing into end-use products such as petrochemicals, lubricants and fuels. The processing and manufacturing carried out in this sector creates additional economic activity, jobs and tax revenue.

The largest concentration of industrial activity in Alberta is located in the Industrial Heartland, which is located in the northeast part of the Capital Region. The Industrial Heartland sits at a crossroads of extensively developed transportation infrastructure as well as oil, natural gas and bitumen pipelines, and transmission lines. The Industrial Heartland is uniquely positioned to capitalize on the development of Alberta's vast energy resources. The investment in the processing plants within the area has resulted in one of the highest concentrations of petrochemical producing facilities in Canada. This value-added energy sector is supported by a vast network of pipelines to transport upgraded and refined petroleum products. In recent years, significant pipeline capacity has been added to accommodate expected increases in bitumen and synthetic crude oil production.



More information about Alberta's Value Add Strategy can be found at: www.albertacanada.com/business/industries/rpb-policies-and-regulations.aspx.

Opportunities and Challenges Related to the Energy and Value-Added Energy Sectors

- The Industrial Heartland is a strategic geographic area of investment in the value-added energy sector. This area will continue to see significant growth opportunities in the future.
- New technology and enhanced recovery methods are continually increasing the amount of recoverable resources in new and mature reserves, extending the life expectancy of resource development in the region.
- The mineral potential of the region has not been fully realized and considerable exploration is needed to better understand the metallic and industrial mineral development potential.
- Global growth in the coal market over the past decade could spark greater interest in developing the region's coal reserves. Balancing the potential for developing and exporting coal resources in the region with key environmental factors will continue to be a significant issue in the region.
- Gaining access to new markets for Alberta's resources, both overseas and within North America (via rail or pipeline), will be a critical factor in the success of the energy industry and shaping the regional and provincial economy.
- There are opportunities to continue expanding development of renewable energy (i.e. wind, solar, biomass, geothermal and hydro). There is already significant biofuel production in the region around Edmonton and Hairy Hill, as well as pre-existing hydroelectric generation and transmission capacity. Energy development, production and value-added activity will continue to be very significant in the region for many decades.
- The footprint of industrial activity has impacts on biodiversity and ecosystem function.

Agriculture

Agriculture is one of the main economic drivers in the region and is considered a central economic factor in the livelihood of many rural municipalities. Livestock and crop production contribute greatly to Alberta's exports and GDP, and provide the foundation for a strong food-processing industry in the region.



Opportunities and Challenges Related to the Agriculture Sector

- The loss of high quality agricultural land to other land uses, especially surrounding the Capital Region.
- There are few newcomers entering the agriculture and agri-food industry, often being deterred by factors such as high start-up costs, agricultural market risk and difficulty in transferring farm assets.
- Factors such as more farmers retiring than entering the agriculture industry and competing career opportunities are resulting in consolidation of farms and declining populations in rural Alberta.
- The expanding capacity of the livestock industry and productivity of the grain, oilseed and pulse industries is a key economic opportunity in the region. Higher production will enable Alberta to meet increasing demand for high-quality agriculture and agri-food products, particularly from growing markets such as Asia, India and the Middle East. Beyond primary production, expansion of the agri-processing and value-added industries is viewed as a potential economic growth opportunity.
- In addition to the export market, there is a growing domestic market for direct-marketed fresh, locally grown and/or raised products in the region. This increased demand represents one of many opportunities for the agricultural sector through contribution to regional and/or local markets. Demographic shifts in the age and ethnicity of populations in the region are impacting and will continue to impact future demand and production.



Aggregate Mining and Peat Harvesting

Aggregate mining often requires land disturbance to extract surface materials such as sand, gravel, clay, marl and silt. Aggregates are essential components for development and maintenance of infrastructure (e.g., roads, construction) and this resource occurs throughout the North Saskatchewan Region on both private and public land.

Peat mining (peat moss for horticulture purposes) has been occurring in Alberta since the mid 1960s, and continues to be for horticultural purposes only.



Opportunities and Challenges Related to the Aggregate Mining and Peat Harvesting Sector

- The footprint of aggregate mining and peat harvesting has impacts on biodiversity and ecosystem function. Given the growth pressures in the region, appropriate allocation of surface materials on public lands with continuing management and monitoring of extraction operations, is needed as part of cumulative effects management.



Forestry

Forests in the Green Area public land are an important renewable resource for our province. They provide economic and environmental benefits to all Albertans in addition to being a source of recreation for local residents and visitors. Green Area public land makes up 21 per cent of the North Saskatchewan Region.

Opportunities and Challenges Related to the Forestry Sector

- Forest health management is essential for the mitigation of risks from threats such as mountain pine beetle infestations. Large-scale infestations could threaten the viability of the forest industry by reducing timber supplies, result in increased wildfire intensity, and alter natural water flow and quality which could have consequences for some communities. Currently the mountain pine beetle has a limited presence in the region but forest experts estimate infestations in Alberta will increase substantially over the next several years.
- New markets and products including the bioenergy sector can provide opportunities for the industry in this region. The capacity to produce bio-products, including fuel made from renewable feed stocks such as forestry waste, is being developed in the region, and is central to economic growth in Drayton Valley. Bio-products have the potential to generate additional revenue for forestry companies and diversify the economies of rural communities that currently depend on the forestry sector.



Transportation and Transmission

Transportation systems are crucial to the movement of people and goods in and out of the region. The region has over a dozen airports and a large network of roads, railways and pipelines. Transportation systems are required for exporting the region's products to local, provincial, national and international markets.

Electricity generation and transmission facilities are expanding in the region. Currently there is approximately 4,500 megawatts (MW) of generating capacity in the region, providing 34 per cent of Alberta's total generating capacity, primarily from coal-fired generators. Over the next 10 years, pending federal emissions regulations and facility retirements will affect coal-fired generation in this region. By 2020, the Alberta Electric System Operator (AESO) estimates generating capacity will be between 4,385 MW and 5,420 MW.



Opportunities and Challenges Related to the Transportation and Transmission Sectors

- The region is well positioned to be Alberta's supply hub and its gateway to China and the Asia-Pacific, as well as Canadian and U.S. markets. Developing a more integrated, efficient and competitive transportation and utilities system will assist the region in becoming a major inland trade and transportation hub, maximizing the movement of goods and supporting assets that are increasingly producing value-added goods and services. To make this vision a reality, there are plans within the region to expand air cargo services, develop new intermodal freight services, and improve overall integration.
- Major transportation and utility corridors offer the opportunity to consolidate critical infrastructure within pre-defined areas, thereby reducing land fragmentation and environmental impacts. There is a need for a robust, reliable and efficient utility and transportation system that will connect the region with the rest of the province and national and international markets.
- In the Alberta Industrial Heartland, connection with the Lower Athabasca Region will be a particularly important consideration.



Tourism

The region's geographic diversity and natural, cultural and recreational attractions and built tourism features, together with the diversity of tourism settings, provide tremendous competitive advantages that help build a strong tourism industry. Within the region, some of the most visited tourism locations include the Bighorn Backcountry west of Nordegg, the David Thompson Corridor, the Beaver Hills area southeast of Edmonton, the Capital Region (e.g., Edmonton's North Saskatchewan River valley and West Edmonton Mall), and Banff National Park.

Locations for future tourism development include the David Thompson, Bighorn Backcountry, Beaver Hills and Kalyna Country and other areas east of Edmonton. In addition, the inclusion of the North Saskatchewan River in the Canadian Heritage River System will provide another tourism draw.

Opportunities and Challenges Related to the Tourism Sector

- Tourism investment in this region is important to maintain a diversified economy. Attracting diverse and high-value private sector investment to support recreation and tourism development opportunities is dependent on establishing an attractive investment climate. Critical to this climate is the long-term tenure to a secure land-base where the high recreation and tourism values are maintained.
- The success and competitiveness of the region's tourism industry is strongly tied to maintaining the region's tourism features and assets. Future opportunities for tourism in the region will be determined by assessing opportunities to showcase areas of aboriginal, historical, and cultural importance, and the ability to offer a diversity of recreational and tourism opportunities.





3.2.2 Responsibility of the Government of Alberta

The Government of Alberta will:

- Use provincial economic policy to guide regional economic strategies.
- Enhance iconic tourism destinations and develop destination management plans in collaboration and coordination with stakeholders, Aboriginal communities and municipalities.

3.2.3 Responsibility of RAC

The RAC will provide advice on the following:

- Enhancing efficient land use in areas where petroleum and petrochemical investments are expected to occur;
- Maintaining a viable agricultural land base to support growth and diversification of the agricultural industry;
- Facilitating efficient transportation of products to local, national and international markets; and
- Attracting tourism investors and developers (specific to Crown land) through longer-term tenure.

When making its recommendations, RAC will approach priorities and competing land uses from the perspective of balancing economic growth with the environmental impacts to air, water, land and biodiversity, as well as impacts to the quality of life for residents in the region.



Environmental Management Frameworks

Environmental management frameworks establish outcomes and objectives along with the strategies and actions necessary to achieve them. The frameworks are intended to provide context within which decisions about future activities and management of existing activities should occur. They do this by confirming regional objectives and establishing ambient environmental thresholds for appropriate indicators.

Limits in these frameworks are intended to be clear boundaries in the environmental management system that are not to be exceeded.

Triggers are to be used as warning signals to allow for evaluation, adjustment and innovation to occur on an ongoing basis and to avoid exceeding the limits. These frameworks complement existing policies, legislation and regulations.

3.3 Healthy Ecosystems and the Environment

Regional Outcomes:

- Air quality is managed to support human and ecosystem needs through shared stewardship
- Watersheds are managed to support healthy ecosystems and human needs through shared stewardship
- Biodiversity and ecosystem function are sustained with shared stewardship

3.3.1 Environmental Considerations

The cumulative effects of economic development and population growth in the region are increasing pressure on the region's air, water, land and biodiversity. Environmental management frameworks are a key approach to managing the long-term cumulative effects of development on the environment in the region. The Industrial Heartland and Capital Region have already applied this cumulative effects management approach through the development of environmental management frameworks for air quality, as well as water quality and quantity. These were developed using a collaborative process with stakeholders and are currently being implemented.

The sections below describe the environmental opportunities and challenges in the region for consideration during the development of the regional plan.

Air Quality Management

There are various types of industrial facilities distributed throughout the region that contribute to air pollutant emissions. The most significant industrial emissions are from power generation facilities west of Edmonton and the petroleum and chemical industries in the Industrial Heartland.

Other important sources of air pollutant emissions include commercial and residential fuel combustion for heating and transportation. Use of personal and commercial vehicles, recreational vehicles, airplanes and trains for the transportation of people and goods contributes to air pollution in the region. Air pollution is also associated with agricultural activity (e.g., confined feeding operations, dust and manure application), roads and construction operations (dust), and waste disposal (sewage treatment facilities and open burning).

Ambient air quality in Alberta is managed using a comprehensive network of monitoring stations and through the combined efforts of a number of different agencies and groups including: the Government of Alberta, Government of Canada, Clean Air Strategic Alliance (CASA), local airshed organizations, municipalities, and other stakeholder groups. Six local airshed organizations operate in the North Saskatchewan Region: Alberta Capital Airshed, Calgary



Region Airshed Zone, Fort Air Partnership, Lakeland Industry and Community Association, Parkland Airshed Management Zone and West Central Airshed Society. These organizations have made important contributions to air quality management.

Significant work has been done to address pressures in the Capital Region by focusing on four main air quality contaminants of concern: nitrogen dioxide, sulphur dioxide, fine particulate matter and ozone. The Capital Region Air Quality Management Framework sets four proactive ambient air quality levels for each contaminant of concern in the area. This framework is currently being implemented in the Capital Region and is taking action on priority air quality issues.

Opportunities and Challenges Related to Air Quality

- There are pressures on air quality from both point and non-point source air emissions. These emissions contribute to high levels of some substances in the Capital Region. Increasing population growth and development could lead to ambient air quality issues outside the Capital Region as well.
- Local airshed organizations have demonstrated leadership in their contributions to air quality management. Continuing to utilize their expertise to achieve environmental outcomes and objectives will be important in the region.

Watershed Management, Water Quantity and Quality

Water supply and demand are key factors in the development and growth for the region. With increasing pressures and demands, it will be important to continue to advance an integrated view across water supply, water quality, and aquatic ecosystems in the region.

It is important to continue to use collaborative approaches and to maintain and build partnerships in the region. A key partnership under the Water for Life strategy is with Watershed Planning and Advisory Councils (WPACs). The two WPACs in the region, the North Saskatchewan Watershed Alliance and the Battle River Watershed Alliance, have demonstrated leadership in their contributions to watershed assessment and planning, and the Government of Alberta is committed to enhancing its relationship with them. Work completed by the WPACs will be considered in the development of the regional plan and associated management frameworks.

The eastern slopes of the Rocky Mountains contain the headwaters for the North Saskatchewan River and provide the majority of the region's water supplies. The Eastern Slopes Policy provides direction on watershed and headwaters to maintain flows and recharge capabilities. Watershed



management as a priority in the Eastern Slopes Policy will be carried forward in the regional plan for protection of both water supply and water quality.

At the downstream end of the region, the Prairie Provinces Water Board's Master Agreement on Apportionment establishes the terms and conditions regarding water sharing with Saskatchewan on both the North Saskatchewan and Battle rivers. Water quality objectives have been set to facilitate interprovincial management that encourages protection and restoration of the aquatic environment. The regional plan, including environmental management frameworks, will support this interprovincial water-sharing agreement.

Continued population growth and economic development will depend on using the existing water allocations as efficiently and effectively as possible. Alberta's Water for Life strategy has established a provincial target of achieving 30 per cent improvement in overall conservation efficiency and productivity by 2015, from 2005 levels. This target and the work of the water sectors will continue to be supported in the region.

The Water Management Framework for the Industrial Heartland and Capital Region was completed in 2007 and addresses the cumulative effects of development on both water quality and quantity. Five years of stakeholder engagement and input have shaped the collaborative approach to achieve cumulative effects management by developing a maximum allowable load approach, enhancing monitoring, and enabling ongoing scientific evaluations. This framework will be incorporated into the regional plan.





A draft Approved Water Management Plan for the Battle River Basin was created in 2011 to provide direction for the management of surface water in the Battle River Basin. Key aspects of the draft plan include an allocation limit which would close the basin to new licenses once the limit is reached, enabling transfers from existing licenses, establishing a water conservation objective, and enabling holdbacks from water transfers. Once approved, this plan and management intent will be supported by the regional plan.

A draft Groundwater Management Framework for the Industrial Heartland and Capital Region was completed in 2007. It focuses mainly on site-specific management. This draft framework will be updated and will inform the development of the regional plan to further advance this work. Consideration will be given to the need to develop a region-wide groundwater management framework, or another management approach.

The Government of Alberta has approved the Alberta Wetland Policy which will replace the Wetland Management in the Settled Areas of the Province: An Interim Policy (1993) as it is implemented. This policy applies to both the White and Green Areas of the province. The Alberta Wetland Policy will consider the regional context including past, present and future pressures in supporting the execution of informed wetland management decisions.

Riparian lands are important as they are highly productive, rich, and resilient parts of the landscape. The Alberta Water Council led a collaborative initiative to enhance knowledge and provide recommendations for effective conservation and management of riparian land in support of the Water for Life strategy. The Government of Alberta will consider these recommendations and existing initiatives such as work from the Alberta Riparian Habitat Management Society program (also known as “Cows and Fish”) and Stepping Back from the Water when developing regional riparian management objectives and strategies.

In response to increasing development pressures on lakes in the planning region, the Government of Alberta is leading a provincial healthy lakes policy to balance the environmental, economic and social benefits of Alberta’s lakes, while recognizing the natural and regional variation of lakes across the province. This policy will provide clear direction to help ensure the health and benefits of Alberta’s lakes are maintained or improved. The regional plan will be an important vehicle to deliver this policy through setting regional lake management strategies and objectives.



Opportunities and Challenges Related to Watershed Management, Water Quantity and Quality

- Pressures and impacts on water quality occur across the region. This is due to point and non-point source contributions from urban and rural areas in both the North Saskatchewan and Battle River basins. In particular, nutrient loading in some reaches is causing excessive growth of nuisance algae and plants.
- Lakes in the North Saskatchewan Region are experiencing pressure from recreational, agricultural and other land-use activities. Comprehensive healthy lake management direction will be important in this region.
- Wetlands and riparian areas in the region have been degraded or lost leading to reduced wildlife habitat, water filtration and flood mitigation capacity. The Alberta Wetland Policy provides provincial direction. The regional plan will be an important vehicle to deliver this policy through setting regional objectives and strategies for wetland conservation and management.
- Watershed Planning and Advisory Councils have demonstrated leadership in their contributions to watershed assessment and planning in the region. Continuing to utilize their expertise to achieve environmental outcomes and objectives will be important in the region.
- There are opportunities to support and align with existing and emerging water management planning work as part of an integrated approach across the region.

Biodiversity and Ecosystem Function

As Alberta's population and economy continue to grow, pressure on ecosystems is increasing and the effective management of biodiversity is becoming more challenging. The availability of significant plant and animal species and undisturbed spaces are important for all Albertans and the cultural practices of aboriginal peoples.

Measuring changes and planning for desired levels of biodiversity in the future are challenges that land-use planning will need to address. The Government of Alberta is committed to using an integrated approach to address these challenges and to manage the impacts of multiple land-use demands and pressures. Through the development of a Biodiversity Management Framework (BMF) for the region, objectives will be established for the region as well as an appropriate suite of biodiversity indicators that can be measured to assess if the objectives are being achieved.



Linked to the maintenance of biodiversity is the conservation of landscapes. Conserving a range of landscape types representative of Alberta's natural diversity provides habitat that will support and maintain species and other aspects of biological diversity that depend on these landscapes. Connectivity of wildlife habitat across landscapes is also an important factor in maintaining biodiversity. Targets are in place for all natural landscape types within each of the province's six Natural regions and 21 Natural sub-regions.

Biodiversity

Biodiversity, or "biological diversity," represents the assortment of life on earth – including the variety of genetics and species, and the habitats in which they occur – all shaped by natural processes of change and adaptation. Biodiversity is everywhere, both on land and in water. It includes all organisms, from microscopic bacteria to more complex plants and animals.

Biodiversity and the services it provides are critical to the well-being of current and future generations of Albertans. Some examples of the benefits that come from healthy functioning ecosystems and the biodiversity found in them are:

- food, fibre, fresh water
- flood control, water and air purification
- spiritual, recreational, esthetic, cultural benefits

Natural Regions in Alberta

Natural Regions are the broadest levels of ecological classification of Alberta's landscape and are areas that have similar physical qualities and attributes. A Natural Region is defined on the basis of landscape patterns, vegetation, soils, physical features, climate, topography and geology. Five of the six natural regions are found within the North Saskatchewan Region: Grasslands, Foothills, Rocky Mountains, Parkland and Boreal Forest. Each Natural Region is divided into sub-regions, defined as an area of land within a Natural Region characterized by vegetation, climate, elevation and other physical differences. Conditions within a Natural Region or Sub-region are not identical throughout; each has diverse species and landscape conditions.

Ecosystem Services

Ecosystem services are the benefits humans, communities and society as a whole receive from healthy, functioning ecosystems and the biodiversity within them.

The following are examples of ecosystem services, the benefits that come from healthy functioning ecosystems and the biodiversity found in them:

- Food, fibre, fresh water ("provisioning" services)
- Flood control, water and air purification ("regulating" service)
- Spiritual, recreational, cultural benefits ("cultural" services)
- Nutrient cycling, soil formation ("supporting" services)



Public Lands

A combination of regulatory tools, including surface requirements under the *Public Lands Act* and subsurface requirements on sales of mineral rights, and voluntary approaches such as Integrated Land Management are in place in the region. Reclamation is required for most disturbances on both public and private land through provisions in the *Public Lands Act* and the *Environmental Protection and Enhancement Act*. Alberta was the first province in Canada to legislate mandatory land reclamation. Reclamation returns land to a state where it is capable of supporting land uses that existed prior to disturbance. All specified land in Alberta that has been disturbed by industrial development must be reclaimed. Both existing tools and approaches, and new ones will be considered to ensure enhanced management of human footprint.

Integrated Resource Management Plans and other resource management plans have provided important direction in the region. These plans will be considered and assessed in development of the regional plan.

Private Lands

Private landowners are often dependent on the economic returns they earn from their land; many have a strong stewardship and conservation ethic embedded with the multi-generational aspect of their farms and ranches. Resulting from this stewardship and conservation ethic, their lands are a major provider of ecosystem services such as food, clean water and biodiversity habitat. Some private landowners in the North Saskatchewan Region are already being recognized for providing these ecosystem services through participation in voluntary, non-government programs. For example, the Alternative Land Use Services (ALUS) program in the counties of Vermillion River and Parkland provide payments to private farmers and ranchers for conserving and/or restoring natural capital such as wetlands or riparian areas in agricultural working landscapes.





Other tools/programs being locally piloted or employed in the region include Transferable Development Credits (with the Beaver Hills Initiative) and the use of voluntary conservation easements. Despite the current efforts by the private sector in supporting landowners for the ecosystem services provided through their stewardship and conservation efforts, the province currently lacks an integrated and coordinated approach to ecosystem services. In the absence of such an approach, methods and strategies must be explored and developed to encourage the provision of a broad suite of ecosystem services by landowners.

Opportunities and Challenges Related to Biodiversity and Ecosystem Function, Public and Private Lands

- Achieving objectives for biodiversity, functioning ecosystems and natural landscapes will require a full range of management approaches and tools in order to address the complex mix of public and private lands across the region. This also means furthering the advancement of conservation and integrated management of Crown land, and supporting and enabling voluntary stewardship and conservation on private land.
- Establishment of new conservation areas can be considered as a means to contribute to the achievement of objectives for biodiversity and filling of gaps in meeting targets for representation of Alberta's Natural Regions (Upper and Lower Foothills, Central Parkland, Northern Fescue, and Dry Mixedwood natural sub-regions).
- There is an opportunity to support the shift in emphasis of forest management to healthy functioning ecosystems and watershed management, and to support maintenance of forest age, structure and resiliency.
- There are numerous partner organizations working on maintaining and improving biodiversity and ecosystem function on the landscape, including Ducks Unlimited Canada, the Alberta Conservation Association, Cows and Fish (the Alberta Riparian Habitat Management Society), and the Prairie Conservation Forum. There are opportunities for continued collaborative work with these and other partner organization.



3.3.2 Responsibility of the Government of Alberta

Environmental Management Frameworks

The Government of Alberta is responsible for developing and setting thresholds for select indicators to support the environmental outcomes for the region.

The Government of Alberta will:

- Develop an Air Quality Management Framework for the region, incorporating and supporting the Capital Region Air Quality Management Framework and the national Air Quality Management System, as appropriate.



There is ongoing work on implementation of a management response under the Capital Region Air Quality Management Framework. The Government of Alberta is providing leadership to a collaborative effort that promotes shared responsibility and accountability with stakeholders for implementation.

- Develop a Surface Water Quality Management Framework for the North Saskatchewan River incorporating and supporting the Water Management Framework for the Industrial Heartland and Capital Region.
- Develop a Surface Water Quality Management Framework for the Battle River.
- Determine a groundwater management approach, including reviewing and incorporating the draft Groundwater Management Framework for the Industrial Heartland and Capital Region, as appropriate.
- Develop a Biodiversity Management Framework (BMF) for the region.



A BMF is a new approach to support cumulative effects management of important elements of biodiversity that are affected by land use in the region. It is not intended to address all aspects of biodiversity. The BMF will help guide land-use planning and management to ensure that both the indicators and the ecosystems they represent are managed sustainably. The BMF will complement other legislation and policy, both federal and provincial (e.g., *Forests Act*, Alberta Wetland Policy and the *Species at Risk Act*).



Sub-Regional and Issue Specific Plans

The Government of Alberta is responsible for developing sub-regional and issue-specific plans for the region. This may include the following:

- Detailed planning to reduce the extent, duration and rate of total linear footprint from development in order to meet objectives and targets established in the North Saskatchewan Biodiversity Management Framework.
- Recreation and access management planning in priority areas.
- Reviewing, streamlining and incorporating, as necessary, existing integrated resource plans in the region (as identified in the policy guidance section).

The Government of Alberta will:

- Continue with the development of appropriate stewardship, conservation, and ecosystem services pilot projects that support and enhance the current voluntary conservation programs in the region.

3.3.3 Responsibility of RAC

Supporting enhanced Watershed, Wetlands and Lakes Management

The RAC will provide advice on the following:

- Identification of priority areas for wetland conservation and restoration to support implementation of the [Alberta Wetland Policy](#). This should include suggested tools to support identification of these priority areas; and
- Achieving an appropriate balance for lakes in the region between a healthy environment with the current and future pressures and uses, including recreation, municipal, industrial and agricultural activities. This should include suggestions on strategies or approaches to best achieve this balance.

Supporting Biodiversity through Conservation Areas

Identification of new conservation areas is one approach to support the management of biodiversity. Conservation areas are designed to maintain the ecological systems and processes that are crucial in supporting critical habitats and species at risk. These areas provide a benchmark for evaluating the ecological performance of lands that are subject to development. Conservation areas are managed to minimize or prevent land disturbances and provide opportunities for nature-based recreation and tourism opportunities.

Conservation Areas

Definition:

A clearly defined geographical space dedicated and managed to achieve the long-term conservation of biological diversity and ecosystem process.

Management Intent:

Legally protected areas that are relatively undisturbed. They retain their natural character and influence and are areas for measuring ecological performance in relation to human development.



RAC will provide advice on the following:

- Identification of potential new conservation areas to support biodiversity, specifically the identification of new potential conservation areas that are managed to protect sensitive habitats and maintain ecological systems and processes.

The following criteria will guide RAC's advice:

- Options for potential new conservation areas should consider the following criteria:
 - Areas that are representative of the biological diversity of the region (e.g. landforms, species, vegetation);
 - Areas of sufficient size that provide landscape connectivity with existing conservation areas;
 - Areas with little or no industrial activity;
 - Areas that support aboriginal traditional uses; and
 - Areas that are currently managed for conservation intent.
- RAC's recommendations for potential new conservation areas should:
 - Identify potential new or expanded conservation areas, which will be represented on a map;
 - Demonstrate that the potential new or expanded conservation area meets the Government of Alberta's criteria for selecting conservation areas (as presented above);
 - Consider the balance between the importance of the area for supporting biodiversity versus the economic opportunity and value of the land to industry; and
 - Identify the rationale for proposing each potential new or expanded conservation area (i.e., how does the recommendation support biodiversity and at what cost?).

Supporting Biodiversity through Management of Public Lands

Most of the public land in the region is currently designated for different land uses including forestry, energy, mining, agriculture and recreation. Finding workable approaches to actively manage these public lands for not only economic opportunities, but biodiversity (including protection of species at risk and critical habitat), ecosystem function and watershed management is an important aspect of achieving the region's environmental outcomes.



RAC will provide advice on the following:

- Opportunities to improve the way working landscapes are managed to maintain ecosystem function and biodiversity;
- Strategies to minimize human footprint and fragmentation of landscapes;
- Approaches to be used to better integrate industrial access management; and
- Approaches to be used to improve the timely and progressive reclamation of disturbed lands.

When making recommendations for land-use changes and strategies, RAC will:

- Assess the issues in terms of whether or not the current state is acceptable. If it is not acceptable, RAC will consider what needs to change, by what magnitude and what the appropriate mechanism is to implement the change;
- Identify any areas they feel are ‘hot spots’ and advise on priorities for land use;
- Follow the Government of Alberta’s Land-use Classification System and Management Intents (Appendix E).

Supporting Biodiversity through Stewardship of Private Lands

Most of the North Saskatchewan Region (approximately 60 per cent) is comprised of lands owned by individuals and groups. The trade-off discussion related to the settled area revolves around the value of the land in terms of its agricultural productivity and the ecosystem services that the private land base provides versus the value of the land if used for other purposes (e.g., residential development).

RAC will provide advice on the following:

- Provide recommendations on what the Government of Alberta can do to recognize private landowners for their stewardship and conservation initiatives (e.g., monetary and/or other alternatives); and
- Insight on the limitations facing the promotion of the use of voluntary tools on private lands for conservation and stewardship, including how the Government of Alberta can increase private landowner awareness and use of voluntary tools.

RAC’s recommendations should consider how the Alberta Government can work collaboratively with private landowners.



3.4 People-friendly Communities with Ample Recreational and Cultural Opportunities

Regional Outcomes:

- Community development needs are anticipated and accommodated
- Aboriginal peoples and their rights are considered and included in land-use planning development and implementation
- Quality of life is enhanced through increased opportunities for recreation and active living, and the preservation and promotion of the region's unique cultural and natural heritage

3.4.1 Social Considerations

The sections below describe the social opportunities and challenges in the region for consideration during the development of the regional plan.

Supporting Growing Communities through Enhanced Planning and Collaboration

Land-use planning is both a municipal and provincial activity. It is therefore important that municipal and provincial planning efforts pursue a high level of collaboration, coordination and integration.

Municipalities are considered to be at the forefront of building strong and sustainable communities. The Government of Alberta is committed to providing policy direction that:

- communicate, cooperate and collaborate for collective impact;
- give people a sense of belonging through shared values;
- promote participation and mutual responsibility;
- leverage resources from both inside and outside the community;
- foster a stable, innovative local economy that provides employment opportunities and generates wealth; and
- protect and effectively manage their local environment.

The Government of Alberta is committed to encouraging and promoting collaborative approaches in the North Saskatchewan Region. The Capital Regional Growth Plan is an example of a collaborative partnership consisting of municipalities in the Edmonton region working together to address regional issues.

- provides an integrated and strategic approach to planning for future growth in the Capital Region;



- identifies the development pattern for the region and key infrastructure investments that complement existing infrastructure, services and land-uses; and
- coordinates decisions to sustain economic growth and ensure strong communities and a healthy environment.

A Comprehensive Regional Infrastructure Sustainability Plan (CRISP) has been developed for the Cold Lake Oil Sands Area. The CRISP establishes a long-term framework for future infrastructure needs on possible future oil sands production and population growth. It will also enhance the way industry, municipal and provincial governments work together.

Opportunities and Challenges Related to Supporting Growing Communities through Enhanced Planning and Collaboration

- All levels of government continue to make significant infrastructure and transportation investments in the Capital Region to support both a growing economy and population growth.
- The cumulative footprint of communities will continue to grow to accommodate population increases as well as economic growth. There are many ways to use land efficiently; all requiring foresight, creativity and good planning. Ultimately the goal is the efficient use of land by implementing the principles of best practice planning, managing and minimizing the impacts of land use on the environment and reducing the extent of the built environment, while utilizing our energy and natural resources wisely.
- Opportunities to promote and enhance inter-municipal planning.

Inclusion of Aboriginal Peoples in Land-use Planning

Aboriginal peoples have long had a close relationship with the land, and given their intimate understanding of the local environment, wildlife and aquatic ecosystems, they are able to contribute to land-use planning in a unique way through traditional knowledge. Information on ecosystems and the impacts of human developments on plants and animals that use these habitats can be obtained through the use of traditional knowledge and contemporary science; both of which are valuable to the regional land-use planning process.

Access to Crown land, abundant with plants, fish and wildlife, is important for the continued practice of the aboriginal way of life. Aboriginal people pass along their language, history, culture and traditions to the next generation through interactions with the land. It is important that aboriginal peoples are included in the land-use planning process so that potential impacts to aboriginal peoples' constitutionally protected rights can be considered when land-use decisions are being made



Opportunities for Inclusion of Aboriginal Peoples in Land-use Planning

- It is important that continued opportunities exist for aboriginal traditional land use in reasonable proximity to aboriginal communities.
- Aboriginal peoples will continue to be encouraged to identify their perspectives in the region and share their traditional knowledge.
- Existing mechanisms for information sharing, such as Sub-tables, could be used to build stronger government-to-government relationships.

Traditional Knowledge

Traditional Knowledge (TK) and the associated term Traditional Ecological Knowledge (TEK), are concepts for which definitions are evolving as conversations and research with Aboriginal communities continues. For the purpose of moving forward with land-use planning, the Government of Alberta has selected several definitions which provide a basis from which a common understanding of TK can be shared. These definitions highlight a diversity of perspectives but all include a common thread of knowledge about ecological components, the interconnection of media and an emphasis on processes:

- Knowledge and insights acquired through extensive observation of an area or species;
- A body of knowledge and beliefs transmitted through oral tradition and first-hand observation, both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technology and socio-economic changes of the present;
- Knowledge about ecological components and process; knowledge put into stewardship regarding environmental use, and cultural values, ethics and philosophies that define the community's relationship within the natural world.

A key to traditional knowledge is the recognition that it belongs to the knowledge holder and as such is controlled by the holder and their community. The decision to share TK resides solely with the knowledge holder.

In a treaty context, and for the purposes of land-use planning, aboriginal traditional land use (TLU) are considered to be those uses of the landscape by Aboriginal peoples that directly support, or are associated with, the practice of hunting, fishing or trapping for food.

Enhancing Recreational and Cultural Opportunities and Experiences

Outdoor recreation is an important regional land use that provides significant economic, social, and environmental benefits to regional communities, individuals and visitors. Outdoor recreation opportunities are provided on public lands, on municipal government lands, in provincial and national parks, as well as on some private land.

Historic resources represent the natural and cultural history of a landscape that is valued for its ability to link Alberta's past with its present. Careful management and protection of these fragile and non-renewable resources in land-use development planning ensures they retain their conservation value for future generations.



Opportunities and Challenges Related to Enhancing Recreational and Cultural Experiences

- The region's growing population and the increasing demand for diverse recreational opportunities are placing increasing pressure on the region's provincial park facilities. Most campgrounds within the region's provincial parks system are fully used during the summer, and there is limited opportunity to increase capacity due to a lack of suitable locations for development within the existing parks.
- The popularity of off-highway vehicles (OHV) is growing rapidly and limited areas and trails are specifically designed or managed for them. Portions of the eastern slopes of the Rockies in this region are experiencing heavy environmental impacts particularly east of the Public Land Use Zones where no access management plans are in place. Increasing linear disturbance resulting in increased motorized access is creating environmental damage and conflicts with other uses. Additionally, random camping is also prevalent in this region.
- There is growing demand for additional land and water-based activities (i.e. trails, water-based recreation) to support outdoor recreation and tourism opportunities.
- There is a lack of outdoor recreational opportunities on Crown land in close proximity to large population centres (e.g. camping, OHV use); greater importance of municipal and private land opportunities.

3.4.2 Responsibility of the Government of Alberta

The Government of Alberta will:

- Incorporate land-use policies from the *Municipal Government Act*;
 - Land-use planning is both a municipal and provincial activity. Provincial legislation, policies and programs for land-use planning and resource management can affect municipal interests. Conversely, municipal decisions and actions affecting land-use and development can impact the success of provincial objectives designed for the benefit of all Albertans. It is therefore important that municipal and provincial planning efforts pursue a high level of collaboration, coordination and integration. This cooperation extends to providing infrastructure linked to land use, such as transportation networks, municipal services, recreation, leisure and cultural facilities, and other institutional uses.
- Use the Comprehensive Regional Infrastructure Sustainability Plan (CRISP) process to augment and facilitate planning for the Cold Lake area;



- Continue to recognize the Capital Regional Growth Plan as a growth management plan;
- In accordance with applicable government policy as it may be from time to time, the Government of Alberta will continue to consult with aboriginal peoples when government decisions may adversely affect the continued exercise of their constitutionally protected rights;
- Re-classify and consolidate existing parks in the region to ensure that all sites within the region are appropriately classed under the existing parks legislation; and
- Develop a regional trail system plan in collaboration and coordination with stakeholders.

3.4.3 Responsibility of RAC

RAC will provide advice on the following:

- Strengthening regional infrastructure, community planning, and development in order to support economic expansion and population growth both in the Capital Region and throughout the North Saskatchewan Region;
- Increasing the current level of collaboration, involvement and partnership by and between various groups (e.g. non-profits, private sector, aboriginal and local governments) and the Government of Alberta, in the area of land-use planning;
- Identifying mechanisms to strengthen relationships and increase the current level of aboriginal peoples' involvement in regional planning; and
- Expansion or establishment of new recreation areas – Provincial Parks, Provincial Recreation Areas, Public Land Recreation Areas, etc.

The following criteria will guide RAC's advice regarding expanded or new recreation areas:

- Focus of recreational areas recommendations should be directed towards enhancing recreational opportunities within and adjacent to existing recreation and parks areas; and
- Recommendations for any potential new or expanded areas should be for high recreation and tourism value and must meet either one of the following criteria:
 - The potential new or expanded area increases the supply of a recreational opportunity where demand for the activity currently outpaces supply; or
 - The potential new or expanded area will result in an increased supply of recreational opportunities where there is a trend towards an increasing future demand.



3.5 Summary of RAC's Recommendation Areas

Vision, Outcomes, Strategic Directions:

- The vision, outcomes and strategic directions proposed for the North Saskatchewan region.

Healthy Economy Supported by Our Land and Natural Resources

- Enhancing efficient land use in areas where petroleum and petrochemical investments are expected to occur.
- Maintaining a viable agricultural land base to support growth and diversification of the agricultural industry
- Facilitating efficient transportation of products to local, national and international markets
- Attracting tourism investors and developers (specific to Crown land) through longer-term tenure.

People-Friendly Communities with Ample Recreational and Cultural Opportunities

- Strengthening regional infrastructure, community planning, and development in order to support economic expansion and population growth;
- Increasing the current level of involvement and partnership by and between various groups (e.g. non-profits, private sector, Aboriginal and local governments) and the Government of Alberta, in the area of land-use planning;
- Identifying mechanisms to strengthen relationships and increase the current level of Aboriginal peoples' involvement in regional planning; and
- Expansion or establishment of new recreation areas - Provincial Parks, Provincial Recreation Areas, Public Land Recreation Areas, etc.



Healthy Ecosystems and the Environment:

- Identification of priority areas for wetland conservation and restoration to support implementation of the Alberta Wetland Policy. This should include suggested tools to support identification of these priority areas
- Achieving an appropriate balance for lakes in the region between a healthy environment with the current and future pressures and uses, including recreation, municipal, industrial and agricultural activities. This should include suggestions on strategies or approaches to best achieve this balance
- Identification of potential new conservation areas to support biodiversity, specifically the identification of new potential conservation areas that are managed to protect sensitive habitats and maintain ecological systems and processes
- Opportunities to improve the way working landscapes are managed to maintain ecosystem function and biodiversity
- Strategies to minimize human footprint and fragmentation of landscapes
- Approaches to be used to better integrate industrial access management
- Approaches to be used to improve the timely and progressive reclamation of disturbed lands
- Provide recommendations on what the Government of Alberta can do to recognize private landowners for their stewardship and conservation initiatives (monetary and/or other alternatives)
- Insight on the limitations facing the promotion of the use of voluntary tools on private lands for conservation and stewardship, including how the Government of Alberta can increase private landowner awareness and use of voluntary tools



Appendix A



Role of the Regional Advisory Council

RAC is composed of a cross-section of individuals who live, work, recreate and/or have an interest in the region, and are able to strategically consider what is best for the entire region at a holistic level. RAC members are solicited from the public and appointed by Cabinet and will be led by a Chair, who represents the Government of Alberta to RAC. In this role, the Chair is also responsible for conveying the views of RAC and relaying advice on behalf of RAC to the Stewardship Minister.

RAC will provide strategic advice to cabinet on the development of the regional plan, as defined in these terms of reference, with respect to key elements identified. To support RAC's exploration of the issues and development of their recommendations, the Government of Alberta will provide analysis and access to background studies, policy frameworks, resource inventory data, and planning and management professionals as required.

RAC is asked to provide advice to cabinet in accordance with these terms of reference and submit their advice to the Government of Alberta in the form of a Recommendation to Government report.

Once RAC has delivered its report, the Government of Alberta will engage Albertans through an online survey to obtain feedback on the recommendations. The Government of Alberta will then consider RAC's recommendations and the online survey results, as well as feedback received from the public and stakeholder consultations sessions, to create and publicly release the draft regional plan. The Government of Alberta will consult with Albertans to obtain their feedback on the draft regional plan and will consider this feedback when finalizing the plan.



Throughout this process, RAC is to:

- focus its efforts to the specific issues on which they are being asked to advise;
- consider issues at a regional level;
- base its advice on information provided by the Government of Alberta, and use their regional experience and knowledge to inform the process;
- consider the integrated picture to ensure individual recommendations are in alignment with the vision for the region;
- consider the interests of the constituents in the region; and
- focus its recommendations on what the Government of Alberta can do, what is expected of industry, citizens, and other stakeholders, and clearly identify the priorities and implications.

At all times, RAC's advice:

- should identify strategies and demonstrate how each recommendation meets the Government's specific criteria for the issue or opportunity, and present a rationale for the recommendation; and
- should consider implementation of the recommendations in terms of practicality, cost effectiveness and opportunities for collaboration or shared stewardship between the Government of Alberta and its external partners; and
- will consider the rights and land-use perspectives of aboriginal peoples in all aspects of land-use planning.

The following items are out of scope for RAC:

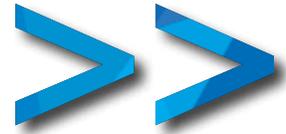
- **Municipal governance** - The re-organization, restructuring, dissolution, amalgamation or creation of municipalities.
- **Population limits** - Setting caps on human population or settlement.
- Taxation and provincial royalties- Tax policy, tax rates, taxation of individuals or businesses and provincial royalties.
- **Government expenditures** - Levels of capital or operating expenditures required of the Government of Alberta or cost-sharing arrangements concerning infrastructure. Budgetary decisions remain the sole responsibility of the Government of Alberta as part of the plan's implementation. The plan may recognize, however, that public investment may be required and may suggest efficient ways to implement or achieve overall outcomes.



- **Existing laws and regulations** – It is recognized that objectives and goals in the regional plans may require legislative and/or regulatory changes during implementation. The Government of Alberta will assess and determine the need for such changes, and make any required changes through Alberta’s legislative procedures.
- **Federal land** – The important connections and interdependencies between federal lands (i.e. national parks, First Nation’s reserves, and Department of National Defence) and provincially administered land will be recognized and considered; however, the regional plan will not set land management direction for Federal lands.
- **Government of Alberta’s Aboriginal consultation policies** – In accordance with applicable government policy as it may be from time to time, the Government of Alberta will continue to consult with aboriginal peoples when government decisions may adversely affect the continued exercise of their constitutionally protected rights. Regional plans will not modify such policy.



Appendix B



The Regional Planning Process

Who is Responsible for Regional Planning?

The Government of Alberta has overall responsibility for regional planning. Cabinet will provide guidance regarding the economic, environmental and social expectations for the region within a provincial context and approve the seven regional plans identified in the Land-use Framework. Once approved, the regional plans will become official government policy and have the force of law.

Land-use Planning and Decision Making in Alberta

Land-use planning and decision-making in Alberta is carried out under several acts and regulations, and through many policies. These are applied by a range of decision-makers with responsibilities in the region including Government of Alberta departments, boards and agencies, and municipal governments. The regional plans will be implemented by these parties through land-use decisions in the region (e.g. development permits, water licenses, project approvals). These decision-makers will need to ensure the intent and outcomes of their land-use decisions align with the respective regional plans.

Private landowners make decisions about how to use and manage their land under existing provincial and municipal legislation. Provincial and municipal governments will retain their current responsibility and authority for private lands. A regional plan cannot change or take away a person's private property rights without compensation.

How Are Regional Plans Developed?

Regional plans are developed through consultation with Albertans – people living, working and/or having an interest in the region. A RAC consisting of members representing a range of perspectives and experience in the region will be established to provide recommendations for consideration in the development of the plan. The Government of Alberta's Land Use Secretariat oversees the development of all the regional plans and leads the consultation processes. A project team, representing Government of Alberta ministries and agencies, works with the Land Use Secretariat to provide policy analysis, research and support to the development of the regional plan. This collaborative cross-ministry and consultative approach with Albertans will ensure that the final regional plan reflects the broader interests of Albertans.



Figure 4: Regional Plan Development, below, provides a high-level overview of the regional plan development process.

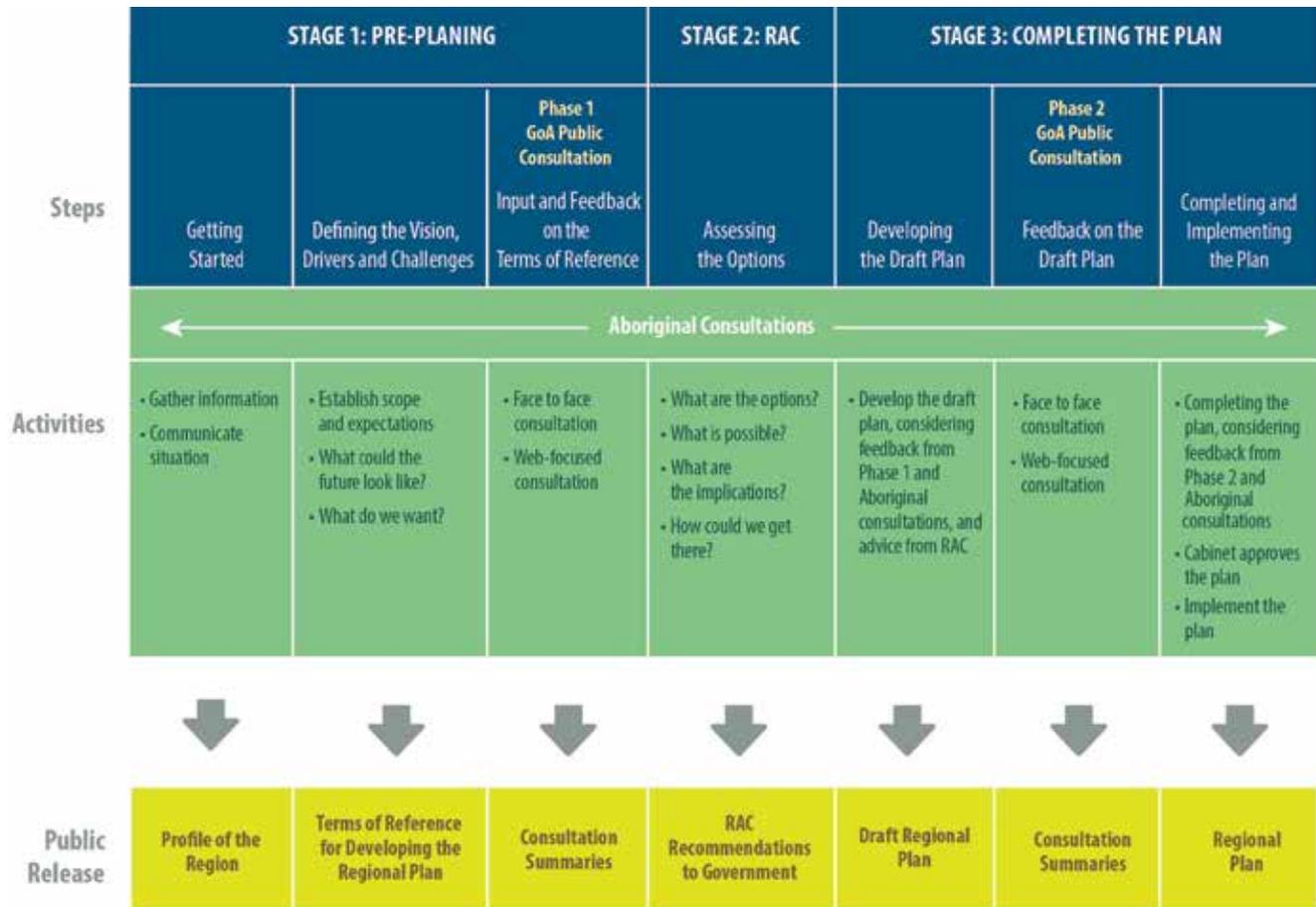


Figure 4: Regional Plan Development



1. Stage 1: Pre-Planning

Activities in this stage focus on identifying and exploring the current issues and trends to create a comprehensive story about the current state, and begin to define the vision and outcomes for the region. These are communicated through the Profile of the Region and Terms of Reference for the regional plan documents.

- **Phase 1: Government of Alberta Public Consultation** – The Government of Alberta formally consults with Albertans to promote awareness of regional planning in the region and the Terms of Reference for the regional plan and to obtain input and feedback on the issues. Consultation methods will include multiple face-to-face public and stakeholder sessions, hard copy workbooks to gather input and online questionnaires.
- **Aboriginal Consultations** – Aboriginal consultation is a distinctive and ongoing process that is initiated in the Pre-Planning Stage and continues throughout the regional plan development process. The aboriginal peoples of Alberta have an historic connection to Alberta's land and environment. Alberta recognizes that those First Nations and Metis communities that hold constitutionally protected rights are uniquely positioned to inform land-use planning.
- In accordance with Alberta's First Nations consultation policy, the government consults First Nations on decisions that may potentially affect their ability to practice their Treaty rights. Consulting aboriginal communities through the development of the regional plan, particularly those aspects that have the potential to adversely impact constitutionally protected rights, and reconciling these aspects is important. The relevant input from any such consultations should always be considered prior to a decision.

2. Stage 2: RAC

The Government of Alberta will establish a RAC comprised of stakeholders with a cross section of knowledge, experience, and interest in the region to provide advice to the government on how to address the region's issues and challenges. At the end of RAC stage, RAC will present its recommendations in RAC's Recommendations to Government document.

- **RAC Survey** – Once RAC has delivered its recommendations report, the Government of Alberta will release the report to the public and launch an online survey to obtain feedback from Albertans regarding RAC's recommendations. The feedback received along with the RAC recommendations and input from the Phase 1 consultations will be considered in the drafting of the regional plan.



3. Stage 3: Completing the Plan

- **Developing the Draft Plan** – The Government of Alberta prepares a draft regional plan considering input on the challenges and issues from Phase 1 consultations, feedback received from on-going aboriginal and stakeholder consultations, RAC’s recommendations and the results from the online survey on RAC’s recommendations.
- **Phase 2: Government of Alberta Public Consultation** – The Government of Alberta formally consults with Albertans to communicate and create awareness on RAC’s Recommendations to Government and obtain feedback on the draft regional plan. Consultation methods will include multiple face-to-face public and stakeholder sessions, hard copy workbooks to gather input and online questionnaires.
- **Completing and Implementing the Plan** – Revisions to the draft regional plan will be made considering feedback from Phase 2 consultations and all other feedback received from aboriginal and stakeholder consultations. The final regional plan is tabled with the Alberta Legislature prior to approval by cabinet. Once approved, the regional plan becomes official government policy implemented through regulation.



What is the Structure and Content of a Regional Plan?

There are three components to a regional plan: the Strategic Plan, the Implementation Plan and the Regulatory Details Plan, as illustrated and described by the Figure 5: Components of a Regional Plan below:

Strategic Plan

The Strategic Plan defines the specific vision, outcomes and strategic directions that identify priority areas of focus for each region in a manner that considers and integrates the regional perspective with the provincial picture.

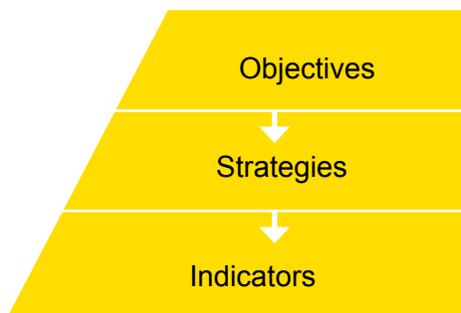


Implementation Plan

The Implementation Plan establishes the objectives and strategies that will be implemented to achieve the vision and outcomes for the region. Indicators at the strategy and outcome level are also identified as a means by which to evaluate the level of progress made towards achieving the desired outcomes for the region.

Regulatory Details Plan

The Regulatory Details Plan contains information regarding the mandatory (i.e., regulated) actions that land-use decision makers and users must comply with in order for the vision and outcomes to be achieved for the region.



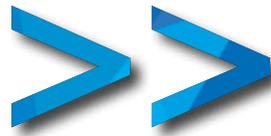
The Implementation Plan and Regulatory Details Plan are linked in that some strategies and actions may be implemented through regulatory provisions.

Contains regulatory provisions that may take the following form:

- Must not approve
- Must evaluate and apply
- Must do
- Must not do



Appendix C



Policy Guidance

Regional plans will reflect and integrate provincial policies and objectives.

A. Provincial Policies and Strategies

- Active Alberta
- Alberta's Aboriginal Policy Framework: Strengthening Relationships
- Alberta Forest Products Road Map
- Alberta's Plan for Parks
- Alberta Provincial Energy Strategy
- Alberta's Tourism Framework: Pathway to Growth
- Alberta Wetland Policy
- A Coal Development Policy for Alberta
- A Place to Grow: Alberta's Rural Development Strategy
- A Policy for Resource Management of the Eastern Slopes (Revised 1984)
- Clearing the Air: Alberta's Renewed Clean Air Strategy
- Climate Change Strategy
- Draft Alberta's Biodiversity Policy
- Land-use Framework
- The Lower Athabasca Regional Plan
- The South Saskatchewan Regional Plan
- The Spirit of Alberta: Alberta's Cultural Policy
- Responsible Actions: A Plan for Alberta's Oil Sands
- Water for Life: Alberta's Strategy for Sustainability (Revised 2008)
- Shaping Alberta's Future: Report of the Premier's Council for Economic Strategy

B. Integrated Resource Plans

- 1979 Battle River Regional Plan
- 1981 Beaverhill Lake Integrated Resource Plan
- 1984 Policy for Resource Management of the Eastern Slopes (Revised)
- 1986 Nordegg-Red Deer River Sub-Regional Integrated Resource Plan



- 1986 Rocky-North Saskatchewan Sub-Regional Integrated Resource Plan
- 1988 Brazeau-Pembina Subregional Integrated Resource Plan
- 1989 Ministik Lake Game Bird Sanctuary
- 1992 David Thompson Corridor Local Integrated Resource Plan
- 1996 Rocky Regional Integrated Decision
- 1996 Cold Lake Subregional Integrated Resource Plan

C. Issue Specific Plans and Other Plan Documents including:

- Bighorn Backcountry Access Management Plan
- Capital Region Growth Plan
- Chungo Creek Industrial Access Management Plan
- Cold Lake-Beaver River Water Management Plan
- Alberta's Grizzly Bear Recovery Plan
- Draft Approved Water Management Plan for the Battle River Basin
- Integrated Watershed Management Plan for the North Saskatchewan Basin
- Proposed Site-specific Water Quality Objectives for the Mainstem of the North Saskatchewan River
- Vermillion River Watershed Management Plan
- North Saskatchewan Landscape Assessment Plan
- Prairie Conservation Action Plan
- R11 Forest Management Plan
- 1995 Island Lake Regional Integrated Decision
- 1996 Burnstick Lake Management Plan
- 2010 Buffalo Lake Integrated Shoreland Management Plan

D. Integration with Adjacent Regional Plans

The Government of Alberta will ensure that the North Saskatchewan and Lower Athabasca Regional Plan are mutually supportive of each other. The Government of Alberta has the authority to develop the North Saskatchewan Regional Plan and/or amend the existing Lower Athabasca Regional Plan to ensure that this occurs. The North Saskatchewan Regional Plan should also anticipate concurrent and future regional plan development including plans for the South Saskatchewan, Red Deer, Lower Peace, Upper Peace and Upper Athabasca regions.



Appendix D



Overview of the North Saskatchewan Region

Understanding the current state of the region is foundational to defining what we want for the future of the region. This includes identifying opportunities and challenges so that informed decisions can be made on how to set forward a path to achieving the vision and outcomes Albertans desire for the region.

Healthy Economy Supported by our Land and Natural Resources

The rural areas of the region are home to significant agriculture, mining, forestry and tourism activities. In the major urban centres, widely diversified economies have developed with strong education, financial services, manufacturing, and information technology sectors.

Energy

The region contains abundant energy resources, including conventional oil and natural gas, coal, renewable energy and other fuel sources. As well, some oil sands (unconventional oil or bitumen) are present in the Cold Lake portion of the region. There has been a long history of petroleum and natural gas exploration in the North Saskatchewan Region and this has led to extensive industrial development throughout the production areas.

Oil

Conventional petroleum and natural gas production has grown significantly in recent years. The strength of this sector has stimulated activity in other industries such as pipeline construction, machinery manufacturing and engineering. Oil production occurs primarily in the eastern portion of the region. New horizontal well drilling and completion methods are continually increasing the amount of recoverable reserves.

Natural Gas

Despite declining production, natural gas remains a significant part of the region's resource base. Drilling has increased in existing areas to maintain production rates and to develop new unconventional resource opportunities such as deep shale gas.



Economic Impact of the Energy Sector

- Alberta produces approximately 75 per cent of Canada's total hydrocarbon production and over 70 per cent of Canada's coal reserves are located in Alberta.
- In the 2010-2011 fiscal year, Alberta's net non-renewable resource revenues totaled nearly \$8.5 billion (just under 22 per cent of the provincial government's revenue).

Source: *The Government of Alberta (2013), Energy*

- In 2012, the oil and gas extraction industry in the North Saskatchewan region contributed approximately \$12 billion to the provincial GDP, which is approximately 20 per cent of the total contribution by the oil and gas industry to provincial GDP.
- The oil and gas sector directly employed 17,000 people in the region in 2012.

Source: *The Government of Alberta (2013), Innovation and Advanced Education*

In terms of exploration, the development of the Pembina Field near Drayton Valley has become increasingly important as a strategic energy reserve. This oilfield is the largest in Western Canada, with original reserves estimated at more than 7.8 billion barrels. About 16 per cent has been recovered and, with the use of enhanced recovery methods, more conventional petroleum and natural gas may be available.

Bitumen

Unconventional oil production has played an increasing role in the region and the province. About one-third of the Cold Lake Oil Sands Area falls within the region. Production of bitumen in the region is primarily completed using cold heavy oil production with sand, although some cyclic steam stimulation was used in the past.

Oil sands production from the portion of the Cold Lake Oil Sands within the region is currently the largest contributor to the region's oil production – averaging around 55,000 barrels of oil per day. The major increase in production and number of wells in the region in the late 1990s was a direct result of the start-up of the ECHO (East Central Heavy Oil) pipeline.

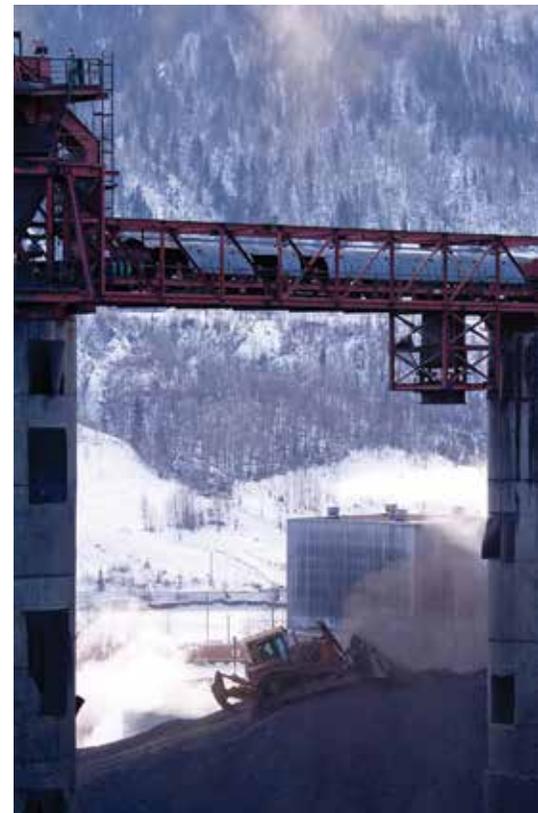
There are currently 23 oil sands projects producing within the region, along with five proposed projects.

Enhanced Oil Recovery

Enhanced oil recovery potential is extremely high in the region, and redevelopment of mature oil fields (such as Pembina and Leduc) could significantly add to the production volume of these oil reserves. Water-flooding (a secondary recovery method that uses water in much the same way as gases are used in enhanced oil recovery), infill drilling of mature fields with horizontal wells, and carbon dioxide injection into these mature oilfields continues to extend the life expectancy of oil development in these areas.

Coal

There are strategic reserves of metallurgical coal (coal used in steel production) along the foothills which are currently exported to Asian markets. There are also two active coal exploration programs in the foothills area that are targeting metallurgical coal. Currently six coal mines are operating in the region, which produces most of





Alberta's coal (approximately 65 per cent). There are two additional deposits of coal that are recoverable by surface mining occurring in the region. The first covers an area that stretches from northwest of Edmonton through the Camrose area to the southeast border of the region. The other stretches from Wabamun Lake southeast to Millet. The nature of the deposits suggests they could be developed for strip-mining and dedicated to electrical production or domestic heating.¹ There is also some potential for underground coal mining along the eastern edge of the Rockies between Jasper and Banff.

Value-Added Energy – Refined/Upgrading Petroleum and Petrochemicals

Refining hydrocarbons into petrochemicals and petroleum products is the value-added portion of the energy industry. While some petroleum and natural gas is exported directly to other markets, much of the resource remains in the province for further upgrading and processing into end-use products such as petrochemicals, lubricants and fuels. The processing and manufacturing carried out in this sector creates additional economic activity, jobs and tax revenue.

The largest concentration of industrial activity in Alberta is located in the Industrial Heartland, which is located in the northeastern part of the Capital Region. The Industrial Heartland sits at a crossroads of extensively developed transportation infrastructure as well as oil, natural gas and bitumen pipelines, and transmission lines. The Heartland is uniquely positioned to capitalize on the development of Alberta's vast energy resources. The investment in the processing plants in the Industrial Heartland has resulted in one of the highest concentrations of petrochemical producing facilities in Canada. This value-added energy sector is supported by a vast network of pipelines to transport upgraded and refined petroleum products. In recent years, significant pipeline capacity has been added to accommodate expected increases in bitumen and synthetic crude oil production.

Metallic and Industrial Minerals

The mineral potential of the region has not been fully realized and considerable exploration is needed to better understand the metallic and industrial mineral development potential. While there are no active mining operations, there is some metallic and industrial mineral potential based on occurrence of phosphate, lithium-bearing brines and potash as identified by the Alberta Geological Survey.

There are active metallic and industrial mineral leases and permits that are held for limestone (and other building stone) in the mountain area of the region, including producing quarries. Salt mining is on-going in the region as well. Consequently, the region is attracting mineral exploration activity and

¹ ERCB. Coal Mines and Potential Coal Development.



must respond to access needs for the mining sector. There have also been recent discoveries of economically viable diamond, phosphate, lead-zinc, ion-titanium, lithium potash and gold deposits in the region.

Agriculture

Agriculture is one of the main economic drivers in the region and is considered a central economic factor in the livelihood of many rural municipalities. Livestock and crop production contribute greatly to Alberta's exports and GDP, and provide the foundation for a strong food-processing industry in the region. Further economic activity is generated through a vast range of agricultural, processing and support industries such as food processors, farm supply companies, machinery and equipment dealerships, auction marts and grain elevators. As such, the agricultural industry's economic impact is far-reaching, making agriculture important to the well-being of rural and urban communities alike.

Crops

A significant amount of land in the region is suitable for cultivation and annual cropping due to the amount of high-quality soils and a climate well suited for crop production. The land surrounding the Capital Region has some of the most fertile soils in western Canada. In 2011, approximately 35,000 square kilometres of land was cultivated for crops and tame or seeded pasture, with canola and wheat (approximately 8,400 square kilometres and 7,500 square kilometres, respectively) representing the largest cropped area in the region. An additional 11,000 square kilometers of land is native/natural pasture land (both public and privately held) and is used for livestock grazing.

Economic Impact of the Agricultural Sector

- 2011 Farm Cash Receipts for the Region:
 - Agricultural production amounted to approximately \$2.4 billion; about 23 per cent of the provincial total
 - Crop production - approximately \$1.5 billion (\$908 million for canola and \$456 million for wheat)
 - Livestock production - approximately \$0.7 billion (\$437 million from cattle, which represented 60% of the regional livestock total)
 - Dairy and poultry and egg sectors - combined farm cash receipt value of approximately \$223 million.
- In 2012, the provincial sales value of Alberta's food processing industry, including value added from primary production, was approximately \$11.8 billion. Source: Statistic Canada (2012)
- Based on 2012 annual estimates, 75,900 people in Alberta were employed in agri-food industries, (56,200 in agriculture and 19,700 in the food and beverage manufacturing) representing just under four per cent of the total provincial workforce.

Source: Statistics Canada (2012) Economics and Competitiveness Division, Statistics and Data Development Branch.



In the region, the area of canola has increased over 250 per cent from approximately 2,400 square kilometres in 1971 to approximately 8,400 square kilometres in 2011. This represents approximately 34 per cent of Alberta's total canola area.

Pulses, which include field peas, dry beans, chickpeas, fava beans and lentils, have experienced major growth in Alberta; from just a few square kilometres in the early 1980s to approximately 3,500 square kilometres in 2011. Although pulse crops are commonly grown in southern Alberta, owing to drier and warmer growing conditions in that area, the North Saskatchewan Region contains approximately 19 per cent (647 square kilometres) of the province's pulse acreage. Pulses are considered a key growth area for the province and are expected to increase another 10 per cent by 2022.

The agriculture sector continues to maintain or expand production of traditional export products (i.e., wheat, canola and beef), and pursue new domestic and international market opportunities. The major drivers for agricultural production lie in the purchasing power and product preferences of many key regions around the world (U.S., China, Japan and Mexico). Specifically, in terms of agri-food exports, 48 per cent of Alberta's primary agricultural production is exported, while 31 per cent of value-added products are exported (five-year average, 2007 to 2011).

Livestock

Livestock are a key component of agricultural production in the region, with approximately 48 per cent of farms in the region reporting livestock. The main livestock types in the region are cattle (beef and dairy), hogs, poultry (including non-quota holders, egg producers and meat), sheep (wool and meat) and horses. About one-third of the provincial total of horses is found in the region, particularly in the Capital Region.

The North Saskatchewan Region is home to 6,929 farms reporting beef and dairy cattle (Statistics Canada, 2011), and the abundance of grazing land and feedstock for winter feeding (hay, silage) provides the ideal conditions for many multi-generational cattle operations. Close to 1,600 provincial grazing dispositions (i.e., licenses, leases, permits and allotments) and 10 provincial grazing reserves on public land offer summer





grazing opportunities that help maintain and promote ecosystem function and regional biodiversity. Tame pasture is generally the long-term permanent cover used for livestock grazing.

The region's 262 farms reporting dairy cattle (Statistics Canada, 2011) are an important part of the agriculture industry of the region, and dairy cow numbers (18,193 in 2011) rank a close third behind the Red Deer and South Saskatchewan regions (31,412 and 22,717, respectively). Most of the region's dairy operations are within rural municipalities adjacent to the city of Edmonton. Similar to beef cattle feedlots, dairy farms are considered Confined Feeding Operations (CFO), and applications for their development and/or expansion are reviewed and approved by Alberta's Natural Resources Conservation Board, which has the mandate for monitoring compliance under the *Agricultural Operation Practices Act*.

Aggregate Mining and Peat Harvesting

Aggregate mining often requires land disturbance to extract surface materials such as sand, gravel, clay, marl and silt. Aggregates are essential components for development and maintenance of infrastructure (e.g., roads, construction) and this resource occurs throughout the North Saskatchewan Region on both private and public land.

Sand and gravel deposits are common to river valleys, terraces glacial deposition channels and potentially overlaying coal deposits. There are currently 289 approved/registered pits (i.e. Class I), approximately 619 Class II Pits (i.e. < 5 ha in size), and 154 reclaimed/certified pits in the North Saskatchewan Region. Unlike the well-delineated coal deposits within the province and region, the distribution of sand and gravel deposits is not as well defined.

Peat mining (peat moss for horticulture purposes) has been occurring in Alberta since the mid 1960s, and continues to be for horticultural purposes only. Peat is not mined in Alberta for fuel. There are currently six peat companies operating in Alberta. Together they hold 17 active leases involving 14,032 acres (5,679 ha) of land. Industry mines peat at seven bog locations and there are four processing plants located in Alberta.

Forestry

Forests in the Green Area public land are an important renewable resource for our province; they provide economic and environmental benefits to all Albertans, in addition to being a source of recreation for local residents and visitors. Green Area public land makes up 21 per cent of the North Saskatchewan Region.

Economic Impact of the Forestry Sector

- In 2012, the North Saskatchewan Region's forests contributed approximately \$6.9 million to the provincial GDP and provided employment to approximately 300 people.

Source: *The Government of Alberta (2013), Alberta Enterprise and Advance Education. (In 2002 dollars)*

Forest Management Agreements

- A forest management agreement is an agreement, usually 20 years in duration, between the Government of Alberta and a forest company to harvest, remove and grow timber in a specific area.
- Under a forest management agreement, a forest company is responsible for all parts of forest management, including conducting natural resource inventories, comprehensive long-term and detailed forest management plans and completing forest renewal.



The forest industry contributes to Alberta's communities and economy through forest management planning and management activities, forest inventories, forest protection, timber extraction and reforestation and by reducing risks to our forests from fires and pests. The Government of Alberta legislation, policies, programs and actions help ensure the forests on public lands are healthy and productive. Alberta manages its forests by applying the principles of sustainable forest management and responsible stewardship within both Crown Forest Management Units and Forest Management Agreements.

“The R11 Forest Management Plan covers the same boundary as the Bighorn Backcountry adjacent to Banff and Jasper national parks. The R11 is managed by Environment and Sustainable Resource Development and most timber remains unallocated. Large scale timber harvesting has been absent from the land base, and oil and gas development has been limited. The R11 Forest Management Plan forecasts a rate of disturbance to return to a natural fire cycle, while managing the area to reduce the threat of large-scale, catastrophic wildfire and mountain pine beetle outbreak, and to provide sufficient suitable habitat for grizzly bear and elk populations, diversity in stand age and tree species composition, and to maintain healthy riparian ecosystems and watershed values.

In 2011, Alberta's shipments of forest products reached \$4 billion, and exports were \$2.1 billion. Within the North Saskatchewan Region there are two FMA holders, Weyerhaeuser and Sundre Forest Products, two FMAs that just enter the region, West Fraser Mills and Spray Lakes Sawmills, and 24 coniferous and four deciduous timber quotas. The annual allowable cut for the region is 2,290,085 m³/year coniferous (12 per cent of the provincial annual allowable cut), and 479,203 m³/year deciduous (four per cent of the provincial AAC).

The forest industry contributes to secondary manufacturing including cabinetry, engineered-building components and millwork. Altogether there are eight different large-scale manufacturing facilities and 15 smaller-scale mills associated with the forest sector in the region.

The industry has traditionally benefited from low delivered wood costs, which has helped it to be competitive. The forest industry's largest export market is the U.S.



The Alberta Electricity System Operators' 2012 long-term transmission plan

In the bulk transmission system, three projects will expand and reinforce the transmission system to relieve congestion and improve reliability. These projects include:

- North-South Transmission Reinforcement – two 500 kilo Volt (kV) high voltage direct current transmission lines, from Genesee to Langdon and the Heartland industrial area to Brooks.
- Heartland – a double circuit 500 kV alternating current transmission line from south Edmonton to the Industrial Heartland area.
- Fort McMurray – two double circuit 500 kV alternating current transmission lines, from the Industrial Heartland area to Thickwood and Genesee to Thickwood.

Transportation and Transmission

Transportation

Transportation systems are crucial to the movement of people and goods in and out of the region. Like many other aspects of the region, transportation corridors trace their origins to the historic settlement and the economic development of Western Canada. Today the region has over a dozen airports and a large network of roads, railways and pipelines.

In 2012, the Gross Domestic Product (GDP) of Alberta was approximately \$306.7 billion; many of these goods and services were produced in the region. Transportation systems are required for exporting the region's products to local, provincial, national and international markets.

The region contains approximately 4,600 kilometers of provincial highways; of which 4,210 kilometers (over 91 per cent) are paved highways in the region are managed by the Government of Alberta. These include Highway 2, Highway 16, Highway 1, Highways 28 and 63, Anthony Henday Drive, Highway 15, and Highway 43.

Economic growth within the Capital Region has stimulated increased industrial growth in areas such as the Industrial Heartland, Nisku Business Industrial Park, Acheson Industrial Area, Edmonton International Airport, Sturgeon County and Strathcona County. Industrial growth, combined with increased levels of trade, tourism and recreational activity, will continue to increase traffic volumes on major highways. The completion of the Anthony Henday ring road around the city of Edmonton is an initiative intended to help address this issue. More study is required to identify the future transportation networks that will be needed to accommodate the anticipated growth in traffic. To ensure this is effective, coordination of the transportation system must occur between municipalities, across the province, and even with other provinces.

A Comprehensive Regional Infrastructure Sustainability Plan (CRISP) has been developed for the Cold Lake Oil Sands Area. The CRISP establishes a long-term framework for future infrastructure needs on possible future oil sands production and population growth. It will also enhance the way provincial and municipal governments work and plan together.





Electricity Generation and Transmission Facilities

Electricity generation and transmission facilities are expanding in the region. Currently there is approximately 4,500 megawatts (MW) of generating capacity in the region, providing 34 per cent of Alberta's total generating capacity, primarily from coal-fired generators. Over the next 10 years, pending federal emissions regulations and facility retirements will affect coal-fired generation in this region. By 2020, the Alberta Electric System Operator (AESO) estimates generating capacity will be between 4,385 MW and 5,420 MW.

Tourism

The region's geographic diversity, natural, cultural and built tourism features, together with the region's diversity of tourism settings provide tremendous competitive advantages that help build a strong tourism industry. The many natural, cultural and recreational attractions, including the majestic North Saskatchewan River, that begins in the icefields of Banff and Jasper national parks and flows eastward to Saskatchewan, make the North Saskatchewan Region the second most popular tourism destination in the province and in 2011, approximately 12.2 million visits were made to the region to experience the wide range of nature-based, sport, culinary, festivals, shopping, cultural and other tourism opportunities.

Outside the Capital Region, tourism is becoming increasingly important to many communities seeking to diversify and strengthen their local economies. Much of the region's recreational and tourism visitations come from outside the region. The region is home to two national parks (Banff and Elk Island), 135 parks in the provincial parks system (including, provincial parks, provincial recreation areas, wildland provincial parks, wilderness areas, natural areas and ecological reserves). Public lands, particularly along the



Economic Impact of the Tourism Sector

- Tourism in Alberta is a \$7.8 billion dollar industry that supports 15,000 tourism businesses and employs more than 139,000 people, either directly or indirectly.

Source: Tourism, Parks and Recreation Business Plan 2013-16. (2013, Feb.20). Travel Alberta 2013-16 Strategy.

- The region accounts for approximately 35 per cent of annual tourism expenditures in the province.
- The economic impact associated with these tourism expenditures is \$3.0 billion in value-added income, and includes \$1 billion of direct income and \$2 billion of indirect and induced income.

Source: The Economic Impacts of Tourism Expenditures in the LUF Regions of Alberta.



Forestry Trunk Road (Highway 734) and the Eastern Slopes, is heavily used for outdoor recreation. Together, the provincial parks system and public land offer a wide range of outdoor recreational opportunities such as camping, boating, fishing, hiking, horse riding, rock and ice climbing, swimming, off-highway recreation vehicle (quad and snowmobile) use and cycling.

Within the region, some of the most visited tourism locations include the Bighorn Backcountry west of Nordegg, the David Thompson Corridor, the Beaver Hills area southeast of Edmonton, the Capital Region (e.g., Edmonton's North Saskatchewan River valley and West Edmonton Mall), and Banff National Park. In many communities in the region, tourism is being used as a viable strategy to diversify local economies.

Locations for future tourism development include the David Thompson, Bighorn Backcountry, Beaver Hills and Kalyna Country and other areas east of Edmonton. In addition, the inclusion of the North Saskatchewan River in the Canadian Heritage River System will provide another tourism draw.

Healthy Ecosystems and Environment

The cumulative effects of population and economic development in the region are increasing pressure on the region's air, water, land and biodiversity. The Government of Alberta is committed to responsible development and managing cumulative effects at the regional level.

The use of environmental management frameworks is the key regional approach being used to manage cumulative effects. Environmental management frameworks establish outcomes and objectives along with the strategies and actions necessary to achieve them. The frameworks are intended to provide context within which decisions about future activities and management of existing activities should occur. They do this by confirming regional objectives and establishing ambient environmental thresholds for appropriate indicators to support ecosystem integrity, and to meet desired environmental, economic, and community outcomes. Limits in these frameworks are intended to be clear boundaries in the environmental system, which are not to be exceeded. Triggers are to be used as warning signals to allow for evaluation, adjustment and innovation to occur on an ongoing basis and to avoid exceeding the limits. These frameworks complement existing policies, legislation and regulations.

The Industrial Heartland and Capital Region have already applied this cumulative effects management approach through the development of environmental management frameworks for air quality, as well as water quality and quantity. These were developed using a collaborative process with stakeholders and are currently being implemented.



Air Quality Management

Clearing the Air: Alberta's Clean Air Strategy, released in October 2012, reaffirms Alberta's commitment to the wise management of Alberta's air quality for the benefit of all Albertans. The strategy and action plan outline strategic directions needed to enhance the province's air quality management system in order to achieve the outcomes of the strategy and also to implement the new national Air Quality Management System in Alberta.

Ambient air quality in Alberta is managed using a comprehensive network of monitoring stations and through the combined efforts of a number of different agencies and groups including: the Government of Alberta, Government of Canada, Clean Air Strategic Alliance (CASA), local airshed organizations, municipalities, and other stakeholder groups. Six local airshed organizations operate in the North Saskatchewan Region: Alberta Capital Airshed, Calgary Region Airshed Zone, Fort Air Partnership, Lakeland Industry and Community Association, Parkland Airshed Management Zone and West Central Airshed Society.

There are various types of industrial facilities distributed throughout the region that contribute to air pollutant emissions. The most significant industrial emissions are from power generation facilities west of Edmonton and the petroleum and chemical industries in the Industrial Heartland.

Other important sources of air pollutant emissions in this region include commercial and residential fuel combustion for heating and transportation. The use of personal and commercial vehicles, recreational vehicles, airplanes and trains for the transportation of people and goods contributes to air pollution in the region. Air pollution is also associated with agricultural activity (e.g., dust and odour), roads and construction operations (dust), and waste disposal (sewage treatment facilities and open burning).

The CASA Particulate Matter and Ozone Management Framework is Alberta's commitment to achieve Canada-wide standards levels, and establishes ambient triggers for particulate matter and ground-level ozone. If the triggers are reached, action may be required including the development of management plans. In some areas of the Capital Region, triggers have been reached and exceeded. As a result, three local airshed organizations in the area developed the Capital Region Ozone Management Plan at the request of the provincial government. The plan is currently being implemented and tools are being identified that can be used on a voluntary basis to help further reduce increases in emissions. More recently, particulate matter levels have exceeded the Canada-wide standards in some areas of the Capital Region. The Government of Alberta is currently leading efforts to develop a mandatory plan to reduce ambient concentrations of particulate matter.

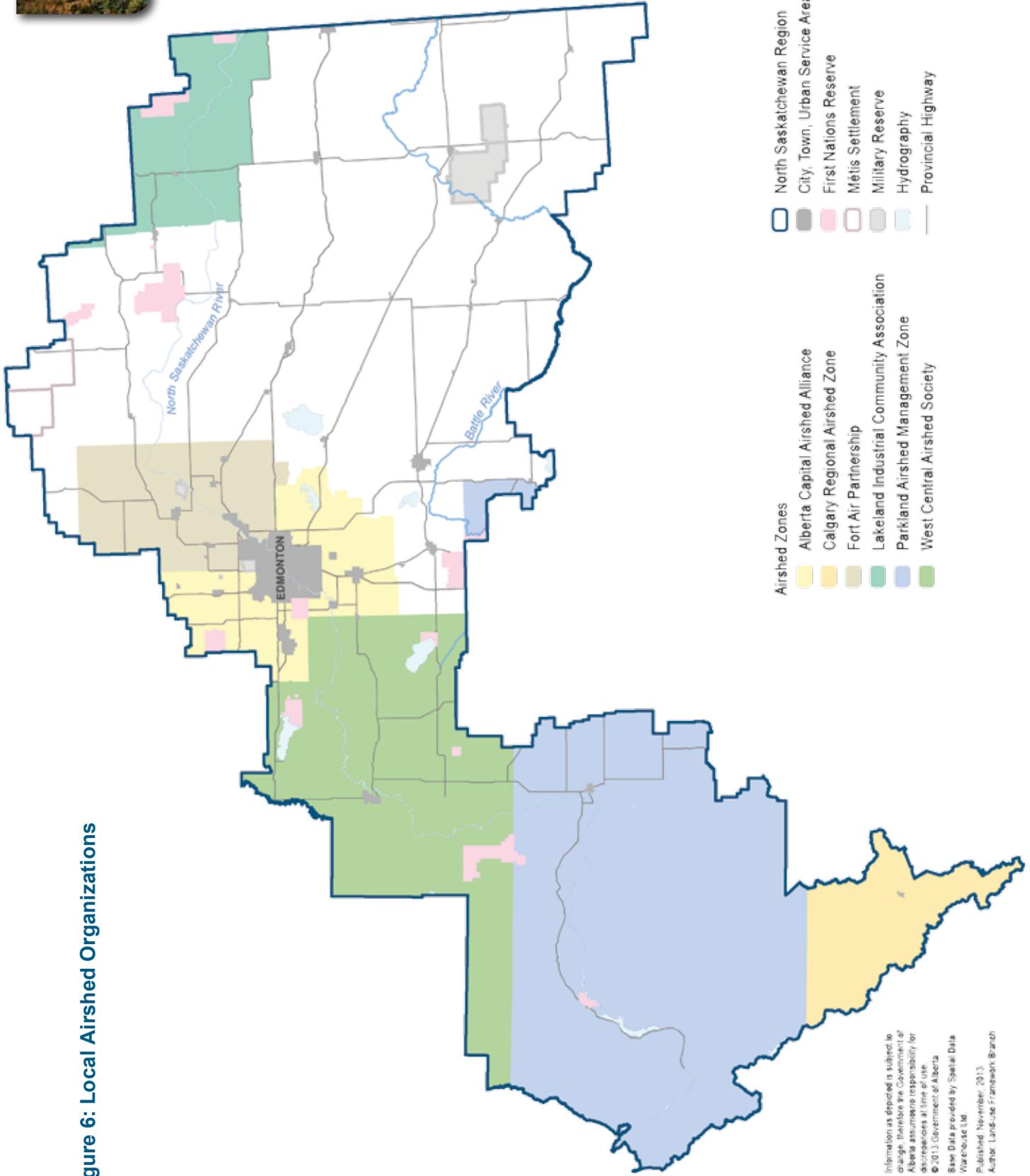


Figure 6: Local Airshed Organizations

Information as depicted is subject to change. Therefore the Government of Alberta assumes responsibility for discrepancies at time of use.
 © 2013 Government of Alberta
 Base Data provided by Spatial Data Warehouse Ltd.
 Published November, 2013
 Author: Land-use Framework Branch



Significant work has been done to address pressures in the Capital Region by focusing on four main air quality contaminants of concern: nitrogen dioxide, sulphur dioxide, fine particulate matter and ozone. The Capital Region Air Quality Management Framework sets four proactive ambient air quality levels for each contaminant of concern in the area. This framework is currently being implemented in the Capital Region and is taking action on priority air quality issues.

Water and Watershed Management

While the North Saskatchewan River and Battle River basins are both contained within the same planning region, they are distinct watersheds that have different hydrologic regimes, originate in different headwaters, contain different land uses and face different pressures. In addition, they are managed separately as a result of the differences in the basins. Therefore, water management directions need to be specific to each basin in order to achieve the desired objectives.

The Alberta portion of the North Saskatchewan River Basin covers 92,799 square kilometres and includes the Battle River (25,585 square kilometres) and Sounding Creek (10,337 square kilometres) watersheds. The North Saskatchewan River comprises 12 watersheds originating in the Rocky Mountains and foothills, where precipitation, snowmelt and glaciers supply the largest proportion of this river's volume. Spanning the full width of the province, the river passes through four Natural Regions, namely the Rocky Mountains, Foothills, Boreal Forest, and Aspen Parkland. Approximately 7,113 million cubic metres of water flow annually into Saskatchewan.

The Battle River drains 28 per cent of the North Saskatchewan River Basin, yet it contributes four per cent (265 million cubic metres) of the mean annual water volume compared to that of the North Saskatchewan River. The headwaters of the Battle River originate within the southern extent of the Boreal Forest Natural Region at Battle Lake and the river drains a predominantly flat topography of Aspen Parkland and Grassland Natural Regions. Approximately 65 per cent of the flow volume in the Battle River occurs during the spring and early summer months (March to June), with melting of the local winter snowpack and spring storms. Summer precipitation, including heavy rainfall events, account for approximately 35 per cent of the annual flow volume. The Battle River does not have a significant base flow, making it vulnerable to drought. It is highly susceptible to annual climate cycles and seasonal low flow conditions.

It is important to continue to use collaborative approaches and to maintain and build partnerships in the region. A key partnership under the Water for Life strategy is with Watershed Planning and Advisory Councils (WPACs). The two WPACs in the region, the North Saskatchewan Watershed Alliance

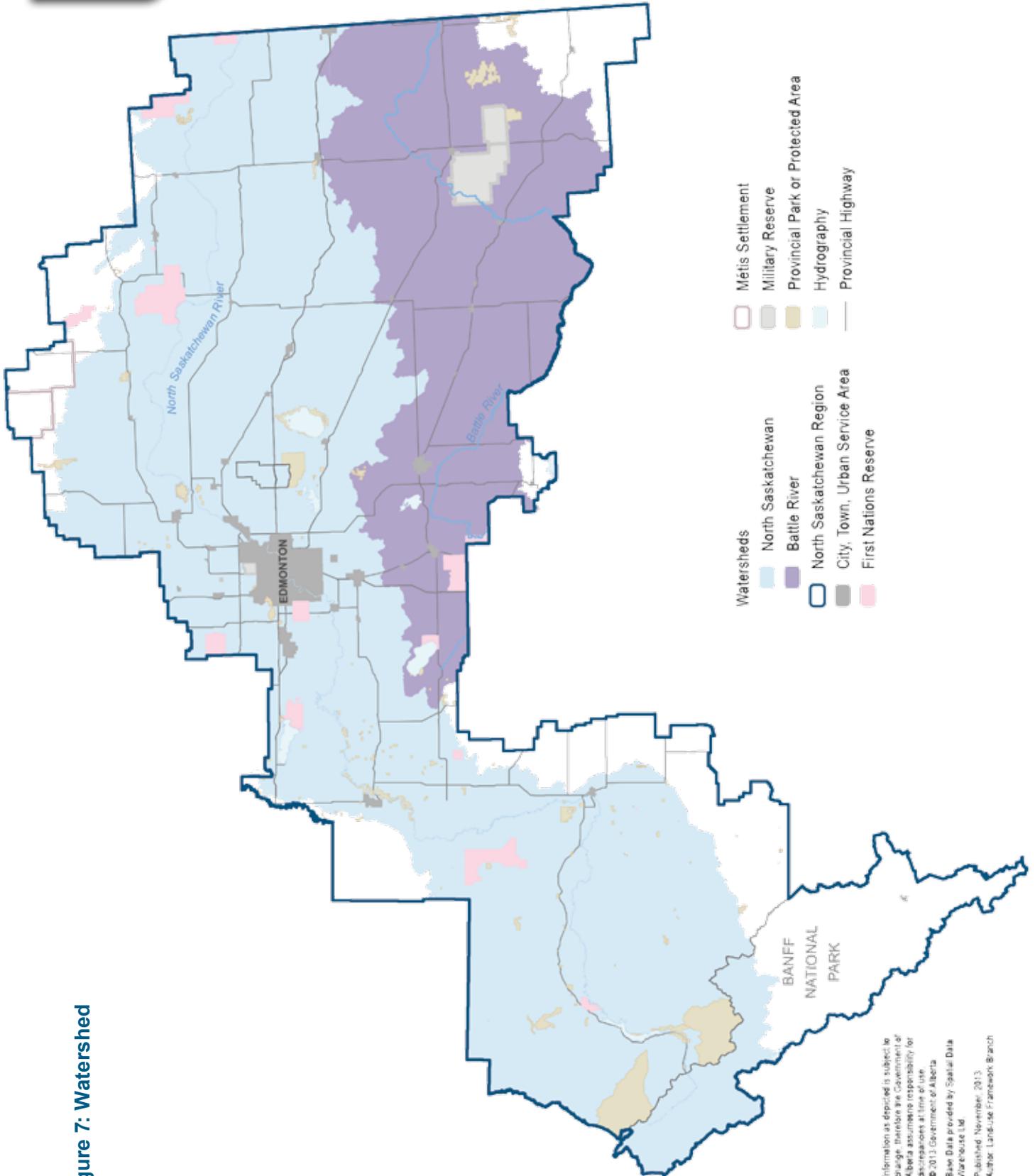


Figure 7: Watershed

Information as depicted is subject to change, therefore the Government of Alberta assumes responsibility for discrepancies at time of use.
 © 2013 Government of Alberta
 Base Data provided by Spatial Data Warehouse Ltd.
 Published November 2013
 Author: Landscape Framework Branch



and the Battle River Watershed Alliance, have demonstrated leadership in their contributions to watershed assessment and planning. The WPACs produce non-regulatory documents prepared by multi-stakeholder groups. The watershed management plans set outcomes for environmental, economic and social needs in the region and recommendations for how to achieve them. They have also undertaken development of technical guidelines, policies and state of the watershed reports. This work includes the Integrated Watershed Management Plan for the North Saskatchewan River and Proposed Site-Specific Water Quality Objectives for the Mainstem of the North Saskatchewan River. A watershed management plan for the Battle River is currently under development.

Under Alberta's *Water Act*, the use of most surface and groundwater is regulated through a system of water licences issued by the provincial government. Applications can be made for permission to use water for drinking, irrigation, industrial processes or other uses. The terms of the licences may include conditions of use, such as maximum volume, rate of diversion and timing of withdrawals.

It is recognized that water supply and demand are key factors in the development and growth for the region. With increasing pressures and demands, we must continue to advance an integrated view across water supply, water quality, and aquatic ecosystems in the region. The province's existing system for management of water and watersheds will continue to be the foundation we work from, with enhancements made to support integration.

The eastern slopes of the Rocky Mountains contain the headwaters for the North Saskatchewan River and provide the majority of the region's water supplies. The Eastern Slopes Policy provides direction on watershed management of the North Saskatchewan River to maintain natural flows and to manage headwaters to maintain recharge capabilities.

At the downstream end of the region, the Prairie Provinces Water Board's Master Agreement on Apportionment establishes the terms and conditions regarding water-sharing with Saskatchewan on both the North Saskatchewan and Battle rivers. Water quality objectives have been set to facilitate interprovincial management that encourages protection and restoration of the aquatic environment.

Continued population growth and economic development will depend on using the existing water allocations as efficiently and effectively as possible. Alberta's Water for Life strategy has established a provincial target of achieving 30 per cent improvement in overall conservation efficiency and productivity by 2015, from 2005 levels.



Water quantity in the North Saskatchewan River is not seen as a serious limiting factor for development and growth in the region. Water quality however varies substantially between seasons within a year and between years. Generally, many water quality variables in the North Saskatchewan River have improved in recent decades due to improved practices and especially from wastewater treatment. This is further helped by management of seasonal flows in the North Saskatchewan River by means of the two upstream reservoirs, which help maintain generally well oxygenated water over the low-flow winter season. Despite these improvements, nutrient enrichment remains an important issue with contributions from treated sewage, industry, storm and combined sewers, and urban tributaries.

The Water Management Framework for the Industrial Heartland and Capital Region was completed in 2007 and addresses the cumulative effects of development on both water quality and quantity. Five years of stakeholder engagement and input have shaped the collaborative approach to achieve cumulative effects management by developing a maximum allowable load approach, enhancing monitoring, and enabling ongoing scientific evaluations. This framework is currently being implemented and will be incorporated into the regional plan.

Water quality data is collected at the provincial Long-term River Network monitoring stations located throughout the province. These monitoring stations have been used for regular monthly sampling for a wide range of water quality parameters over the past 30 to 50 years. This initiative has resulted in an extensive database useful for examining changes in the health of a water body over time.

The Battle River is fairly typical of other prairie-fed river systems that see increased demands for dealing with man-made wastes by way of dilution and flushing. For example, pH levels and fecal coliform counts sometimes exceed guidelines. The end result is an impaired ability for the river to support a diversity of aquatic life generally associated with a healthy aquatic ecosystem.

A draft Approved Water Management Plan for the Battle River Basin was created in 2011 to provide direction for the management of surface water in the Battle River Basin. Key aspects of the draft plan include an allocation limit which would close the basin to new licences once the limit is reached, enabling transfers from existing licences, establishing a water conservation objective, and enabling holdbacks from water transfers.

The Edmonton-Calgary Corridor is the most populated area of Alberta and contains more water wells per square kilometre than any other part of the province. Groundwater quantity is a significant concern for residential and small-scale users in this area. Additionally, the use of hydraulic fracturing for



the development of unconventional oil and gas reserves and associated use of groundwater is projected to increase in the North Saskatchewan planning region, particularly in the western portion. Significant public concern exists regarding the potential impact of this activity on groundwater quality. Several policies are being advanced by the Government of Alberta to guide these activities.

Wetlands, riparian lands and lakes play an integral role in supporting Alberta's environment, economy and social well-being. They also are a significant component of the region's aquatic ecosystems. The value and importance of wetlands, riparian lands, and lakes to watershed health are increasingly being recognized with growing efforts to improve water quality, provide water storage and flood reduction, enhance groundwater recharge areas, and provide habitat for a range of plants and animals.

The Government of Alberta has approved the Alberta Wetland Policy which will replace the Wetland Management in the Settled Areas of the Province: An interim policy (1993) as it is implemented. This policy applies to both the White and Green Areas of the province. The Alberta Wetland Policy will consider the regional context, including past, present and future pressures in supporting the execution of informed wetland management decisions.

Riparian lands are as important as they are highly productive, rich, and resilient parts of the landscape. Recognizing the importance of riparian lands, the Government of Alberta led the development of the Stepping Back from the Water handbook that contains recommendations for development setbacks and riparian buffer strips. The government also supports the work of partner organizations such as Cows and Fish (the Alberta Riparian Habitat Management Society) and WPACs in improving riparian management practices.

In response to increasing development pressures on lakes in the planning region, the Government of Alberta is leading a provincial healthy lakes policy to balance the environmental, economic and social benefits of Alberta's lakes, while recognizing the natural and regional variation of lakes across the province. This policy will provide clear direction to help ensure the health and benefits of Alberta's lakes are maintained or improved.

Biodiversity and Ecosystem Function

Population growth and economic development in the North Saskatchewan Region have significantly altered the region's biodiversity over time. Much of the region's native vegetation has been altered with conversion of native land cover to other land uses.

Oil, gas, mining and forestry activity have been occurring in the more westerly forested areas of the region, resulting in landscape fragmentation, habitat



loss and impacts to biodiversity. Suppressing forest fires has increased the average age of the forest, which also has had an effect on biodiversity. In the forested portion of the region, the rapid proliferation of access in the form of roads and trails to support resource development is possibly the single largest threat to biodiversity, since it has led to tremendous growth in mechanized public use on the landscape. This has contributed to significant declines in habitat security and connectivity for many large and sensitive wildlife species.

In the eastern part of the region, human activity and development have transformed much of the parkland landscape by clearing and conversion to cropland. This has decreased the native biodiversity and the ecosystem services they provide. Measuring these changes and planning for desired levels of biodiversity in the future are challenges that land-use planning will need to address. The greatest threats to terrestrial organisms are disturbances that remove, damage, fragment or alter (beyond the range of natural variability) their natural habitat.

Aquatic biodiversity has been impacted as well. The North Saskatchewan River basin supports 32 of the 51 fish species native to Alberta, plus seven known introduced fish species (e.g., rainbow trout).

The water quality in the North Saskatchewan River declines as it moves downstream due to inputs from anthropogenic, point and nonpoint sources. Nutrients (notably phosphorous), bacteria and pesticides typically increase, while dissolved oxygen levels decrease downstream of urban centres. These are all changes that impact biodiversity.

In addition, wildfire, wind, flooding, grazing, insect outbreaks and diseases all have significant effects on vegetation composition and succession, creating variability in habitats and landscapes. Many forest pest species, such as the mountain pine beetle, are expanding into more northerly regions. This suggests that pests are adapting to new environments. Combined with change in climate, this has led to an increasing number of population outbreaks.²

The North Saskatchewan Region is home to a number of the province's species at risk. They inhabit many parts of the landscape, but are particularly concentrated in the remaining native habitats. Species at risk include diverse mammals, birds, amphibians, reptiles, fish, plants and invertebrates. There are many reasons that species are at risk including habitat loss, disturbance and landscape fragmentation, direct mortality, environmental contaminants, introduction of exotic/invasive species, and the cumulative effects of all these factors.

² www.esrd.alberta.ca
Search: Forest Pests



Alberta is a signatory to the Canadian Biodiversity Strategy (1995), a commitment under the 1992 United Nations Convention on Biological Diversity. Alberta, along with other Canadian jurisdictions, agreed to use the Canadian Biodiversity Strategy as a guide for actions to conserve biodiversity and to use biological resources in a sustainable manner.

The draft Alberta's Biodiversity Policy is designed to provide strategic direction and support for the inclusion and achievement of biodiversity outcomes within environmental and resource plans and programs.

People-Friendly Communities with Ample Recreational and Cultural Opportunities

Supporting Growing Communities through Enhanced Planning and Collaboration

Community sustainability is essential to capitalize on economic growth while ensuring a high quality of life for Albertans. A central pillar of community sustainability is labour force growth. The growth of Alberta's labour force has slowed due to an aging population and a mixed record of attracting interprovincial migrants and immigrants. Slow labour force growth is currently a limit on the region and the province's economic performance.

In the future, the region's urban communities will come under pressure to meet demands for more residential and commercial developments. The increased demand for residential developments will have implications for land-use planning and the environment. As these communities continue to grow, so too will demand for urban infrastructure, transportation corridors, schools, parks and tourism and recreation opportunities, which will fuel competing ideas on how best to use the region's finite land base. For rural communities, unless the necessary capacity, quality of life and infrastructure are in place, it is unlikely they will be able to attract and retain new businesses and industries.

Aboriginal Peoples are Included in Land-use Planning

There are 20 Aboriginal reserves in the region which are associated with more than 18 different First Nation groups including Alexander, Beaver Lake, Enoch, Ermineskin, Frog Lake, Heart Lake, Louis Bull, Montana, O'Chiese, Onion Lake, Paul, Saddle Lake, Samson Cree, the Stoney Nakoda, Sunchild, and Whitefish (Goodfish) Lake. These First Nations are all adherents of Treaty 6, 7 or 8. The area also contains two Métis Settlements (Buffalo Lake and Kikino) and residents who are members of the Métis Nation of Alberta, an organization many of whose members self-identify as Métis.

The First Nations groups in the region are descendants of the Plains Cree, Stoney (Nakota and Nakoda), Blackfoot, and Saulteaux-Ojibway peoples,



some of whom have lived in this part of what is now Alberta for centuries. Each First Nation has a traditional geographic area where they continue to exercise treaty rights while pursuing traditional activities. In addition to those listed here, there are other First Nations and Métis groups who may also exercise traditional activities in this region.

Aboriginal peoples have long had a close relationship with the land, and given their intimate understanding of the local environment, wildlife and aquatic ecosystems, they are able to contribute to land-use planning in a unique way through traditional knowledge. Information on ecosystems and the impacts of human developments on plants and animals that use these habitats can be obtained through the use of traditional knowledge and contemporary science; both of which are valuable to the regional land-use planning process.

Access to Crown land, abundant with plants, fish and wildlife, is important for the continued practice of the Aboriginal way of life. Aboriginal people pass along their language, history, culture and traditions to the next generation through interactions with the land. It is important that Aboriginals are included in the land-use planning process so that potential impacts to their constitutionally protected rights can be considered when land-use decisions are being made.

Enhancing Recreational and Cultural Opportunities and Experiences

Outdoor recreation is an important regional land use that provides significant economic, social, and environmental benefits to regional communities, individuals and visitors. From improving personal health and well-being and diversifying local economies, to improving the investment attractiveness of communities to new businesses, recreation is an essential service and fundamental to maintaining and enhancing the quality of life in the North Saskatchewan Region.

An outdoor recreation opportunity is the ability for an individual to participate in a desired recreation activity within a preferred recreation setting. In many cases, outdoor recreation in the region is a “natural resource based industry.” The availability and quality of many outdoor recreation opportunities in the region depend on the combination of natural or human-made features and appealing settings. As land use in the region has intensified, the need to purposefully plan for meeting outdoor regional recreation needs and maintaining recreation features and settings has become clear.

Recreation settings are the backdrop for outdoor recreation activities in the region, some people seek remote backcountry settings free from encounters with others, some look for front-country settings that have many people and all the conveniences of home, while others prefer something in the middle. The North Saskatchewan Region provides a full diversity of outdoor



recreation settings. However, these settings are not equally distributed throughout the region and the region is largely dominated by more front-country settings.

Most of the region's backcountry areas are located in the eastern slopes, west of Rocky Mountain House, and away from the region's major population centres. Areas around Edmonton provide relatively homogenous settings dominated by front-country opportunities. However, some lands around Beaver Hills (including Miquelon Lake Provincial Park, Cooking Lake-Blackfoot Provincial Recreation Area, Elk Island National Park), the Ribstone Creek Heritage Rangeland Natural Area, Frog Lake and the Whitefish uplands provide a greater diversity in outdoor recreation settings to larger population centres and are within a reasonable day-use trip distance. Maintaining areas that provide diverse recreation settings near highly populated areas is important to meeting growing outdoor recreation needs and to address changing trends toward more day-use opportunities.

Outdoor Recreational Settings

Backcountry

Generally large un-modified natural landscapes with minimal to no recreation or tourism infrastructure and limited evidence and interaction with other visitors. Visitors experience solitude, closeness to nature, risk and personal challenge.

Mid-country

Generally landscapes that are modified to a small degree, accessible by motorized vehicles, and supportive of both motorized and non-motorized recreation and tourism activities. Evidence and interaction with other visitors and management controls exists, but they are limited. Visitors have a lessened sense of isolation and a moderate degree of risk and personal challenge.

Front-country

Mostly natural appearing landscapes with obvious human modifications that harmonize with the surroundings. Recreation and tourism infrastructure and management controls are obvious. The area is easily accessible and evidence and interaction with other visitors is common. Motorized and non-motorized activities occur. Opportunities to experience solitude are low.

Developed

Substantially modified landscape with obvious development and resource use. Recreation and tourism infrastructure and management controls are common and desired. Evidence and interaction with other visitors is frequent and desired. The visitor experiences some modern conveniences and a feeling of security from personal risk.

Outdoor recreation opportunities are provided on public lands, on municipal government lands, in provincial and national parks, as well as on some private land. The public, not-for profit and private sectors each play an important role in planning and delivering the region's recreation system. For example, many not-for-profit organizations in the region work with land managers to develop and operate all-season recreational infrastructure



such as trails and related facilities. Public access to provincial waterways in the region is generally limited to access points provided by the relevant municipality.

Identifying new recreation and park areas to meet growing demand should consist of a combination of physical, biological, cultural, constructed and/or geographical factors that can provide recreation and tourism opportunities. These areas are intended to provide quality recreational experiences, attract tourism investments and provide security of land tenure for private and not-for-profit investments. Clustering use, improving safety for diverse users, reducing environmental damage and connecting to the surrounding trail systems are important to consider. Land within the provincial parks system and public lands provide diverse, safe, sustainable and enjoyable outdoor recreation opportunities that contribute to healthy lifestyles and a diversity of recreational opportunities.

Recreation on Public Land

A significant number of visitors recreate and camp outside municipal, provincial and national parks on public land in the region. Open spaces, including well sites, pipelines and industrial roads frequently serve as temporary campsites and ad hoc trails on summer weekends for thousands of those seeking to random camp and to recreate with their off-highway vehicles. Public lands are also an important resource for hiking, wildlife viewing, mountain biking, skiing and snowmobiling. Some outdoor recreation features on public lands in the region, like the ice climbing along the David Thompson Corridor, facilitate world-class recreation opportunities. Under the *Public Lands Act*, random camping is legal for a limited period of time. Users are often attracted by the opportunity to camp in large groups, and believe there are fewer restrictions, lower costs, and greater access to ad hoc trails for off-highway vehicle use.

The Bighorn Backcountry covers nearly 5,000 square kilometres. It is subdivided into six Public Land Use Zones (PLUZs) regulating public access east of the Banff and Jasper national parks along Highway 734 (Forestry Trunk Road). Motorized use in these PLUZs is restricted to designated trails.

While public lands are typically enjoyed responsibly by recreating visitors, concerns related to safety, environmental impact and conflict with other land uses and users are common. Holiday long weekends are particularly busy on some areas of public land. Additionally, some outdoor recreational activities occur on areas previously set aside for habitat conservation or commercial uses such as energy, mining and forestry. The recreation and other competing land uses are often incompatible and create conflict between user groups and compromised ecological values.



Recreation and industry must co-exist on the landscape outside of the designated recreation and parks areas. Industrial activity will continue (i.e. petroleum and natural gas; coal, metallic and industrial minerals; and forestry) and new industrial tenures will continue to be granted, while impacts to identified recreation and tourism features and scenic values will need to be minimized when it is possible and practical.

Trails

Trails offer a wide range of benefits to individuals, communities and the province. Trails enable residents to increase physical activity, improve health and wellness, appreciate areas of natural and human history and diversify and strengthen local economies.

The North Saskatchewan Region contains leading examples of coordinated trail planning and development. The Iron Horse Trail (part of the Trans-Canada Trail and partially located in the region) is an extensive trail system that links 15 communities between Cold Lake, Heinzburg and Waskateneau. Other prominent trails in the region include the trail between Rocky Mountain House and Crimson Lake Provincial Park, the Legacy Trail that links Canmore (South Saskatchewan Region) and Banff, the trail between Vermilion and Vermilion Provincial Park, and the Trans-Canada Trail link between Edmonton, Strathcona County and Fort Saskatchewan. Despite the significant effort of trail planners and developers, the region's supply and diversity of managed and designated trails has not yet caught up with demands and population growth. This is particularly true for motorized recreation in both the White and Green Areas of this region.

Many municipalities or communities in the region are looking to enhance trail systems. While local governments are naturally focused on providing opportunities for their own residents, more and more municipalities are beginning to realize the importance and benefits of creating trails to provide alternative transportation options, and pathway systems that link communities to each other and other regional destinations.

Historic Resources

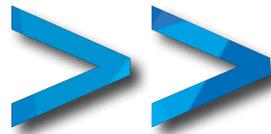
Historic resources represent the natural and cultural history of a landscape that is valued for its ability to link Alberta's past with its present. Careful management and protection of these fragile and non-renewable resources in land-use development planning ensures they retain their conservation value for future generations. Researching these sites and interpreting their history enhances the quality of life for the region's residents. The restoration, preservation and protection of tangible objects and intangible elements of our culture and identity are paramount to the sustainability of Alberta's strong and vibrant cultural heritage.

Appendix E: Government of Alberta's Land-use Classification System and Management Intents

Primary Management Intent	Potential Tools	New Petroleum and Natural Gas	New Metallic and Industrial Minerals, Coal, and Other Crown	Surface Materials	Commercial Forestry	Grazing	Off-Highway Vehicle (on designated trails)	Hunting and Trapping	Fishing	Linear Infrastructure	Multi-use Corridors	
White Area - Settled	<ul style="list-style-type: none"> • Settlement • Agriculture • Compatible Resource Development 	√	√	√	√	√	√	√	√	√	√	
		Public Land-use Zones	√	√	√	√	√ For grazing lease permission of lease holder is required for recreational access. Access will be managed pursuant to the Public Land Administration Regulation and its schedules.	√	√	√	√	
Green Area - Public Lands	<ul style="list-style-type: none"> • Biodiversity • Watershed protection • Recreation • Compatible Resource Development 	√	√	√	√	√	√	√	√	√	√	
		Public Land-use Zones	√	√	√	√	√ For grazing lease permission of lease holder is required for recreational access. Access will be managed pursuant to the Public Land Administration Regulation and its schedules.	√	√	√	√	
Conservation Areas	<ul style="list-style-type: none"> • Biodiversity • Watershed protection • Low impact recreation • Agriculture-grazing 	X	X	X	X	X	X	X	X	X	X	
		Wilderness Area	X	X	X	X	X	X	X	X	X	X
		Ecological Reserve	X	X	X	X	X	X	X	X	X	X
		Wildland Provincial Parks	X	X	X	X	X	√	√	√	X	√
		Natural Area	X	X	X	X	X	√	√	√	X	√
		Heritage Rangelands	X	X	X	X	X	X - (grazing leaseholder use permitted)	√ (access is by leaseholder permission)	√ (access is by leaseholder permission)	X	√
Recreation and Parks Areas	<ul style="list-style-type: none"> • Recreation and tourism 	X	X	X	√	√	√	√	√	X	√	
		Public Land-Use Zones for Conservation	X	X	X	X	√	√	√	√	X	√
		Provincial Parks	X	X	X	X	X	√	X	√	X	√
		Provincial Recreation Areas	X	X	X	X	X	√	X	√	X	√
Public Land Recreation Area	√	√	√	√	√	√	√	√	√	√	√	



Appendix F



Glossary

Aboriginal peoples of Alberta

Includes those First Nations and Metis communities of Alberta that hold constitutionally protected rights within the meaning of section 35 of the *Constitution Act*, 1982.

Airshed

A geographic area that, because of emissions, topography and meteorology typically experiences similar air quality.

Aquatic environment

The components of the Earth related to, living in or located in or on water or the beds or shores of a water body, including but not limited to all organic and inorganic matter, and living organisms and their habitat, including fish habitat, and their interacting natural systems.

Beneficial Management Practices (BMPs)

Management practices or techniques recognized to be the most effective and practical means for meeting goals, while minimizing adverse environmental and other effects.

Bioenergy

Any renewable energy or fuel derived from biological sources. There are several potential feedstocks for bioenergy in Alberta including agricultural products (such as corn or canola), forestry waste and livestock waste.

Conversion of Agricultural Land

Refers to land-use change from an agricultural use to a non-agricultural use, such as urban development. Conversion may be temporary, even if longterm (e.g., upstream oil and gas development) or permanent (e.g., country residential, urban and/or industrial development).



Crown land

Crown land includes all provincial and federal government lands. Provincial parks (administered under the *Provincial Parks Act*) and surface and subsurface of public land (administered under the *Public Lands Act* and the *Mines and Minerals Act*) are examples of provincial Crown land.

Cumulative effects

The combined effects of past, present and reasonably foreseeable land-use activities, over time, on the environment.

Disturbance

A discrete force that causes significant change in structure and/or composition through natural events such as fire, flood, wind or earthquake; mortality caused by insect or disease outbreaks, or by human-caused events.

Ecosystems

The interaction between organisms, including humans and their environment. Ecosystem health/integrity refers to the adequate structure and functioning of an ecosystem, as described by scientific information.

Ecosystem function

Processes that are necessary for the self-maintenance of an ecosystem such as primary production, nutrient cycling, decomposition, etc. The term is used primarily as a distinction from values.

Forest Management Agreement

A large, area-based agreement between the Province of Alberta and a company. It gives the company the right to establish, grow, harvest and remove timber from a particular area of land.

Fragmentation

The process of reducing the size and connectivity of an eco-region or habitat. The resulting reduction in the total habitat area, the isolation of patches of habitat from each other and the increase in edge effects can affect the ability of organisms to maintain healthy populations and to survive.



Fragmentation of Agricultural Land

Occurs when once contiguous agricultural areas become divided into separate fragments isolated from each other by other, non-agricultural land uses. Fragmentation can also occur within a given agricultural parcel of land by access roads, oil and gas developments and/or linear infrastructure.

Green Area

The unsettled portion of the province, primarily forest lands not available for agricultural development other than grazing.

Habitat

The sum of the environmental conditions in which an organism lives, or the physical and biological environment that provides essential food, water and shelter for an organism.

Headwaters

The source and upper tributaries of a stream or river.

Historic resources

Any works of nature or of humans that are primarily of value for their palaeontological, archaeological, prehistoric, historic, cultural, natural, scientific or esthetic interest.

Iconic tourism destination

A provincially unique and awe-inspiring area that has the potential to attract visitors and gain national and international recognition. These destinations offer a variety of quality, unique and appealing experiences that contain a wide range of tourism products in the form of accommodations, attractions, events, activities and amenities.

Management framework

An approach intended to provide clarity and transparency around management to achieve desired (ambient) environmental conditions and broaden the focus of accountability to all actors. They represent a cumulative effects management approach to meet desired environmental conditions and enhance our current environmental management system by encouraging collaboration and integration.



Multi-use corridors

A dedicated land area identified by Cabinet for co-location of linear infrastructure that supports critical economic linkages and is in the public interest. May include one or more of the following: public highways and roads, electric transmissions, high-speed rail and rail, pipelines, water management, telecommunication towers and underground fibre-optic cables and recreation trails.

Non-point source

Pollution from diffuse points with no point of origin.

Point source

Pollution that originates from one, easily identifiable cause or location.

Private lands

Lands privately owned by individuals, groups, companies or organizations that make decisions about how it is used or managed within existing legislation.

Public lands

Land owned by the provincial government, which makes decisions about how it is used and managed, including for agriculture, forestry, resource development, habitat conservation and protection of watersheds and biodiversity.

Reclamation

The process of reconvertng disturbed land to its former use or other productive use (equivalent land capacity).

Recreation

All those things that a person or group chooses to do in order to make their leisure time more interesting, more enjoyable and more personally satisfying so as to enhance social functioning, assist in individual and community development and improve quality of life.

Recreation feature

A biophysical, amenity, cultural or historic feature which supports or has the potential to support one or more recreation/tourism activities.



Recreation opportunity

The availability for a person to engage in a preferred activity within a preferred setting to obtain a desired experience.

Riparian areas

The areas where water and land meet and interact. They usually are distinctly different from surrounding lands because of unique soil and vegetation characteristics that are influenced by the presence of water above the ground and below the surface.

Shared stewardship

An ethic whereby citizens, industry, communities and governments work together to responsibly care for and manage natural resources and the environment.

Subsurface

Subsurface is used to describe the resources (e.g., oil and gas, coal, metallic and industrial minerals such as limestone) identified in the *Mines and Minerals Act*. It also refers to titles, rights and activities to access those resources below the ground. Subsurface resources do not include sand and gravel as these are considered surface materials.

Surface

Resources, activities and development that occur on the land (e.g., sand, gravel, topsoil, roads and buildings). In land ownership, surface title includes the land and the space above and any sand, gravel, peat, clay or other substances that can be excavated through surface activities. Land titles usually carry a mineral reservation, which excludes subsurface resources; mineral titles for those resources are usually granted separately.

Tourism

Marketing of the enjoyable and other features of a travel destination and provision of facilities and services for the pleasure of travelers (tourists).

Watershed

All lands enclosed by a continuous hydrologic-surface drainage divide and lying upslope from a specified point on a stream.

White Area

The settled portion of the province.

