BYLAW NO. 99/058

BEING A BYLAW OF THE REGIONAL MUNICIPALITY OF WOOD BUFFALO TO ADOPT THE HIGHWAY 69/CLEARWATER RIVER VALLEY AREA STRUCTURE PLAN.

WHEREAS Section 633 of the Municipal Government S.A., 1994, Chapter M-26.1 and amendments thereto authorizes Council to enact a Bylaw adopting an Area Structure Plan.

NOW THEREFORE, the Municipal Council of the Regional Municipality of Wood Buffalo, in the Province of Alberta, in open meeting hereby enacts as follows:

1. That a plan known as the **Highway 69/Clearwater River Valley Area Structure Plan** is hereby adopted. This Plan shall comprise the attached Schedule "A" (Highway 69/Clearwater River Valley Area Structure Plan).

2. That this Bylaw shall be passed and come into effect when it receives third and final reading and has been signed by the Mayor and Regional Clerk.

READ A FIRST TIME THIS 14TH DAY OF SEPTEMBER, 1999.

READ A SECOND TIME THIS 25TH DAY OF JANUARY, 2000, AS AMENDED.

READ A THIRD AND FINAL TIME THIS 25TH DAY OF JANUARY, 2000, AS AMENDED.

CERTIFIED A TRUE COPY

Mayor — Date: Jan 30/2000

Regional Clerk

Regional Clerk — Date: January 28/2000

REGIONAL MUNICIPALITY OF WOOD BUFFALO

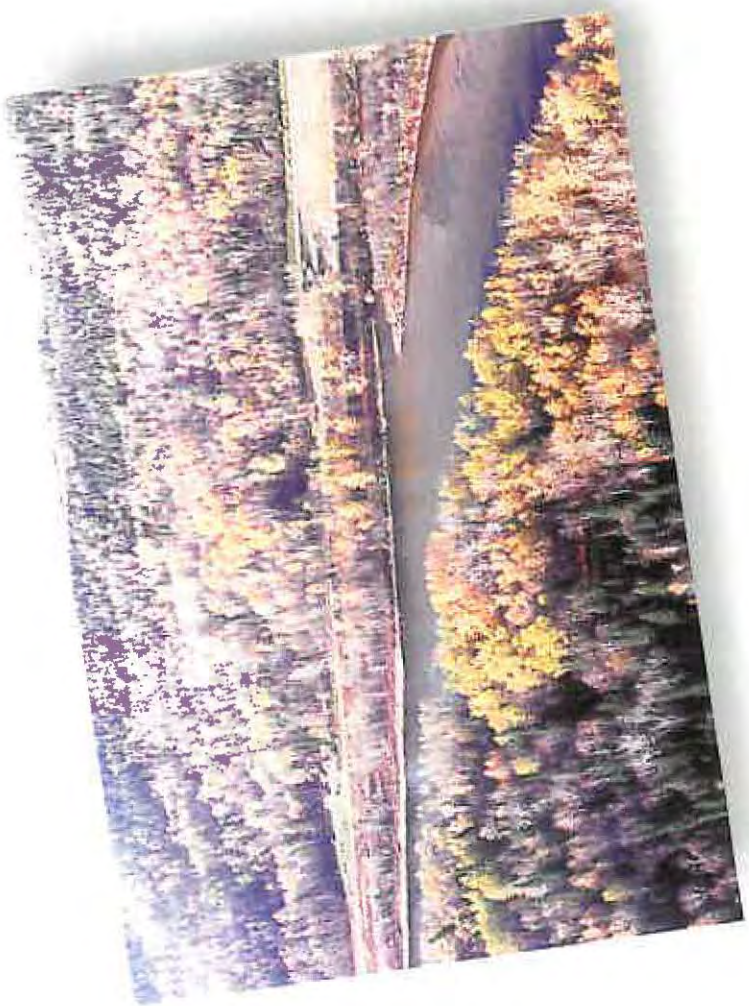
Fort McMurray • Anzac • Conklin • Fort Chipewyan • Fort Fitzgerald • Fort MacKay
Gregoire Lake Estates • Mariana Lake • Janvier • Saprae Creek Estates

HIGHWAY 69 / CLEARWATER RIVER VALLEY

AREA STRUCTURE PLAN

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Fort McMurray • Anzac • Conklin • Fort Chipewyan • Fort Fitzgerald • Fort MacKay
Gregoire Lake Estates • Mariana Lake • Janvier • Saprae Creek Estates



Highway 69 / Clearwater River Valley Area Structure Plan

Prepared for the

Planning and Development Department
Regional Municipality of Wood Buffalo

by

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January 2000

Acknowledgments

HIGHWAY 69 / CLEARWATER RIVER VALLEY AREA STRUCTURE PLAN

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Councillor Jim Carbery
Councillor John H. Chadi
Councillor Sonny Flett
Councillor Sheldon Germain
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1.0 INTRODUCTION

1.1 Purpose

This document is an Area Structure Plan (ASP) for an area immediately south-east of the Fort McMurray Urban Service Area, as shown on *Map 1 – ASP Area.* The area is within the Regional Municipality of Wood Buffalo (RMWB) Rural Service Area. The Fort McMurray Airport, a transportation facility of regional importance for commercial air traffic, fire-fighting, and pilot training, lies in the centre of the area. Changing land use patterns and applications for development in the area have caused the Regional Municipality of Wood Buffalo to undertake preparation of an ASP for the area to provide for the orderly, efficient, and sustainable development of the area while respecting the integrity of the natural environment.

Concurrent with the preparation of the ASP, Terracon Geotechnique Ltd. was retained to prepare a geotechnical study to determine in a general way physical limitations to development within the ASP area. The results of this study have been incorporated into the development concept and policies of this ASP. **The geotechnical study conducted by Terracon Geotechnique Ltd. provides a general assessment of the Area Structure Plan area. Any application for development should be considered on a site-specific basis which should include geological and geotechnical evaluations where appropriate.**

Specific objectives of the ASP include the following:

- Determine future land uses for the area.
- Promote a land use pattern that does not inhibit present and future operations of the Fort McMurray Airport.
- Determine potential alternate uses for the Keyano College Heavy Equipment Campus.
- Determine environmental / geotechnical constraints to development.
- Determine future access / servicing requirements.
- Assess the impact of development on parks, schools, and other community services;
- Provide a basis for negotiations for the transfer of Crown Lands to the Regional Municipality of Wood Buffalo for development and future urban expansion; and
- Describe the sequence and implementation of development.

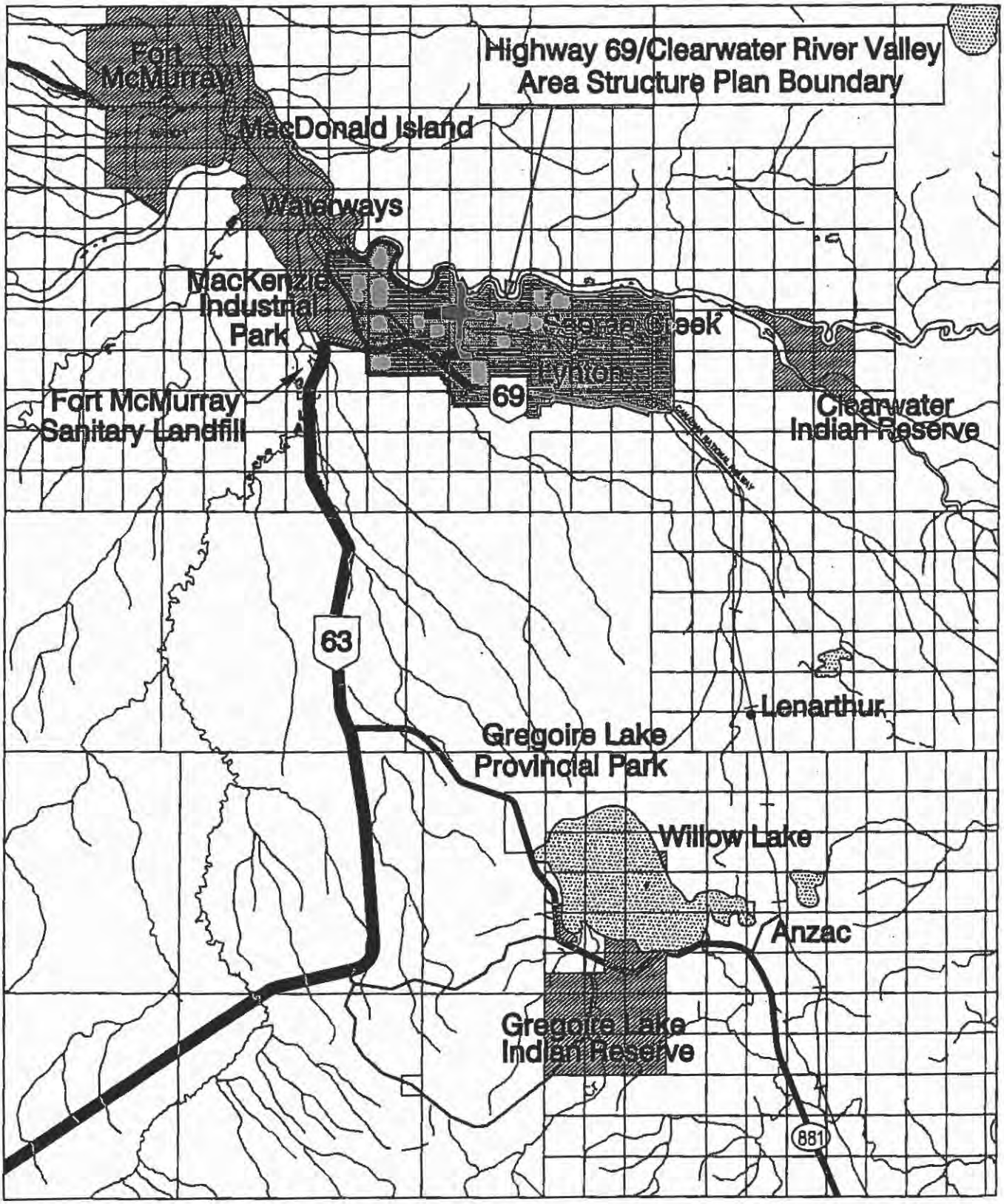
1.2 Plan Area

As shown on *Map 1 – ASP Area*, the Plan area is bounded on the north by the Clearwater River; on the south just south of Highway 69; on the west by Saline Creek; and on the east by a line a half mile beyond the eastern edge of Saprae Creek Estates. The area is approximately 58 square km (5808 ha) in size.

1.3 Land Holdings

The majority of the land within the plan area is Crown land. With the exception of lots in Saprae Creek Estates, privately and municipally owned lands include the following:

Titled Owner	Legal Description	Area (ha)
474314 Alberta Ltd.	Plan 9824389, Lot 5	2.10
724849 Alberta Ltd	4-8-88-22-NW	37.846
744310 Alberta Ltd.	4-9-88-26-SW	24.62
Bishop, Manfred P. & Brenda C.	4-8-88-31-NW	4.08
Blatz, Alan & Cross, Jack	Plan 9520186, Lot 4	31.06
Blatz, Alan & Weber, Mary A.	4-8-88-33-SE	55.72
Casselman, Daniel C. & Melody J.	Plan 9823452, Lot 1	2.05
Cross, Roberta	4-8-88-33-NW	5.02
Dixon, Joe & Yvonne	Plan 9520186, Lot 2	8.97
Gauthier, David G. & Lila M.	Plan 9824389, Lot 8	4.50
Graves, Charles H.	Plan 9825899, Lot 1	1.90
Graves, Charles H. & Meridel J.	4-8-88-33-SW	4.05
Graves, Charles H. & Meridel J.	4-8-88-32-NE	12.54
Graves, Charles H. & Meridel J.	Plan 9823452, Lot 2	2.05
Graves, Christina & Jason C.	Plan 9823452, Lot 5	7.39
Graves, Kevin L. & Michelle	Plan 9823452, Lot 4	7.19
Graves, Sharlene M.	Plan 9823452, Lot 3	6.32
Graves, Charles H. & Meridel J.	4-8-88-32-SE	28.89
Keyano College	Plan 8421771, Lot 2	247.00
Mack, Bervin	4-8-88-32-NW	17.58
Mack, Bervin	4-8-89-05-SW	
Mack, Bervin	Plan 1553CL	4.42
Mack, Bervin, Levesque, Gisele L.	4-8-88-31-NE	47.81
Municipality of Wood Buffalo	4345CL	2.02
Municipality of Wood Buffalo	4-8-88-00	51.45
Municipality of Wood Buffalo	4-8-88-32-S	26.00
Municipality of Wood Buffalo	Plan 481RS	512.76
Mutton, James A.	4-9-89-02-SE	37.01
Mutton, James A.; Bergeron, Jack; Billings, Bradley	4-8-88-33-SW	



THE REGIONAL MUNICIPALITY OF WOOD BUFFALO

Map 1
ASP Area
BYLAW 99/058

ARMIN A. PREIKSAITIS
& ASSOCIATES LTD

Titled Owner	Legal Description	Area (ha)
Osteneck, Harry & McGhee, Stella F.	Plan 9520185, Lot 1	48.35
Patterson, Kelly A. & Leo J.	Plan 9824389, Lot 7	2.15
Perras Brothers Holdings	Plan 8522028, Lot B	5.46
Jean, Blair	Plan 9824389, Lot 6	2.10
Sadowski, John & Simone	Plan 9920950, Lot 1	15.07
Hueser, Charles & Margaret; Lyle & Nancy	Plan 9920950, Lot 2	8.51
Hueser, Charles & Margaret; Lyle & Nancy	Plan 9920950, Lot 3	12.97
Dixon, Joseph & Yvonne	Plan 9920950, Lot 4	16.47
Grey, Robert & Bernice	Plan 9920950, Lot 5	14.89
Grey, Robert & Bernice	Plan 9920950, Lot 6	9.27
Hueser, Lyle & Nancy, Joanne & Calvin	Plan 9923971, Lot 1	0.96
Hueser, Lyle & Nancy, Joanne & Calvin	Plan 9923971, Lot 2	1.04
Gauthier, David & Lila	Plan 9920494, Lot 1	2.47
Fischer, Steven & Karen	Plan 9920494, Lot 2	2.03

Source: Regional Municipality of Wood Buffalo

The remaining lands are Crown lands with some leasehold interests.

2.0 PLANNING PROCESS

2.1 *Enabling Legislation*

The Highway 69 / Clearwater River Valley ASP has been prepared in accordance with the Municipal Government Act (MGA) (Statutes of Alberta, 1994, Chapter M-26.1). The Act enables municipalities to adopt area structure plans to provide a framework for future subdivision and development of an area. Sections 633, 636, 638, and 692 of the Act relate specifically to ASPs. The MGA stipulates the following:

- An ASP must describe the sequence of development, land uses, population density, and location of transportation routes and utilities proposed for the area.
- Property owners, businesses, interested members of the public, and school boards must be given the opportunity to provide input in the planning process.
- An ASP must be adopted by bylaw, which requires a public hearing to be held on the proposed plan.
- An ASP must conform to a municipality's Municipal Development Plan.

The requirements of the Municipal Government Act have been followed in the preparation of the Highway 69 / Clearwater River Valley Area Structure Plan.

2.2 *Planning Process*

The Highway 69 / Clearwater River Valley Area Structure Plan was prepared in four phases over a four month period between April and July 1999: Start-up / Issue Identification (April – May 1999), Public Consultation (May – June 1999), Draft Area Structure Plan (June 1999), and Final Area Structure Plan / Approvals (July – September 1999). Concurrent with preparation of the Area Structure Plan, Terracon Geotechnique Ltd. prepared a slope stability and soil suitability study for the ASP area. This study informed preparation of the ASP; an abbreviated version of Terracon's report is included as Appendix E.

2.3 *Community Consultation*

Community consultation was an important part of the planning process. Media releases, newspaper advertisements, and direct mailings were issued at important points in the process to build awareness of the project and the opportunities for involvement it offered.

Key Person Interviews

Between April and May 1999, the consultants interviewed a number of individuals representing a variety of groups (residents, land owners / lessees, public authorities, etc.) with an interest in the process. These Key Person Interviews provided valuable insight and direction on existing conditions, issues, and opportunities in the ASP area. A summary report of the results of these interviews is found as Appendix A.

Community Consensus Workshop

Approximately 55 people participated in a Community Consensus Workshop held on Wednesday, June 2, 1999 in the MacDonald Island Pavilion. The purpose of the workshop was to involve residents, business people, and other stakeholders in arriving at a consensus for a preferred land use concept and development pattern for the Highway 69 / Clearwater River Valley area. Main points that the participants told the consultants and staff included the following:

- Existing undisturbed areas should be retained in their natural state. Riverbanks and steep hillsides should be protected from erosion.
- No development should be allowed near the Fort McMurray Airport that would restrict existing or future airport operations.
- Residential development should occur in the Draper area in a geotechnically sound manner. Such development should be country residential development on larger lots (2.5 acre minimum).
- Expansion to Saprae Creek Estates should proceed as described in the existing Saprae Creek Estates Area Structure Plan (i.e. to the south and east, but not to the west).
- Keyano College's MacKenzie Campus site and the lands to the north of it would be desirable for residential development at urban densities should they become available for reuse.
- Allowing industrial uses at the former drive-in site and Texaco site, and possibly at other locations on the south side of Highway 69 is acceptable. Many residents opposed further expansion of the Secondary Industrial Park.
- Parks and trail development (including trail signage) are important. Workshop participants supported maintaining the abandoned railway lines along Saprae Creek and east of the terminus of Draper Road for trail purposes. The idea of developing cross-country skiing / hiking trails at the base of the Vista Ridge ski hill also garnered support.
- There is a need for more boat launch facilities along the Clearwater River.
- The Rotary Campground and stocked ponds along Highway 69 are good locations for new camping facilities with full R.V. hook-ups.

- Extending the road from the Secondary Industrial Park across Saprae Creek to connect up to Saprae Creek Estates would give that the residents a second road access and would give emergency vehicles a much more direct route between the airport and Saprae Creek Estates.
- Given the history associated with the Draper area, there should be heritage preservation / interpretation at key sites, including the location of the former train station. This is consistent with the Draft Management Plan for the Clearwater Heritage River.

The Community Consensus Workshop Summary Report is provided as Appendix B.

Open House

The draft Highway 69 / Clearwater River Valley Area Structure Plan was presented at an Open House held on Saturday, June 19, 1999 from 1:00 – 4:00 p.m. in the Vista Ridge Chalet. A Public Open House Summary Report is provided as Appendix C.

Public Information Meeting with Draper Road Residents and Property Owners

As a result of concerns expressed by residents and property owners in the Draper Road area, a public information meeting was held on August 4, 1999 from 7:00 – 9:30 p.m. at the Waterways Community Hall. A summary report of this meeting is included as Appendix D.

3.0 STATUTORY PLANNING AND POLICY CONTEXT

3.1 Land Use Order, Improvement District No. 18 North (1993)

The RMWB has approved a new Land Use Bylaw, therefore the land use in the Rural Service Portion of the ASP which was governed by *Land Use Order for Improvement District No. 18 North* no longer applies. In the Land Use Bylaw, the ASP area is designated primarily as an Urban Expansion District, the intent of which is to reserve lands for future growth and development at urban densities around the Urban Services Area of Fort McMurray. The minimum lot size with this district is 2.0 ha. Saprae Creek Estates is the only portion of the ASP area not designated as Urban Expansion. It is designated Suburban Estate Residential . The minimum lot size here is .08 ha. A narrow piece of land within SE 2-89-9-4 and north of the railroad right of way is designated Country Residential.

3.2 Fort McMurray – Athabasca Oil Sands Sub-Regional Integrated Resource Plan (IRP)

The *Fort McMurray – Athabasca Oil Sands Sub-Regional Integrated Resource Plan* (IRP), approved by Cabinet in 1996, applies to provincial Crown lands (not private or municipal or federal lands) within the Wood Buffalo region. It sets forth Government of Alberta policy for the management of its lands and resources. The following IRP policies relate to the Highway 69 / Clearwater Valley area:

- Lands north of Keyano College's MacKenzie Campus are to be retained to accommodate future growth requirements of the Fort McMurray Urban Service area.
- Country residential development will only be allowed in the ASP area in Saprae Creek Estates. When Saprae Creek Estates (presumably including the expansion areas designated in the Saprae Creek Estates Area Structure Plan) is almost fully developed, additional country residential developments may be considered outside the Fort McMurray Fringe Area.
- Industrial development should be concentrated to facilitate efficient provision of roads and other municipal services.
- Development along highways such as Highway 69 and Airport Road should maintain or enhance safe highway access and be aesthetically pleasing.
- Given the abundance of historic and archaeological resources in the region as a whole and the major river valleys specifically, an Historical Resources Impact Assessment should be conducted before development occurs that may result in the disturbance of the land surface.
- Recreation and tourism facilities are encouraged to meet demands for leisure and business-related tourism opportunities.

- A 100 m undisturbed buffer is to be maintained along the edge of the Clearwater River.

When provincial public land is transferred to another jurisdiction (e.g. the Regional Municipality of Wood Buffalo or a private land owner), the policies in the IRP no longer apply. The above IRP policies have been referenced in this ASP because of the guidance they may provide the Regional Municipality in land use planning and in the event of a transfer of lands.

3.3 Draft Management Plan for Clearwater Heritage River

The Clearwater River and its tributary, the Christina, were nominated as a Canadian Heritage River in September 1996 under the Canadian Heritage River System, a cooperative program to give national recognition to important Canadian rivers. In March 1999 the Clearwater River Committee released a draft Management Plan for the nominated watersheds, the preparation of which is one of the final steps required for official designation as a Canadian Heritage River. The Management Plan pertains to the main valley of the Clearwater up to the top of the bank and a further setback area approximately 100 m wide intended to limit potential visual intrusion on viewpoints from the river.

The Management Plan is founded on the following vision statement: *"The Clearwater River Corridor provides a valued wilderness experience through a healthy relationship between people and nature."* Maintaining the wildland character of the Clearwater River is a key goal of the management plan. Recommended actions supporting this and other goals of the management plan that are most relevant to the ASP area include the following:

- Any commercial or industrial activities within the corridor should mitigate potential disruption of wildland aesthetics.
- Shoreline vegetation should be retained unless removal will provide significant benefits to the general public.
- A program to locate, inventory, record and attach significance to hitherto undiscovered historic sites in the vicinity of the Clearwater River should be established.
- Commercial and industrial activity should be conducted with the integrity of the river in mind and impact should be minimized in the short and long terms.
- Industrial development should be located away from the Clearwater River Valley on the upland plateau and should incorporate an 100 m setback from the top of the bank.

3.4 *Fort McMurray Airport Land Use Plan and Airport Vicinity Protection Area*

The Regional Municipality of Wood Buffalo has assumed control of the Fort McMurray Airport from Transport Canada. The airport is a key regional transportation facility, serving commercial airlines, private planes, pilot training, and fire protection aircraft. The airport lands include an area immediately south of the existing runway that could be developed as a second parallel runway if required.

The Fort McMurray Airport Land Use Plan, prepared in 1986, indicates that areas within the airport boundary are sufficient to maintain safe airport operations. Certain lands within the airport property have been designated for future industrial and commercial development. Given that the plan is almost 15 years old and now that the Regional Municipality has taken over airport operations, this plan may need to be reviewed and updated if necessary.

In 1986 the Government of Alberta enacted Airport Vicinity Protection Area (AVPA) regulations for the Fort McMurray Airport. While those regulations have now been repealed, the associated maps give important information on noise contours, take-off and landing gradients, and other matters related to airport operations. One specific issue pertains to a new road connection between the Secondary Industrial Area and Saprae Creek Estates which was proposed at the Community Consensus Workshop held as part of the ASP process on June 2, 1999. The alignment of the road runs through an area in which roads and other developments are restricted to ensure that operation of an important electronic instrument landing system is not skewed. The fact that the Secondary Industrial Park lies partially within this restricted area suggests that a satisfactory road alignment could be determined, but further discussions with Transport Canada, NAV Canada, and the manager of the Fort McMurray Airport are required on the issue.

3.5 *RMWB Land Use Bylaw*

The Regional Municipality of Wood Buffalo has passed a new Land Use Bylaw that in the Rural Services Area of the municipality, supersedes the Land Use Order discussed in Section 3.1. *Map 2 - Current Land Use Bylaw Districting* shows the land use districts in the ASP area. The following districts currently apply to the ASP area:

CR Country Residential District

The purpose of this district is to provide for multi-lot (more than 3) country residential subdivision and development in the Rural Service Area.

RD Rural District

The purpose of this district is to manage development in the Rural Service Area, outside established hamlets.

SE Suburban Estate Residential District

The purpose of this district is to provide for the development of serviced, or partially serviced, single detached dwellings at rural densities in the Rural Service Area.

UE Urban Expansion District

The purpose of this district is to protect land in the Rural Service Area suited for future urban and hamlet expansion from premature subdivision and development.

Airport Vicinity Protection Area Overlay

The regulations for this area are yet to be completed, but are expected to incorporate the former Government of Alberta Airport Vicinity Protection Area development regulations for the Fort McMurray Airport.

4.0 SITE CONTEXT AND DEVELOPMENT CONSIDERATIONS

4.1 Topography / Vegetation

As shown on *Map 3 – Natural Features*, the ASP area consists primarily of a gently undulating upland plain between Highway 69 and the 350 m topographic contour line, and the deeply incised valleys of the Clearwater River and its tributaries, which include Prairie Creek, Saline Creek, Saprae Creek and a number of smaller watercourses. The average elevation of the upland is about 371 m. Several large boggy areas (e.g. east of the Keyano College campus, south of the airport, east of the Secondary Industrial Park) are interspersed with more solid ground.

Slopes along the Clearwater River Valley vary from 8.5 to 12.4 degrees with an average valley depth of about 117 m. The slopes along the Saline Creek vary between 3.5 and 5 degrees with an average valley depth of 68 m. Along the Saprae Creek, the slopes vary between 8 and 10 degrees.

The Clearwater River has well-developed low lying terraces with an average elevation of 247 m. These terraces are subject to inundation and constitute the flood plain (Terracon Geotechnique Ltd. 1999). The 1:100 year flood plain has been defined as 250 m above sea level.

Predominant types of vegetation include aspen, black spruce, larch, willow, birch, and cattails.

4.2 Existing Land Uses

As *Map 4 – Existing Land Use* illustrates, the prominent existing land uses in the ASP area are the following:

- Fort McMurray Airport.
- Keyano College's MacKenzie Campus, used for training on heavy equipment vehicles.
- Secondary Industrial Park.
- Saprae Creek Estates (1999 population: 509).
- Country residential development along Draper Road (est. 1999 population: 46).
- Agricultural operations in the meanders of the Clearwater River Valley.
- Various parks and recreation uses.
- Open space.

4.3 Surrounding Land Uses

The west side of the ASP area is bounded by areas of existing and future urban development: the Waterways neighbourhood, MacKenzie Industrial Park, and the Prairie Creek ASP area, the latter of which is currently used for horse riding and stables. Natural land surrounds the other edges of the ASP area. To the north, the ASP area is bounded by the Clearwater River and the forested slopes of the northern half of its river valley. To the south and east, there are relatively undisturbed forest lands.

4.4 Historical and Archaeological Resources

Parts of the ASP area played an important role in the historical development of Fort McMurray. The Clearwater River Valley has been used by First Nations people for centuries and is thought to be rich in unidentified archaeological sites. The Draper area was the terminus of the Alberta and Great Waterways Railroad between 1922 and 1926. The community of Waterways (Old Waterways, to distinguish it from the existing "New" Waterways) grew up around the railroad station and had a brief life during these years. Thomas Draper's pioneering oil sands extraction plant was located in the community; the site of the abandoned plant is of considerable historical significance in the Wood Buffalo region.

4.5 Parks, Recreation and Open Space

As a natural area in close proximity to the Fort McMurray Urban Service Area, the Highway 69 / Clearwater River Valley area is enjoyed by many for its views and recreational opportunities. Boating, canoeing, kayaking, fishing, cross-country skiing, downhill skiing, snowmobiling, hunting outfitting, and other recreational pursuits all take place in the Clearwater River Valley.

The ASP area has excellent trails for walking, cross-country skiing, and snowmobiling. The bed of the original railroad to the region, which stretches east from the terminus of Draper Road, is used as a trail connecting the ASP area with the Christina River. The bed of another former railroad line also serves as a trail between Draper and the Lynton Intermodal Facility along Saprae Creek. Other trails are also in use.

There are several parks and recreation developments in the ASP area. Vista Ridge All Seasons Park, the region's only downhill ski facility, is owned by the Regional Municipality of Wood Buffalo on land north of Saprae Creek Estates but is run by an arm's-length board of directors. The Rotary Club of Fort McMurray operates a campground east of the Keyano College campus. In addition to tourists, the campground caters to seasonal workers. On the other side of Highway 69, there is a riding stable. Further along the highway, two ponds stocked with fish by Alberta Environment are

another recreational land use. Finally, within the Saprae Creek Estates subdivision there are a community hall, hockey rink, baseball diamond, and outdoor basketball courts.

Community consultation conducted as part of the ASP process indicated a desire for additional recreational facilities. There was strong support that one or more new boat launch facilities should be built along the Clearwater River. Many people also expressed a desire for additional campground space, especially with full hook-ups for recreational vehicles.

The Regional Municipality of Wood Buffalo has yet to develop a parks and recreation master plan for its Rural Service Area. The development of such plans will be guided by Park Development Standards now being revised by the RMWB. One key objective guiding these revisions is to *"protect and preserve the environment as much as reasonably possible."*

4.6 Schools

Existing and future students living in the ASP area are served by the Fort McMurray Public School District #2833 and the Fort McMurray Catholic Board of Education. Neither school district operates a school in the ASP area.

Based upon population forecasts developed by Nichols Applied Management, total student enrollment in the Fort McMurray area is forecast to increase from 8,623 in the 1998/99 year to 11,076 in the 2008/09 year – a 28.4% increase in ten years (Fort McMurray Public School District 1999).

The Public School District plans to accommodate its share of the student population increase through additions and renovations to various existing schools. The public school closest to the ASP area is Greely Road School. This school is essentially full at present and is forecast to be over-enrolled in the future because of population growth in the Abasand Area. The Public School District plans to add four portable classrooms to the school in 2001, but would likely require additional space at this school or elsewhere if there were significant population growth in the ASP area (Fort McMurray Public School District 1999). The school district has not factored the potential residential redevelopment of Keyano College's MacKenzie Campus site or further country residential development in the Draper Road area into its existing Long Term Facility Plan. School sites requirements associated with this redevelopment would be best addressed as part of the neighbourhood area structure plan described in Policy 5.2.5.

Good Shepherd School is the designated school for the ASP area for the Catholic Board of Education. Good Shepherd is currently operating at 76% of its net student capacity. The Catholic Board has no plans to build new schools or expand existing schools that

may affect the ASP area. Again, requirements for school sites within the ASP area are best deferred until planning for redevelopment of the Keyano lands is undertaken.

4.7 Transportation

The ASP area is home to several regionally important transportation facilities.

The Fort McMurray Airport was discussed in Section 3.4.

As seen in *Map 5 – Transportation*, the ASP area lies east of the intersection of the two major provincial highways in the region, Highway 63 and Highway 69. Highway 69 is the principal roadway in the ASP area, being the sole roadway access to the Fort McMurray Airport, Saprae Creek Estates, the Secondary Industrial Park and the Lynton Intermodal Facility. In 1997, the average daily traffic volume on Highway 69 was 1,740. Eighty-eight percent of this traffic was estimated to be personal vehicles, 1% recreational vehicles, and 11% commercial traffic including tractor trailers (McElhanney Consulting Services Ltd. 1998). Highway 69 is in good condition.

The Lynton Intermodal Facility at the south-east corner of the ASP is the terminus of the only railroad serving the region. Highway 69 was constructed in the mid-1970's to give access to the railhead. Unless the railroad is extended some time in the future, the Intermodal Facility will be an important industrial location where goods, including mechanical equipment for expanded or new oil sand operations, are delivered to the region, and where raw materials, including petrochemical coke, are shipped out of the region. Truck traffic along Highway 69 can be expected to increase as industrial development continues in the region.

In addition to Highway 69, several other roads service the ASP area. Spruce Valley Drive gives access to Saprae Creek Estates from Highway 69. A gravel road gives access to the Secondary Industrial Park, also from Highway 69. Airport Road connects with Highway 69 to give access to the Fort McMurray Airport. Draper Road is a rural-standard roadway that runs along the Clearwater River at the bottom of the valley. It gives access to a small number of residences.

4.7 Utilities and Infrastructure

ATCO Electric Ltd. provides electrical power to the ASP area.

An ATCO Gas Ltd. natural gas line services Saprae Creek Estates. Draper Road area residences are not serviced with natural gas.

The Fort McMurray Airport and Saprae Creek Estates are currently serviced with piped water. An 150 mm watermain follows Highway 69 and Airport Road until it reaches a

600 m^3 reservoir / pumphouse north of the airport terminal. A 300 mm watermain stretches east of the reservoir to the end of the runway. Saprae Creek Estates obtains its water from a 100 mm watermain that runs south from Airport Road, east to the Secondary Industrial Park, and then across Saprae Creek to an 100 m^3 reservoir / pumphouse in Saprae Creek Estates. Watermains within Saprae Creek Estates are primarily 100 mm. Despite its proximity to a watermain, the Secondary Industrial Park is not currently connected to it. Businesses in this area and elsewhere in the ASP area, as well as residents of the Draper Road area, have potable water trucked in as necessary.

The Regional Municipality of Wood Buffalo has recently completed a water servicing study for the ASP area (Associated Engineering Alberta Ltd. 1999). The study investigated options for servicing larger portions of the ASP area with water and improving water service in Saprae Creek Estates for fire protection purposes. The study recommends that the Saprae Creek Estates water system be upgraded.

Sanitary sewage service is minimal in the ASP area. The Fort McMurray Airport has a sewage collection system, sewage lift station, forcemain, and sewage lagoon on the south side of the runway. Residences in Saprae Creek Estates and in the Draper Road area have individual septic tank systems.

If a municipal sanitary sewage services were to be extended to the ASP area, they would connect to a sewage lift station in the Lower Townsite. A report on upgrading this lift station was prepared in 1998 (Reid Crowther & Partners Ltd. 1998).

4.8 Police, Fire, and Emergency Services

The ASP area is regularly patrolled by members of the Fort McMurray RCMP detachment.

The RMWB's Fire Department would respond to any fire and ambulance calls within the ASP area from its Fire Station 1 on Tolen Drive. The Fort McMurray Airport currently does not have its own crash / fire rescue services. Saprae Creek Estates has its own fire hall and volunteer fire department, which is prepared to respond to calls at the airport and other nearby areas as necessary, though the route to the airport is currently a circuitous one along Highway 69. In the event of a forest fire within the ASP area not accessible with conventional fire-fighting equipment, Alberta Environment's Lands and Forest Service would provide assistance.

4.9 Future Development Potential

Over $19 billion worth of major projects directly related to the Athabasca oil sands have been announced in recent years. Although some of these projects may be delayed by low oil prices, oil prices are gradually increasing. The collective investment over the next

several years from companies such as Syncrude, Suncor, Shell Canada, Gulf Canada, Mobil Oil and Koch is still poised to be significant.

A limited number of light industrial lots are still available in the McKenzie Industrial Park on the south side of the Urban Service Area. McKenzie Industrial is fully serviced. Lots there are selling at an average of $120,000 per acre. There is a need to provide new industrial space in the region.

A resurgence in construction of major oil and gas projects will increase aircraft movements at the Fort McMurray Airport, and as previously mentioned will increase activity at the Lynton Intermodal Facility. This may result in increased demand for industrial development in the ASP area.

There is a demand for country residential and estate residential development in the region. Most of the existing lots in Saprae Creek Estates are built out. There is a demand to subdivide country residential lots in the Draper Road area.

5.0 GOALS, OBJECTIVES, AND POLICIES

5.1 Development Concept

A future Development Concept for the Highway 69 / Clearwater Valley ASP is shown on *Map 6.* The following goals, objectives and policies to accompany the Development Concept were determined given regard to the following:

- existing land use patterns;
- public consultation with residents, business owners and other stakeholders;
- geotechnical study by Terracon Geotechnique Ltd. (see Appendix E);
- natural constraints and environmental considerations;
- existing policies in the *Municipal Development Plan* (1995) *Fort McMurray – Athabasca Oil Sands Sub-Regional Integrated Resource Plan* (1996) and *Draft Management Plan for the Clearwater Heritage River*;
- utility servicing constraints and opportunities; and
- sound long-range planning practices.

5.2 Land Use

Goal

Ensure orderly, efficient, environmentally sound and compatible land uses within the ASP area.

Overview

The 58 square miles within the ASP area have a wide range of existing land uses as described in *Section 4.2 – Existing Land Use* in this Plan and shown on *Map 4 – Existing Land Use*. The future Development Concept shown on *Map 6 – Development Concept* reflects the need to promote a pattern of land uses that will not restrict existing residences; will not restrict and existing and future operations of the Fort McMurray Airport; will allow for business industrial uses on the airport lands, Secondary Industrial Park, Lynton Intermodal Facility, former drive-in site, and former Texaco site; and will allow for further residential development, taking into account any environmental constraints and efficient and orderly servicing.

Objectives

Land use objectives include:

- Promote orderly, efficient and economical land use patterns.
- Minimize potential land use conflicts.
- Protect opportunities for future growth and urban expansion.

Policies

Fort McMurray Airport

The Regional Municipality of Wood Buffalo will:

5.2.1 Airport Vicinity Protection Regulations

Control land use and development in the vicinity of the Fort McMurray Airport through the Airport Vicinity Protection Area Overlay in the Land Use Bylaw as approved so as to not restrict current airport operations and future expansion and avoid any potential land use conflicts associated with safety and noise.

Residential Land Use

5.2.2 Locations for Residential Development

Direct future residential development to areas designated for this purpose on *Map 6 – Development Concept*.

5.2.3 Draper Road Country Residential Area

Allow subdivision and country residential development in a selective and environmentally sound way in areas designated for this purpose on *Map 6 – Development Concept*. The minimum lot size is to be 1 hectare (2.47 acres). Applications for development on slopes shall follow the provisions in the Land Use Bylaw as approved. Developers are also encouraged to consult guidelines in Section 6 of the Slope Stability and Soil Suitability Study prepared by Terracon Geotechnique Ltd., included as Appendix E of this ASP.

5.2.4 Expansion of Saprae Creek Estates

Allow for the orderly expansion of Saprae Creek Estates to the south and east as conceptually shown on *Map 6 – Development Concept*.

5.2.5 Future Urban Residential Development of Keyano College Heavy Equipment Campus

Allow the Keyano College Heavy Equipment Campus and adjacent lands (in the event that the campus is no longer needed for its existing purpose) to be developed as a comprehensively planned residential neighbourhood at urban densities as conceptually shown on *Map 6 – Development Concept*. A more detailed neighbourhood area structure plan would need to be prepared to address issues such as future land uses, densities, servicing, school requirements, and traffic circulation prior to development.

Small Holdings

5.2.6 Small Holdings

Designate lands in the flood plain below the 250m contour for small holdings with a minimum parcel size of 2.0 ha (5 acres) on *Map 6 – Development Concept*. The intent of the small holdings designation is to avoid the fragmentation of parcels that are suited for market gardening and provide for acreages with larger lots on lands that are susceptible to flooding as not to put excessive numbers of residents at risk and make flood proofing difficult. A list of permitted and discretionary uses along with specific development regulations will be included within a new small holdings district through an amendment to the Land Use Bylaw. Generally, the proposed district would allow for acreage development with the keeping of a limited number of horses and other animals and horticultural uses. Golf courses, bed and breakfast establishments, resort and other private recreational developments could be considered as discretionary uses.

Business/Industrial Land Use

5.2.7 Location of Business Industrial Uses

Direct future business industrial uses to areas designated for this purpose on *Map 6 – Development Concept*.

5.2.8 Expansion of Lynton Intermodal Facility

Allow expansion of the Lynton Intermodal Facility to ensure its viability provided that a 50 m natural buffer is maintained between it and Spruce Valley Drive.

5.2.9 Business Industrial Aesthetic Guidelines

Require business industrial areas, through the provisions of the Land Use Bylaw and other municipal bylaws, to ensure quality development through the

siting and design of buildings, landscape treatment, location and screening of storage and parking areas, and the appropriate scale and design of signing that recognizes the surrounding natural and / or industrial setting of the area.

Commercial Land Use

5.2.10 Village Commercial / Community Centre

Allow the development of a Village Commercial / Community Centre as focal point for the proposed development of the future urban residential area (i.e. Keyano College Heavy Equipment Campus) as shown conceptually on *Map 6 – Development Concept.*

5.2.11 Home Occupations and Businesses

Allow home occupations and businesses through the provisions of the Land Use Bylaw unless they generate traffic or parking problems, are unsightly, or generally negatively affect the area and enjoyment of neighbouring properties.

5.3 Environmental Protection

Goal

To conserve and protect land, the environment and significant historic and archeological sites while accommodating development in an environmentally-sound manner.

Overview

The ASP area contains a number of environmentally sensitive areas including the shorelands associated with the Clearwater River and Saprae and Saline Creeks as well as the Clearwater River Valley bluffs. A geotechnical study undertaken by Terracon Geotechnique Ltd. identifies geotechnical limitations that may restrict development in some parts of the ASP area as well as conditions, regulations, and guidelines that may make development acceptable in other parts (see Appendix E).

The area particularly around the Draper (Old Waterways) has a rich heritage that should be preserved and provide opportunities for heritage interpretation and 'place-making.' The Draft Management Plan for Clearwater Heritage River recognizes the historic significance of the Clearwater River. The plan also recommends development guidelines to preserve its "wild character."

Objectives

Objectives for environmental protection include:

- Contribute to the maintenance of a healthy natural environment.
- Identify and protect environmentally sensitive areas.
- Assist in implementing the Clearwater Heritage River Management Plan as adopted.
- Regulate subdivision and development in order to mitigate against environmental degradation and risks from natural and manmade hazards.
- Protect and enhance fish and wildlife habitat.
- Contribute to the preservation, rehabilitation, and interpretation of historical resources.

Policies:

The Regional Municipality of Wood Buffalo will:

5.3.1 Environmentally Sensitive Areas

Allow existing land uses to remain in areas designated as environmentally sensitive areas on *Map 6 – Development Concept*. Before any new development in these areas will be allowed an environmental impact assessment may be a condition of approval and must be prepared by a qualified professional in accordance with Policy 5.3.2 that it:

a) would not create significant negative effects on the natural environment;

b) could be sympathetically integrated in terms of design with the area's environmentally sensitive features;

c) would retain the physical features of the natural environment as much as possible; and

d) further subdivision would be restricted to a minimum parcel size of 4.0 ha (9.88 acres)

5.3.2 Environmental Impact Assessments

For the purpose of this ASP means: a process that identifies, predicts and evaluates the environmental impact of elevating flood plain lands to the 250m contour level for subdivision and development. The

purpose of an EIA is to ensure the activity has minimal long-term impact on human and environmental health and should include mitigative measures to reduce, eliminate or compensate for the environmental effects of the proposal. This usually means the application of design, construction, engineering, architectural or landscaping techniques to minimize or eliminate potential adverse environmental effects. An EIA for this purpose would generally consider three main areas:

1. Erosion potential of the elevated lands;
2. The bearing capacity of the new fill materials (to determine sufficient and appropriate compaction); and
3. An evaluation of the suitability of the land (suitable material) to sustain septic fields and whether they will function normally.

Depending on the size and extent of the project, additional impacts of the proposed development may have to be evaluated.

5.3.3 Location and Significance of the 250 Meter Contour

Utilize the estimated 250 meter contour shown on *Map 6 – Development Concept* as a guideline in determining what lands above the 250 meter contour may be designated for country residential and lands below 250 meters would remain designated for small holdings. Notwithstanding this, if a private property owner can prove through a legal survey the actual location of the 250 meter contour the RMWB may consider their application for subdivision and development without requiring an amendment to either the Land Use Bylaw or this Area Structure Plan.

5.3.4 Development Permit Requirements for Lands Located between 248 – 250 Meter Contour

Consistent with policies in the approved Land Use Bylaw, not permit buildings below the 248 m contour. Applications for development between 248 m and 250m contours shall follow the provisions of the Land Use Bylaw as approved. Developers are also encouraged to consult guidelines on floodproofing contained in Section 5 of the Slope Stability and Soil suitability Study prepared by Terracon Geotechnique Ltd., included as Appendix E of this ASP.

5.3.5 Subdivision of Land between 248 – 250 Meters

Designate lands between 248 m and 250m for small holdings as described in 5.2.6 Small Holdings with a minimum parcel size of 2.0 ha (5 acres). Notwithstanding this the RMWB would consider reducing the minimum parcel size to 1 ha (2.47 acres) where it can be clearly demonstrated through Geotechnical analysis and an EIA (Policy 5.3.2) prepared by a qualified professional that:

- the proposed country residential development can be carried out in an orderly and contiguous fashion with other areas designated as country residential; and
- the EIA clearly shows the minimum parcel size may be reduced without any adverse environmental impact in accordance with Policy 5.3.2.

5.3.6 Development Below 248 Meters

Consider these lands to be within the floodplain and not subject to flood proofing in Policy 5.3.4. The RMWB could consider applications for raising lands falling below the 248 meter contour where information is provided to support the application. Such information will have to include an environmental impact assessment (EIA) in accordance with Policy 5.3.2 as well as engineering reports to demonstrate that preventative engineering measures can be used to make the site suitable for development and where it can be demonstrated that adjacent properties will not suffer an increased risk of flooding or an increase in flood damage. Any application needs to also demonstrate that water and sewer systems located in the area will not be damaged or create hazards during flood events.

5.3.7 Buffers Along the Clearwater River

Following Alberta Environment practices and a desire to maintain the wildland character of the Clearwater River, require an undisturbed buffer strip of no less than 6 m to be maintained along the Clearwater River with the exception of recreational developments designated on *Map 6 – Development Concept*. Exact width of the buffer strip will depend on local conditions but in all cases be of sufficient width to include any

natural vegetation, water features, fish and wildlife habitat, escarpments, terraces, local and regional open space and trail links.

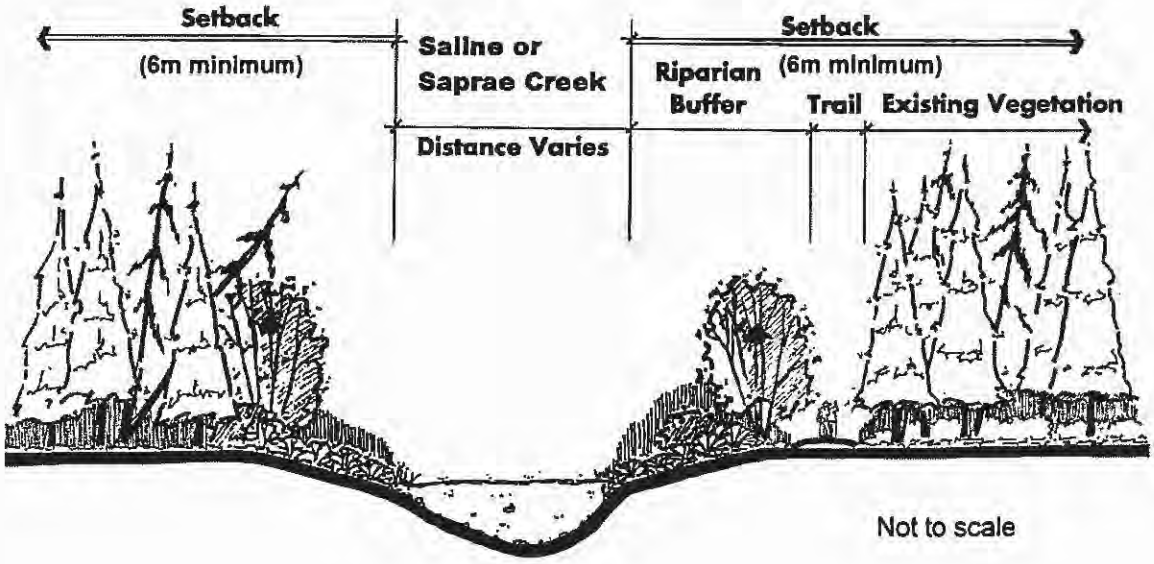
5.3.8 Buffers Along Saline and Saprae Creeks

Require a natural buffer of no less than 6 m to be retained along Saline and Saprae Creeks. The buffer strip shall be of sufficient width to include any natural vegetation, water features, fish and wildlife habitat, escarpments, terraces, local and regional open space and trail links where applicable. See example cross-section in Figure 1 on the following page.

5.3.9 Water Resources

Ensure that applications for subdivision and development include measures that minimize or mitigate any negative impacts on water quality, flow, supply deterioration, soil erosion, and groundwater quality and availability.

FIGURE 1 – PROFILE OF BUFFER ALONG CREEKS



5.3.10 Hazard Lands

Not generally allow development in areas that are prone to flooding, erosion, landslides, subsidence, or any other natural or human-induced hazards. Development on or in proximity to escarpments, steep, or unstable slopes may be considered only if recommended in a geotechnical study prepared by an accredited professional and if adequate setbacks are provided. In such case, the RMWB may require restrictive covenants or caveats registered to the title to serve as notification to prospective purchasers. (Also refer to Policy 5.2.3.)

5.3.11 Fish and Wildlife Habitat

Work with Alberta Environment and conservation associations to protect and enhance significant fish and wildlife habitats by:

a) ensuring that development or subdivision is sensitive to the character of the resource;

b) incorporating habitats such as rivers, creeks, wetlands, and wildlife corridors into open space planning and municipal and environmental reserves; and

c) ensuring, to the greatest extent possible, that natural features of development sites (trees, vegetation, wetlands, etc.) are not removed or filled.

5.3.12 Traditional Uses

In evaluating subdivision and development applications and plans for further recreation development in the ASP area, consider the impacts these may have on traditional resource uses such as hunting, fishing, and trapping.

5.3.13 Historical Preservation and Interpretation

Request Alberta Community Development to complete an inventory of significant historical resources within the ASP area, particularly along the Clearwater River, and cooperate with Alberta Community Development, historical groups and other organizations to preserve and protect these resources whenever possible for the enjoyment of present and future generations. Application should especially be made to have the site of Thomas Draper's pioneering oil sand excavation plant designated as a Provincial Historical Resource.

5.3.14	**Clearwater Heritage River Management Plan**	Consider the development guidelines contained within the Management Plan for Clearwater Heritage River as adopted when reviewing applications for subdivision and development within the Clearwater River Corridor.
5.3.15	**Clearwater River Bluffs Setbacks**	Require industrial development along the Clearwater River Valley to provide a 100 m break-of-valley buffer.
5.3.16	**Environmental Reserve**	Determine what lands should be dedicated as Environmental Reserve on a site-specific basis in keeping with Section 664(1) of the Municipal Government Act. In some circumstances environmental reserve easements in accordance with Section 664(2) of the MGA could be used in place of environmental reserve dedication.

5.4 Parks, Recreation and Schools

Goal

To provide for and enhance the recreational and educational opportunities for Regional Municipality of Wood Buffalo residents while protecting the natural environment.

Overview

Lands within the ASP area offer a wide range of outdoor recreation opportunities. The ASP area includes the Vista Ridge All Seasons Park and Rotary Campground. Abandoned railway lines running through the area also provide trails for snowmobiling, hiking and cross-country skiing. During the Community Consensus Workshop a desire for additional campgrounds, recreation areas, and trails was expressed.

As the residential population within the ASP area grows, the impact of school enrollments on existing schools needs to be monitored.

Objectives

Objectives for recreational uses include the following:

- Provide RMWB residents and visitors with outdoor recreation opportunities.
- Protect the natural environment, particularly the Clearwater River Valley and Saline and Saprae Creeks.
- Establish policies for municipal and environmental reserve requirements.

Policies

The Regional Municipality of Wood Buffalo will:

5.4.1	**Locations for Recreation Uses**	Direct the development of recreation uses to areas designated for this purpose on *Map 6 – Development Concept.*
5.4.2	**Campground Development**	Allow for the expansion of the Rotary Park Campground and consider proposals from private interests and public / private partnerships to develop a campground with full R.V. hook-ups at the Texaco stocked ponds to meet the demand for more camping facilities in the region.
5.4.3	**Trail Development**	Consider development of a potential trail network as shown conceptually on *Map 6 – Development Concept.* Care should be taken to assure trail alignments maintain a minimum 30 m setback from residential properties to preserve privacy.
5.4.4	**Public Boat Launching Facilities**	Examine the feasibility of developing public boat launch facilities at locations shown conceptually on *Map 6 – Development Concept* to provide public access to the Clearwater River and relieve some of the pressure from the Snye.
5.4.5	**Municipal Reserve Dedication**	Consider taking less than 10% of the gross developable land to be subdivided as municipal reserve or cash in lieu of municipal reserve according to the provisions of the Municipal Government Act, Section 666 if other land in close proximity has already been dedicated for that purpose and it is deemed additional municipal reserve is not required.
5.4.6	**Impact on Schools**	Work with the Fort McMurray Public School District and Fort McMurray Catholic Board of Education in monitoring population growth within the ASP area to assess the need for additional school sites in the future. Requirements for school sites in the ASP area would be determined as part of a neighbourhood area structure plan for the Keyano College lands (see Policy 5.2.5).

5.5 Transportation

Goal

To contribute to a safe, efficient, and cost-effective transportation network which is functionally integrated with existing and future land use patterns.

Overview

Main roadways serving the ASP area include Highway 69, Airport Road, Draper Road, and Spruce Valley Road, which is the main access to Saprae Creek Estates. The Lynton Intermodal Facility provides the main interface with the terminus of the RaiLink railway line and Highway 69. A need for an alternate access road to Saprae Creek Estates has been identified. Several alternatives for such a road were examined as part of the geotechnical study undertaken by Terracon Geotechnique Ltd. and at the Community Consensus Workshop held as part of the ASP planning process. The most practical and cost effective option appears to be a roadway connecting Saprae Creek Estates with the Secondary Industrial Park east of airport lands, as shown conceptually on *Map 6 – Development Concept.*

Objectives

Objectives for transportation include the following:

- Maintain safe and effective transportation for the movement of people and goods.
- Cooperate with Alberta Infrastructure in maintaining and protecting the integrity of the highway system.
- Provide for an additional access road into Saprae Creek Estates.

Policies

		The Regional Municipality of Wood Buffalo will:
5.5.1	**Development Along Highway 69**	Require development and subdivisions along Highway 69 to conform to the provisions of the Land Use Bylaw as approved.
5.5.2	**Maintaining Aesthetics and Gateway Function – Airport Road and Highway 69**	Require developments along Highway 69 and Airport Road to be visually pleasing with regard to landscaping, buffering, signing, and lighting in accordance with the requirements of the Land Use Bylaw as approved to provide an attractive gateway to the RMWB.

5.5.3 Roadway Signing

Create a hierarchy of signing that reduces the proliferation of signs along the highway, improves signing orientation, promotes safety, and maintains the free flow of traffic. Refer to the Roadway Signing Hierarchy on the following page. Any signs installed under the jurisdiction of the Streets and Traffic Bylaw should be given priority in this hierarchy.

Roadway Signing Hierarchy

The following illustrates the organization of highway signing to reduce the proliferation of signs along the highway, improve signing orientation, promote safety, and maintain a free flow of traffic.

Identifier Signing

Information & Directional Signing *(arranged independently or in combination)*

Regulatory Signing *(to Alberta Transportation & Utilities standards)*

Signing sizes, material use, lettering, post design (i.e., single or double), colour use, and symbol use are variables in signing hierarchy development and must be consistent with Alberta Transportation & Utilities standards.

FIGURE 2 – ROADWAY SIGNING HIERARCHY

Identification

Confirms destination, creates a landmark, help establish recognition (i.e. Regional Municipality of Wood Buffalo, Urban Service Area, Highway 69, key points of interest).

Information

Communicates designations, facts and circumstances (i.e. symbols, directories, etc.).

Directional

Guides users to destinations (i.e. Urban Service Area, interpretive areas, etc.). The design and implementation of directional systems are often referred to as "wayfinding."

Orientation

Gives users a frame of reference within a particular environment (i.e. arrows, maps, etc.)

Regulatory

Displays regulations related to safety, codes of conduct, and regulatory requirements.

Interpretation

Provides verbal and visual explanations of a particular topic or set of artifacts (i.e. natural, historic, economic, industrial, etc. points of interest and learning).

Ornamentation

Enhances aesthetics (i.e. architectural colouration, banners, flagpoles, gateways, light standards, etc.). Interpretation and ornamentation opportunities would be developed on a site by site basis. Incorporation of the visual identifier should be considered in the development of interpretive and ornamental features.

5.5.4	**Alternate Access Road to Saprae Creek**	Examine the feasibility of constructing an alternate access road to Saprae Creek Estates as conceptually shown on *Map 6 – Development Concept*. At the design stage, the RMWB will consult with Transport Canada and NAV Canada to develop a road alignment that would not interfere with operation of airport electronic instruments.
5.5.5	**Maintaining Water Access to Residences on North Side of the Clearwater River**	Notwithstanding Policy 5.3.7 – Buffers Along the Clearwater River and Policy 5.3.16 – Environmental Reserve, make provisions as part of future subdivision of land in the Draper area to permit private landowners to develop roadway access and docking facilities to maintain access to residences on the north side of the Clearwater River.

5.6 Municipal Services

Goal

To provide municipal services and infrastructure in an economical, environmentally sound and well planned manner.

Overview

According to the *Saprae Creek, Highway 69 Water Supply Network Design Brief* prepared by Associated Engineering Alberta Ltd., the water distribution system in the ASP area is inadequate to meet fire protection demands in Saprae Creek Estates and accommodate future development of the subdivision and the wider ASP area. The study made assumptions about potential development within the ASP to arrive at design criteria. These assumptions may have to be reviewed and updated in view of the development concept illustrated in *Map 6 – Development Concept*. A desire expressed during the ASP planning process by some Draper Road residents for piped water is also beyond the scope of the Associated Engineering study.

Given the density of development expected in the ASP area, private sewage disposal systems will continue to be used within the foreseeable future. Residential development at urban densities of the existing Keyano College site would clearly be an exception to this general standard. The feasibility of servicing the Keyano College site for sanitary sewers would be a major determinant of the overall feasibility of such a development.

Stormwater management needs to be addressed as part of the subdivision and development process as well as the provision of emergency services.

Objectives

Objectives for municipal services include the following:

- Provide municipal services and infrastructure in an economic, efficient, and environmentally sound way.
- Ensure an optimal level of protective and emergency services.

Policies

		The Regional Municipality of Wood Buffalo will:
5.6.1	**Water Distribution System**	As necessary and subject to budget priorities, review, update, and implement the water supply design study prepared by Associated Engineering to reflect the proposed development concept contained in the ASP. Part of the update and review should include a feasibility study on providing piped water to the Draper Road country residential area.
5.6.2	**Rural Servicing Standard**	Require use of a private wells or truck-in water supply and truck-out sewage disposal in areas that do not have piped water and / or sewer. If soil conditions are favourable, a private sewage disposal system field could be developed by the private land owner.
5.6.3	**Stormwater Management**	Require as a condition of subdivision that post-development rates of run-off do not exceed pre-development rates to the satisfaction of Alberta Environment and / or the RMWB.
5.6.4	**Water Supply for Fire Protection**	Require property developers within the ASP area to provide, individually or collectively, water supply adequate to meet Alberta Fire Code and Alberta Building Code standards for fire-fighting purposes. The RMWB will consider alternative means of providing fire protection (e.g. sprinkler system) as long as minimum standards are achieved.

5.7 *Implementation*

Goal

To effectively implement the goals, objectives and policies contained in the Highway 69 / Clearwater Valley Area Structure Plan.

Overview

This ASP will guide Regional Council, Administration, approving bodies, and other agencies regarding growth and development within the ASP area. The ASP will be implemented in part through the Land Use Bylaw as approved. Goals, objectives and policies contained in the ASP should also be consistent with those in the Municipal Development Plan as approved. Specific capital improvements would be subject to budget approvals and construction schedules to be determined by the RMWB.

Objectives

- Implement policies contained in the ASP to guide decision making regarding future subdivision and development and capital investment in infrastructure.
- Maintain the ASP as a current planning tool, updating it through an orderly review and amendment procedure.

Policies

		The Regional Municipality of Wood Buffalo will:
5.7.1	**New Municipal Development Plan**	Ensure future land use designations and related policies contained in the approved ASP are reflected in the new Municipal Development Plan for the Regional Municipality of Wood Buffalo
5.7.2	**Land Use Bylaw**	Make required text and map changes to the new Land Use Bylaw as approved to ensure it conforms with the land use changes and policies contained in this ASP
5.7.3	**Subdivision and Development**	Ensure that any applications for subdivision and development conform with *Map 6 – Development Concept* and policies contained in this ASP
5.7.4	**Transfer to Crown Land to the RMWB**	Use the ASP as a basis to negotiate the transfer of Crown Lands within the ASP area to the RMWB for land use control and urban expansion purposes.

5.7.5	**Reviewing and Updating the ASP**	Include a review of the ASP in Planning and Development's annual report to Council, and update the ASP as necessary in order to make it a 'living document.'
5.7.6	**Development / Servicing Agreements**	Require on-site and off-site costs associated with new development of roadways and infrastructure to be borne by the developer through development charges and levies in accordance with specific development agreements.

6.0 GLOSSARY

Agricultural Land Use	The use of lands, buildings or structures for the raising of non-domestic animals and/or the growing of plants for food or other production.
Area Structure Plan (ASP)	A statutory plan, adopted by by-law, which provides a policy framework for subsequent redesignation, subdivision and development of a specified area of land in the Municipality.
Bedrock	A general term for rock, usually solid, that underlies soil or other unconsolidated, superficial material.
Bluff	A high bank of bold headland with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water.
Bog	Waterlogged, spongy ground, consisting primarily of mosses, containing acidic, decaying vegetation that may develop into peat.
Buffer	A natural or designed linear area of trees, shrubs, grass, earth berm, or fencing providing visual or physical separation and / or noise attenuation between waterbodies, lots, roadways, and other land uses.
Country Residential	The use of a lot principally as a site for a single detached dwelling or manufactured home, where permitted in a rural setting and in respect of which the Land Use Bylaw may allow other accessory uses of the dwelling or the lot to be made.
Development	Development as defined in the Municipal Government Act, specifically: (a) An excavation or stockpile and the creation of either of them; (b) a building or an addition to or replacement or repair of a building and the construction or placing of any of them in, on, over, or under land; (c) a change of use of land or a building or an act done in relation to land or a building that results in or is likely to result in a change in the use of the land or building; or (d) a change in the intensity of use of land or a building or an act done in relation to land or a building that changes or is likely to change the intensity of use of the land or building.

Environmental Reserve	Land dedicated (given) to a municipality during the subdivision process because it is considered undevelopable for environmental reasons in accordance with Section 664 of the MGA. This may include areas such as wetlands, ravines, drainage courses, steep slopes, etc.
Environmentally Sensitive Area	An undisturbed or relatively undisturbed site which because of its natural features has value to society and ecosystems worth preserving, but is susceptible to further disturbance.
Flood plain	The area of land bordering a watercourse or water body at risk of being flooded in a major flood (typically, a 1 in 100 year flood). Along the Clearwater River in the Fort McMurray area, including the ASP area, the flood plain has been defined as the 250 m contour.
Geotechnical	Pertaining to the condition of land and soils in an area, typically as it relates to use or potential use of the area for development.
Goal	An idealized end towards which planned action is directed, and which provides an indication of what is to be achieved.
Hazard Lands	Areas of land which are unsuitable for development in their natural state. This includes flood plains, steep and unstable slopes, areas subject to erosion or other geotechnical limitations.
Highway	A road that is designated as a primary highway or a secondary highway pursuant to the *Public Highways Development Act*.
Historical Resources Impact Assessment	An analysis of the potential impacts of development on archaeological and/or historical resources as defined in the Historic Resources Act.
Infrastructure	Systems and facilities (e.g. roads, sanitary sewers, water treatment and distribution networks, power lines, and telephone and cable TV systems) that service development.
Landscaping	To preserve, enhance or the incorporation of vegetative and other materials in a development and includes combining new or existing vegetative materials with architectural elements, existing site features or other development features including fences, walls or decorative walks.

Municipal Development Plan (MDP)	The plan adopted by Council as a Municipal Development Plan.
Municipal Government Act (MGA)	Provincial legislation which outlines the power and obligations of a municipality. Part 17 of the MGA provides the means by which plans and bylaws may be adopted to guide development and the use of land and buildings.
Municipal Reserve	Land provided as part of a subdivision by the developer without compensation for park and school purposes in accordance with the provisions of the Municipal Government Act.
Natural Features	Includes landscapes which are found in their natural state and may be remnant, undisturbed, diverse or contain unique environmental characteristics.
Objective	Directional statements that are usually phrased in measurable terms for given time frames.
Policy	A statement identifying a specific course of action for achieving objectives.
Qualified Professional	An individual with specialized knowledge recognized by the Municipality and / or licensed to practice in the Province of Alberta. Example of qualified professionals include but are not limited to agrologists, engineers, geologists, hydrologists and surveyors.
Recreation Use	Development of a public character including natural open space, improved parkland and active and passive recreational areas, and any facilities or buildings associated with recreation, serving the needs of a municipality, area or region. Recreation does not include large-scale commercial entertainment facilities such as drive-in movies, motor raceways, shooting ranges, or similar uses that may be incompatible with surrounding recreational uses, or may be difficult to integrate with the natural environment.

Small Holdings	Means a minimum parcel of 2.0 hectare intended for residential, small scale agricultural pursuits and other compatible purposes on lands that are susceptible to flooding, as not to put excessive numbers of residents at risk or make flood proofing difficult.
Sustainable Development	Development that meets the needs of today without compromising the ability of future generations to meet their own needs. This means the community needs to sustain its quality of life and accommodate growth and change by harmonizing long term economic, environmental, and social needs.
Vision	A positive snapshot of the desired state of the community at a particular point in the future.

APPENDIX A

KEY PERSON INTERVIEWS

SUMMARY REPORT

HIGHWAY 69 / CLEARWATER VALLEY AREA STRUCTURE PLAN

KEY PERSON INTERVIEW SUMMARY REPORT

June 1999

The consultants conducted Key Person Interviews with a variety of Highway 69 / Clearwater Valley Area Structure Plan stakeholders in April and May 1999. This report summarizes the issues identified through the interviews. A list of stakeholders interviewed is included as Appendix A.

Questions the stakeholders were asked included the following:

- *What are the 3 –5 most important issues and opportunities that you think need to be addressed through the ASP?*
- *What is your opinion on the type, location, and quality of development that should be allowed in the Plan Area, and why?*
- *How do existing and future plans for the airport impact upon the ASP area?*
- *How do existing and future plans for Keyano College's MacKenzie Campus (heavy equipment practice grounds) impact upon future plans for the area?*
- *What tourism and business development opportunities do you foresee that could be associated either with the airport or Keyano College?*
- *What transportation improvements, if any, should be reflected in the ASP?*
- *What environmental protection, parks, open space, and trail development opportunities exist in the area?*
- *What standard of servicing (i.e. water, sewer, stormwater management) is required or can be economically provided for the ASP area?*
- *Is there anything else you can think of that we may have missed in the course of the interview that could be beneficial to the outcome of the project?*

Issues identified included the following:

<u>Residential Land Uses</u>

- *Saprae Creek Estates.* Saprae Creek Estates is a hamlet residential development with 509 residents in 113 single family dwellings, 24 mobile homes, and 11 other dwellings (Regional Municipality of Wood Buffalo Census 1999). The development also is home to a fire hall and community centre complex complete with a hall, ice rink, basketball court, and baseball diamond. The Saprae Creek Area Structure Plan, adopted by Improvement

District #18 in 1995, provides for further residential development in SW 30-88-7-W4 (east of the east end of Community Land) and in NE 23 and NW 24-88-8-W4 (south of Weiss Drive and west of Spruce Valley Drive). Parts of the Saprae Creek community fall within the Airport Vicinity Protection Area Overlay District in the Regional Municipality's new Land Use Bylaw.

- *Draper Area Residential.* Population in the Draper area is approximately 46. Several land owners in the area seek to develop their properties for country residential development on lots of 2 acres or larger.

Agricultural Land Uses

- Market gardens are located in two meanders of the Clearwater River at the northwest corner of the ASP area. The potential for further market garden development is foreseeable along the Clearwater due to unique soil and microclimatic conditions.

Commercial Land Uses

- Commercial development in the ASP is currently limited to car rental operations, industrial pads, and a restaurant at the Fort McMurray Airport.
- The possibility of expanded industrial / commercial development at the Fort McMurray Airport was identified,
- A desire for a village centre at Saprae Creek was also identified, potentially as part of the Vista Ridge All Seasons Park.

Industrial Land Uses

- It is generally agreed that the demand for industrial land in the Regional Municipality is north of the Fort McMurray Urban Service Area.
- Many businesses which do much of their work at the oil sands plants wish to be on the "plant" side of Fort McMurray instead of on the south side in the MacKenzie Industrial Park or in the Highway 69 area. However, industrial land north of Fort McMurray is currently limited.
- Given the uses currently existing in the ASP area (e.g. airport, CN intermodal facility, Secondary Industrial Park) and the proximity of the Highway 69 to the MacKenzie Industrial Park, there will likely be demand for industrial space in the ASP area in the future.
- *Secondary Industrial Park.* This industrial area, also called the "dry" industrial park, is located south-east of the airport. It is currently home to auto wrecker, auto parts, and similar operations.

- There is concern in some quarters about the aesthetics of this industrial area for visitors to the Regional Municipality who arrive by air, but it is generally accepted that this is a secluded location well separated from incompatible land uses.

- *Scattered Industrial Sites.* Sites of various sizes exist along Highway 69 that are being used for industrial purposes or could be used in the future for such purposes. The former drive-in site is being used for an auto body operation, RV storage, and the manufacturing of roof tresses.

- Texaco has removed the equipment from its site south of the road to the Secondary Industrial Park. This site has a good gravel base and subject to environmental approvals could be used for another industrial operation in the future.

Keyano College's MacKenzie Campus

- *Existing Development.* The portion of Keyano College's heavy equipment campus that falls within the ASP area is a land-intensive site for training with various forms of heavy machinery.

- *Future.* Keyano College is presently considering the future of the heavy equipment program. Potential exists to redevelop the MacKenzie Campus as a residential neighbourhood with a retail component at urban densities.

Air Transportation

- *Fort McMurray Airport.* The Regional Municipality of Wood Buffalo has recently taken over control of the airport from Transport Canada. The Fort McMurray Airport is a key regional transportation facility used by commercial airlines, private planes, helicopter companies, and fire-fighting aircraft.

- The airport serves as a major staging point for forest fire-fighting operations, pilot training, and recreational flying. The existing runway is 6,000 feet long.

- There is a potential for a second, parallel runway if required in the future because of increased aircraft movements. Both airport and Alberta Environmental Protection authorities want to ensure that future development in the ASP area does not restrict operations at the airport (e.g. because of complaints about noise).

- *Alberta Environmental Protection Heliport.* Alberta Environmental Protection operates a heliport on its site in the MacKenzie Industrial Park along Highway 69. While the heliport is outside the ASP area, future development within the ASP area must not restrict helicopter movement at this location.

Ground Transportation

- *CN / RaiLink Intermodal Facility.* The intermodal facility at the end of Highway 69 is generally used to unload goods bound for the oil sands plants from train to truck, and to load byproducts of oil extraction / processing onto trains for export.

- Sumitomo Corporation uses the intermodal facility on an intermittent basis (i.e. as little as once a year) to load petrochemical coke onto trains for shipping to Prince Rupert.

- Some people interviewed believe that increased traffic through the intermodal facility and hence along Highway 69 is key to reducing truck traffic on Highway 63 between Edmonton and Fort McMurray which in their opinion is often dangerously high.

- RaiLink has applied to lease land immediately west of the intermodal facility, north of Highway 69, and east of Spruce Valley Drive.

- *Draper Road* is a gravel road initially constructed to service power lines. The Regional Municipality has done some spot regravelling to solve localized drainage problems. People interviewed believed that Draper Road was of an adequate standard.

- *New Road to Saprae Creek.* Some people interviewed discussed the possibility of connecting Draper Road with Saprae Creek Estates to give road access to more potentially developable land and give residents of Saprae Creek a second and more direct route to the Urban Service Area.

- Alternately, Airport Road could be extended across Saprae Creek to Saprae Creek Estates. This option would give the fire hall in Saprae Creek Estates more immediate access to the airport in the event of an emergency there.

- *New Transportation Route Servicing the Oil Sands.* Some people interviewed raised the idea of building a highway and / or railway route across the Clearwater River and on the east side of the Athabasca River to provide an additional access route for the existing and future oil sands developments north of the Urban Service Area.

- *Improvements Associated with Development.* The policy of the Regional Municipality is that the cost of infrastructure improvements, including roadway improvements and extensions, should be borne by the developer.

Recreation

- *Rotary Club Campground.* The Fort McMurray Rotary Club operates a campground along Highway 69 just east of Keyano College's MacKenzie

Campus. The campground is used by itinerant workers more than tourists to the region. The campground is a money-maker for the Rotary Club and it plans to continue the operation. The Rotary Club would like sewer and water serviced provided to the campground if possible.

- *Vista Ridge All Seasons Park.* Vista Ridge has recently expanded with a new chalet and quad chair lift. Future development plans may include nature / cross-country ski trails in the valley bottom and day use picnic sites along the Clearwater River that could serve as boating / rafting staging areas.

- Automobile access to Vista Ridge is via Highway 69 and Spruce Valley Drive through Saprae Creek Estates. Because the route to Vista Ridge is primarily fronted by municipal reserve and public utility lots, the additional traffic it generates should have minimal impact on the subdivision as a whole.

- *Stocked Ponds.* Two ponds at a curve of Highway 69 are stocked with fish by Alberta Environmental Protection. Both have a recreation reserve disposition and have potential for a park or recreation development that respects the natural environment.

Environmental Protection

- *Clearwater River Flooding.* During the 1997 flood, low-lying areas within the Clearwater River flood plain were under several feet of water. Permanent dwellings within the flood plain, defined by the 250 m contour, should be restricted.

- *Heritage River Status for the Clearwater River.* In 1996 the Clearwater River was nominated as a Canadian Heritage River due to its special ecological, cultural, and recreational qualities.

- A draft Management Plan for the Clearwater Heritage River was released in March 1999. The major thrusts of the Management Plan are to maintain the "wildland" character of the river, ensure access to all users, minimize the environmental impact of any commercial or industrial operations, and recognize and respect significant cultural and heritage sites.

- *Clearwater River Valley Bluffs.* The possibility of geotechnical constraints to residential development on the Clearwater Bluffs was raised. A geotechnical study being prepared concurrently with the ASP will address this issue.

- *Saline and Saprae Creeks.* These two creek flow through the ASP area. Both Creeks contain arctic grayling populations. Development across or near the creeks should not negatively impact fish in the creeks or riparian vegetation.

- *Fish Habitat.* Both Saline and Saprae Creeks contain arctic grayling populations. The culvert in Saline Creek is probably a fish barrier. Any road construction across creeks should ensure the passage of fish through culverts.

- *CN / RaiLink Intermodal Facility.* Sulphur dust from a former sulphur-loading operation at the intermodal facility has increased local soil acidity and killed trees in the vicinity. Coke movement through the facility has the potential to aggravate the problem and help wash heavy metals into the soil. Concerns over existing environmental problems at the facility may affect future development plans on or near the intermodal facility site.

Servicing

- *Water.* Saprae Creek Estates is serviced with water by a 4" water line. The line passes by the Secondary Industrial Park but does not connect up with it. The airport is serviced by a 6" line, where a 600,000 litre water reservoir and pumphouse are located. The Draper area is not serviced with piped water, and there is a desire in some quarters for the Regional Municipality to provide water service here to service development.

- *Sewage.* A sewage lift station, sewage line, and lagoon on the south side of the airport runway handle all of the sanitary sewer output for the airport. Residences at Saprae Creek Estates have private sewage disposal systems.

- *Stormwater Management.* Stormwater management in Saprae Creek Estates is accommodated through drainage ditches. Stormwater from the airport terminal is directed to Saprae Creek.

Utility Corridors

- The corridor for Shell's proposed pipeline runs north to south east of Saprae Creek Estates. ATCO Power has also proposed a new power line at western edge of the ASP area along the alignment of an existing road / trail.

Other Comments

- The importance of providing landowners and other stakeholders within the ASP area with adequate opportunities for consultation and input was raised.

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E-mail: arminap@compusmart.ab.ca

Appendix A Persons Interviewed

Name	Affiliation
Rick Arthur	Alberta Environmental Protection
Stewart Cameron	724849 Alberta Ltd.
Stephen Clarke	Manager, Planning and Development, Regional Municipality of Wood Buffalo
Chuck Graves	Draper area resident and Guide and Outfitter, Alberta Hunting & Fishing Expeditions
Kim Howell	Superintendent, Parks and Recreation Division, Regional Municipality of Wood Buffalo
Tim Husel	RaiLink – Lakeland & Waterways
Blair Jean	Draper area resident and Clearwater River Lodge
Todd Lane	Lane's Auto Body
Dan LeBrun	Dean, Heavy Industrial Training, Keyano College
Alan Little	Fort McMurray Rotary Club
Jim McIlveen	Transportation Engineering Technologist, Engineering Services Division, Regional Municipality of Wood Buffalo
Rod Risling	Regional Assessor, Regional Municipality of Wood Buffalo
Larry Rhude	Fisheries Biologist, Alberta Environmental Protection
Mark Tumbach	President, Texaco Canada Petroleum Inc.
Doyle Turner	724849 Alberta Ltd.
Stacey Turner	724849 Alberta Ltd.
Tom Weber	Councillor, Regional Municipality of Wood Buffalo
Darryl Wightman	Airport Manager, Fort McMurray Airport
John Wilson	Chairman, Vista Ridge All Seasons Park Board of Directors
Larry Wright	Regional Municipality of Wood Buffalo
Ken Yamada	Sumitomo Corporation

APPENDIX B

COMMUNITY CONSENSUS WORKSHOP

SUMMARY REPORT

The Regional Municipality of Wood Buffalo

Highway 69 / Clearwater River Valley Area Structure Plan

Community Consensus Workshop Summary Report

Held June 2, 1999 at
MacDonald Island Pavilion

Prepared for

Regional Municipality of Wood Buffalo
Planning and Development Department

by

Armin A. Preiksaitis & Associates Ltd.

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June 9, 1999

Table of Contents

1.0 Purpose

A Community Consensus Workshop was held as part of the planning process of preparing the Highway 69 / Clearwater River Valley Area Structure Plan on Wednesday, June 2,1999, from 7:00 – 9:30 p.m. in the MacDonald Island Pavilion.

The purpose of the Community Consensus Workshop was to involve residents, business owners, and other stakeholders in developing a consensus for a preferred future land use concept and development pattern for the Highway 69 / Clearwater River Valley Area Structure Plan area.

2.0 Process

The workshop was advertised in the *Fort McMurray Today*. Individual invitations were sent out to residents of Saprae Creek and the Draper Road area as well as people who had participated in Key Person Interviews.

Councillor Tom Weber welcomed workshop participants, who totaled over 50 people. (A list of workshop participants is found in Appendix A.) He also introduced Stephen Clarke, Manager of Planning and Development, and the consulting team: Armin Preiksaitis and Erik Backstrom of Armin A. Preiksaitis & Associates Ltd., and Sarah List, Sillah Kargbo, and Emmett Horne of Terracon Geotechnique Ltd., which has been retained to prepare a geotechnical study of the ASP area.

Following Councillor Weber's introductory remarks, Armin Preiksaitis of Armin A. Preiksaitis & Associates Ltd. made a presentation in which he outlined the overall goal and more specific objectives of the Highway 69 / Clearwater River Valley Area Structure Plan, and summarized the issues identified through background research and Key Person Interviews. He then briefly explained the "vision building" process. Copies of the overheads used for presentation are appended as Appendix B.

Following this presentation, the workshop participants worked in small groups that worked to develop a shared vision for future development in the ASP area. After approximately one hour, the small groups reported back their results to the group as a whole. The following Section 3.0 contains a summary of the main points of consensus arising from these reports. The flip chart "roll-up" sheets produced by the various groups are transcribed in Appendix C.

3.0 Group Consensus

Residential Land Uses

- There was good consensus among workshop participants that expansion to Saprae Creek Estates should proceed as described in the existing Saprae Creek Estates Area Structure Plan, i.e. to the south and east, but not to the west.

- Workshop participants also generally agreed that residential development should be allowed in the Draper area, subject to geotechnical analysis. Such development should be country residential development on larger lots.

- Keyano College's MacKenzie Campus site and the lands to the north of it were identified as desirable for residential development at urban densities because of the views they afford, their proximity to Saline Creek, and because they represent a logical expansion of the Urban Service Area.

Agricultural Land Uses

- The small groups did not explicitly address issues about agricultural land uses in the Clearwater River meanders.

- Permanent dwellings associated with agricultural operations should be allowed provided proper flood-proofing is done.

- Some participants believed that portions of the ASP area should be designated for hobby farms, raising of exotic animals, etc.

Commercial Land Uses

- Workshop participants had mixed opinions about allowing a convenience commercial operation in Saprae Creek Estates. It is doubtful that the population of Saprae Creek Estates could support a "general store" in any case given the competition in the Urban Service Area.

- Home businesses / occupations should be allowed as long as they do not distract from the enjoyment of neighbouring properties.

Industrial Land Uses

- Workshop participants generally acknowledged the need for industrial land uses in the ASP area in the future.

- Allowing industrial uses at the former drive-in site and Texaco sites, and possibly at other locations on the south side of Highway 69, seemed acceptable to the group.

- Expansion of the CN / RaiLink Intermodal Facility at Lynton raised a few concerns over aesthetics along Spruce Valley Road on the way to Saprae Creek Estates. A commitment from RaiLink to include a buffer to hide industrial operations from view along the road seemed to be well received.

- Continued operation of the Secondary Industrial Park was generally acceptable to workshop participants. Some participants were concerned about the area's unsightly appearance and wanted to ensure that it did not expand.

Recreational Land Uses

- Parks and trail development (including trail signage) came across as being important to workshop participants. All seemed to support maintaining the abandoned railway lines along Saprae Creek and east of the terminus of Draper Road for trail purposes. The idea of developing cross-country skiing / hiking trails at the base of the Vista Ridge ski hill also garnered support.

- Some residents asked that any new trails be located well away (100 m) from property lines to maintain privacy.

- A desire for boat launches along the Clearwater River was clearly expressed. Two potential boat launch locations were identified, one north of Vista Ridge and the other slightly outside the ASP area near Waterways.

- Some workshop participants expressed a desire for more camping facilities with full R.V. hook-ups in the Fort McMurray area. Two potential locations within the ASP area are the Rotary Campground and the stocked ponds further along Highway 69.

Keyano College's MacKenzie Campus

- As discussed above, the general consensus was that the MacKenzie Campus was a good location for future residential development.

Air Transportation

- The importance of the not hindering present and future operations at the Fort McMurray Airport was acknowledged given the region's dependence on flight for transportation and fire-fighting purposes.

Ground Transportation

- Saprae Creek Estates residents at the workshop generally expressed a desire for a second road access to the subdivision. There was no support for extending Draper Road to the subdivision, and extending Airport Road was also seen as problematic from a safety and traffic operation point of view.

- An option that received good tentative support was extending the road from the Secondary Industrial Park across Saprae Creek to connect up to an existing road. In addition to giving Saprae Creek Estates residents a second access, this would permit much more direct access for emergency vehicles between the airport and Saprae Creek Estates.

- A desire for public transport to Saprae Creek Estates and the airport was expressed.

- Road maintenance in Saprae Creek Estates and along Draper Road was raised as an issue.

Environmental Protection

- There was general consensus that the existing undisturbed areas should be retained in their natural state. River banks and steep hillsides should be protected from erosion.
- Soil contamination at the CN / RaiLink Intermodal Facility worried some workshop participants.

Servicing

- Residents in the Draper area sought provision of piped water.
- Some Saprae Creek Estates residents sought piped sewer service.
- Some workshop participants sought a technical study on the feasibility of servicing the Draper area with natural gas.

Other Issues

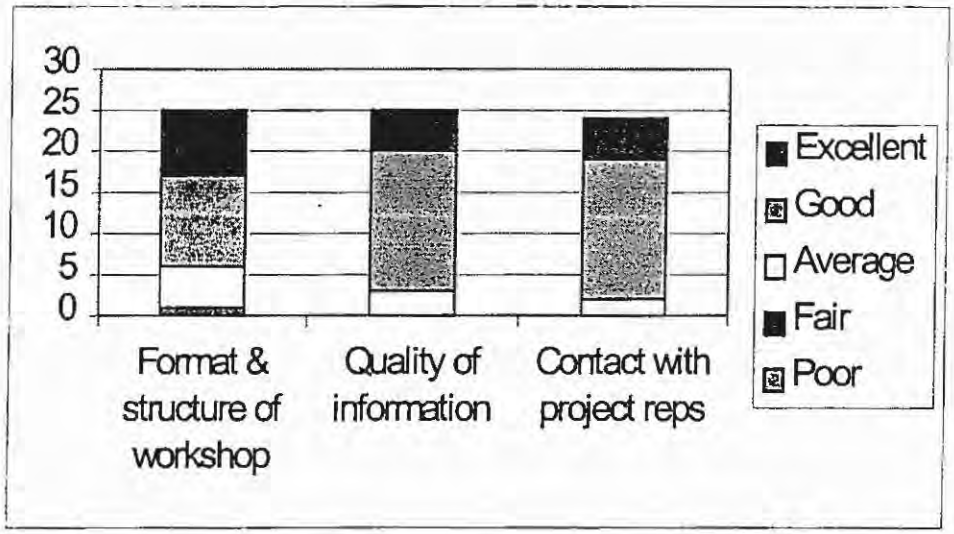
- Given the history associated with the Draper area, some workshop participants expressed a desire for heritage preservation / interpretation at key sites, including the location of the former train station.
- Some area residents wanted neighbourhood committees to be more involved in the land use and development decisions affecting them.

4.0 Summation / Next Steps

The information gathered from the Community Consensus Workshop as well as from the inventory and analysis and Key Person Interviews will be used to prepare a draft Highway 69 / Clearwater River Valley Area Structure Plan (ASP). The draft ASP will be presented for public review at an Open House from 1:00 – 4:00 p.m. on Saturday, June 19, 1999 at the Vista Ridge Recreation Centre. If necessary, revisions will be made to the ASP, and it will be presented to Regional Council for First Reading on July 13, 1999 and a Public Hearing and Second and Third Reading on August 24, 1999.

5.0 Workshop Evaluation

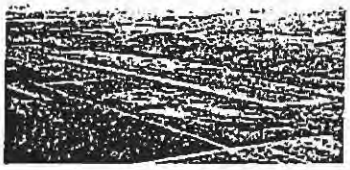
Workshop participants were generally very pleased with the Community Consensus Workshop. As shown in the chart below, almost all of the participants who completed an evaluation form considered the session to be "good" or "excellent" with regards to format, quality, and opportunity to speak with project representatives.



Appendix A Workshop Participants

John Barrett
Mike Bergeron
Suzanne Bergeron
Owen Bunke
Stew Cameron
Dan Casselman
Melody Casselman
Darren Clarke
Laureen Cloutier
Jack Cross
Roberta Cross
Joe Dixon
Karen Fischer
Steven Fischer
Carol Golosky
Doug Golosky
Meridel Graves
Bob Grey
Gary Gregory
Tanya Gregory
Jane Hebblethwaite
Dale Henderson
Emmett Horne
Charles Hueser
Lyle Hueser
Nancy Hueser
Marge Hueser
Tim Husel
Bertha Janke
Ken Janke
Blair Jean
Denise Jean
Sillah Kargbo
Rex Lane
Al Larsen
Larry LeMesuier
Al Lindsay
Sarah List
Greg MacMillan
Stella McGhee
Wayne Mimura
Rod Mosher
Harry Osteneck
Roger Richard
Renee Rebus
Jim Rogers
Darcy Rustad
Hank Sommer
Doyle Turner
Stacey Turner
Lorraine Turton
Tom Weber
Al Wiebe
Ken Wiebe
Darryl Wightman

Community Consensus Workshop Wednesday June 2, 1999



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Highway 69 / Clearwater Valley Area Structure Plan

Agenda

- Registration / Small Group Assignments
- Welcome / Introductions
- Presentation by Consultants
- Small Working Groups
- Small Group Reports
- Summation / Next Steps

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Highway 69 / Clearwater Valley Area Structure Plan

Overall Goal

To provide for the orderly efficient, and sustainable development of the area while respecting the integrity of the natural environment.

ARMIN A. PREIKSAITIS & ASSOCIATES LTD

Highway 69 / Clearwater Valley Area Structure Plan

Objectives

- Determine future land uses for the area.
- Determine present/future operations of the Fort McMurray Airport.
- Determine the existing/future needs of the Keyano College.
- Determine environmental/geotechnical constraints to development.
- Determine future access/servicing requirements.
- Assess the impact of development on parks, schools, and other community services; and
- Describe the sequence and implementation of development.

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Highway 69 / Clearwater Valley Area Structure Plan

Key Person Interviews

- Residential
  - Saprae Creek Est.
  - Draper Area residential
- Industrial
  - Demand is to north
  - Secondary Ind. Park
  - Other sites
- Agricultural
- Keyano College MacKenzie Campus
- Commercial
- Recreational
  - Rotary Campground
  - Vista Ridge
  - Stocked Ponds
- Utility Corridors

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Highway 69 / Clearwater Valley Area Structure Plan

Key Person Interviews

- Environmental Protection
  - Clearwater Heritage River
  - Clearwater flooding
  - Clearwater Bluffs
  - Saline and Saprae Creeks
  - Intermodal Facility
- Transportation
  - Airport / Heliport
  - Intermodal Facility
  - New road to Saprae
- Servicing
  - Water
  - Sewer
  - Stormwater
- Public Participation

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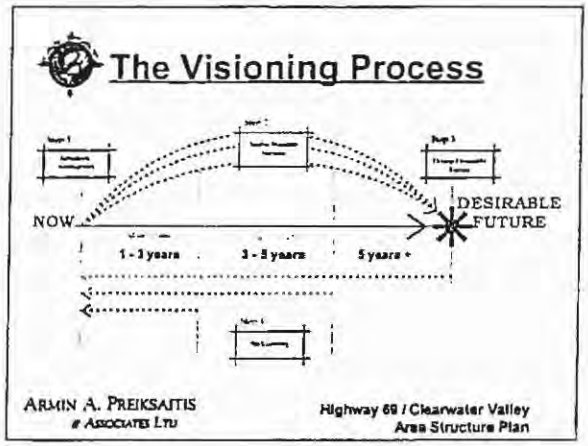
Highway 69 / Clearwater Valley Area Structure Plan


The Visioning Process
NOW
DESIRABLE FUTURE
1 - 3 years
3 - 5 years
5 years +
ARMIN A. PREIKSAITIS & ASSOCIATES LTD
Highway 69 / Clearwater Valley Area Structure Plan

Group 1:

Greg MacMillan
Jane Hebblethwaite
Jack Cross
Roberta Cross
Owen Bunke
Karen Fischer
Steven Fischer
Rod Mosher

Notes on roll-ups:

No development other than existing.

1. Use existing river setbacks.

2. Draper:
   - Draper Train Station
   - Heritage Site & Mine Site to be protected
   - Existing railbed as a trail system for recreational vehicles
   - Utilize crown land as recreational
   - Docking – new dock at old Clearwater concrete site, by existing ramp

   Saprae:
   - Retain existing trail system
   - New trails must be set 100m from property lines
   - Possible golf course swamp area within S.C., Spruce Valley east and west

3. No expansion of Secondary Industrial Park.
   Keyano Equipment Campus could be expanded industrial.
   Lynton site:
   - railhead needs to stay
   - safety concerns
   - environmental concerns
   - sulphur pelleting plant: remove remains
   - building code fire concerns

4. Draper:
   - 5 acre lot size minimum
   - feasibility study on gas service
   - country residential only

   Saprae:
   - have future development remain as in 18N 1994 A.S.P.

5. Extend road from Secondary Industrial Park which currently stops at Saprae Creek (see orange on map).
   - possible Airport Authority co-op on financial costs
   - upgrade existing Spruce Valley Road – hot asphalt mix
   - repair railbed to serve as dyke, ex. – remove culverts, build up road
   - regular road maintenance
   - the less rules the better
   - leave country as country
   - keep your city out of our country
   - no junk yards
   - no big commercial

Group 2:

Roger Richard
Emmett Horne
Lorraine Turton
Bertha Janko
Darren Clarke
Wayne Mimura
Ken Janke

Notes on roll-ups:

1. Noise (safety) for residential
   - Airport expansion

2. All areas mentioned plus:
   - environmental reserves
   - Saprae Creek Estates

3. Campgrounds -- stocked ponds
   Trail development – Vista Ridge
   Docking facilities – Vista Ridge
   Additional campgrounds – Rotary Club

4. Keyano Industrial recognized and expanded
   - Secondary Industrial not expanded or be eliminated
   - Lynton Intermodal recognized or expanded not to infringe on Spruce Valley Drive
   - Texaco site – expanded along with expansion of Lynton site

5. Keyano Industrial Area:
   - further residential if Keyano relocates

   Draper Road:
   - existing development OK expand along Draper Road

Saprae Creek Estates
- South Weiss Drive OK
- East of Spruce Valley OK
- West of subdivision least desirable

6. Alternate Saprae Creek access
   - extend Airport Road
   - extend Draper Road (upgrade)

Group 3:

Rex Lane
Al Wiebe
Al Lindsay
Ken Wiebe
Jim Rogers

Notes on roll-ups:

1. No development of extended line of runway.
   Potential of light industrial to south of Highway 69.

2. All water areas
   - Clearwater River already protected
   - sensitive areas that are privately owned should remain so

3. Develop additional R.V. parks along south side of Highway 69, vicinity of stocked ponds.
   - develop cross country ski trails in Draper – Saprae area
   - picnic areas for canoeing along Clearwater

4. What will happen to Keyano Industrial Training area?
   - suggestion of residential area

5. Residential development (water, sewer and gas):
   - Draper Road (minimum 2 acres)
   - Keyano Training
   - not restricted to private residence, i.e. hobby farm, horses, llamas

6. Public transit to airport and Saprae Creek
   - another access road to Draper area, perhaps from Keyano area
   - use of Keyano equipment and personnel to develop areas and roads but not to infringe excessively on private enterprise

7. Neighbourhood development committees of residents.

Group 4:

Tim Husel
Carol Golosky
Doug Golosky
John Barrett
Darryl Wightman
Laureen Cloutier

Notes on roll-ups:

1. Noise bylaws.
   - Development, possible expansion?

2. All to be kept as natural as possible.

3. Develop existing trail at Saprae's west end further (i.e. more accessible). Possible camping facility with full hook-ups.

4. Lynton Yard expand to Saprae Creek turn off should go ahead.

5. Go ahead with:
   - east of Spruce Valley Drive and south of Weiss Drive
   - Draper
   - Keep 2.5 acres minimum
   - consider water and sewer facilities (i.e. is water line capable of proposed developments, consider current Saprae residents first if sewer hook-up becomes available)

6. Continuation of Draper Road to Saprae Road along Saprae Creek south of residences to keep traffic to a minimum.

7. As north side of Weiss Drive is quite low, what may happen to residents if south side is developed? (i.e. run-off, water table)
   - no trail north of Freestone between lots and Clearwater River unless it is beneath the drop off

Group 5:

Meridel Graves
Blair and Denise Jean
Hank Sommle
Doyle Turner
Al Larsen
Sillah Kersleo

Notes on roll-ups:

1. (blank).

2. 100 m set backs exist.
   Ref. CHRS CRC management plan.

3. More boat launch locations
   - upgrade sync
   - build at horse pasture
   - build at old Swanson Mill site

4. No expansion effects on Saprae residents.

5. Draper issues have been addressed and Association gave input.
   - Keyano N & NE along Old Airport Road, good for housing

6. Water and gas from airport to Draper. No road Saprae – Draper.

Group 6:

Mike Bergeron
Melody & Dan Casselman
Stella McGhee
Harry Osteneck

Notes on roll-ups:

1. Height restrictions
   Noise
   Crash zone

2. All – swamps and rivers mentioned.

3. Boat launch
   Railbed
   End of Draper Road to Christina R. (trails to be developed and maintained)

4. Do not let future road development infringe on trails.

5. Greater than 2.5 acres (2.5 – 10).

6. Road between Saprae and airport OK. No road between Draper and Saprae.

Group 7:

Bob Grey
Lyle Hueser

Charles Hueser
Marge Hueser

Notes on roll-ups:

Market Gardens

1. No residential – airport.

2. River banks, steep hillsides – protect from erosion.

3. Trail signage. boat dock above Draper.

4. No commercial development in Draper.

5. Opposed to throughfare to Saprae Creek.
   Feel Draper should be residential – 2.5 acre lots.

6. Draper Road in need of permanent repairs.
   Running water.

APPENDIX C

PUBLIC OPEN HOUSE

SUMMARY REPORT

HIGHWAY 69 / CLEARWATER RIVER VALLEY AREA STRUCTURE PLAN

PUBLIC OPEN HOUSE SUMMARY REPORT

June 1999

A Public Open House was held on Saturday, June 19, 1999 from 1:00 – 4:00 p.m. at the Vista Ridge Chalet in Saprae Creek Estates to allow interested parties to review and comment on the draft Highway 69 / Clearwater River Valley Area Structure Plan.

The Public Open House was publicized in advance through an ad in the Fort McMurray Today, a media release, a radio interview with Armin Preiksaitis and Stephen Clarke, and a direct mailing who participated in the Community Consensus Workshop on June 2, 1999.

Approximately 22 people attended the Public Open House. A list of those who signed the attendance sheet is included at the end of this report.

Persons attending the meeting expressed concerns about the following:

- Showing an extension of the Secondary Industrial Area to the south to reflect the presence of Bishop's Auto Wreckers.
- Ability to develop country residential development between Draper Road and the Clearwater River (floodplain areas).
- A buffer between Spruce Valley Road and the potential expansion to the Intermodal Facility.
- The location of potential trail connections to ensure privacy of private properties in Saprae Creek Estates.
- Setback requirements along the Clearwater River and Saprae and Saline Creeks.
- Requirements for dedication of environmental and municipal reserves.
- Geotechnical requirements for development on slopes in the Draper Road area.

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Appendix A People Attending Open House

Brenda Bishop

Peter Brown

Darren Clarke

Ronald Egger

David Gauthier

Larry Gauthier

Lyle Hueser

Nancy Hueser

Scott Hutton

Byron A. A. Issac

Jacqueline Issac

Adrienne Lietz

Bervin Mack

Greg MacMillan

Roger Richard

Bill Romanchuk

Tyler Romanchuk

Mel Ruelling

Hank Sommer

Stacey Turner

Tom Weber

APPENDIX D

PUBLIC INFORMATION MEETING WITH

DRAPER ROAD RESIDENTS

AND PROPERTY OWNERS

SUMMARY REPORT

HIGHWAY 69 / CLEARWATER RIVER VALLEY AREA STRUCTURE PLAN

PUBLIC INFORMATION MEETING HELD WITH DRAPER ROAD RESIDENTS AND PROPERTY OWNERS SUMMARY REPORT

held on August 4, 1999

A Public Information Meeting was held on Wednesday, August 4, 1999 from 7:00 – 9:30 p.m. at the Waterways Community Hall to discuss outstanding issues regarding the draft Highway 69 / Clearwater River Valley Area Structure Plan with Draper Road area residents and property owners.

The Public Information Meeting was publicized in advance through an ad in the Fort McMurray Today and direct invitations sent to individuals on a mailing list.

Approximately 25 people attended the Public Open House. A list of those who signed the attendance sheet is included at the end of this report.

Councillor Tom Weber called the meeting to order and introduced members of the Planning and Development Department and Consulting Team in attendance.

At the meeting the following issues were discussed:

- **Lot Size for Country Residential Development in the Draper Road Area.** At the meeting there was agreement that the minimum lot size should be 1 hectare (2.47 acres).

- **Development on Slopes.** Guidelines in the report by Terracon Geotechnique Ltd. on development on slopes are not to be mandatory. Subsequent to the meeting, Policy 5.2.3 was changed state that development on slopes should follow the provisions of *Section 49 – Development Setbacks from Slopes* in the Land Use Bylaw as approved.

- **Preservation of Agricultural Lands.** The consultants undertook to review areas designated as "Existing Agriculture" on Map 6 – Development Concept to ensure that they are being and can be used for that purpose. It was generally agreed that the minimum lot size in areas so designated would be 4.0 hectares (9.88 acres).

- **Development in Environmental Protection Areas.** It was generally agreed that the need for an environmental impact assessment for development in Environmental Protection areas should be at the discretion of the Regional Municipality of Wood Buffalo rather than mandatory.

- **Buffers Along the Clearwater River and Saprae and Saline Creeks**. It was decided that buffers along these watercourses should be a minimum of 6 m wide but that more could be required. Additional areas for buffering need to consider natural vegetation, water features, fish and wildlife habitat, escarpments, terraces, local and regional open space and trail links where applicable.

- **Development within the Flood Plain**. It was generally agreed that the standards in Policy 5.3.10 should be made optional rather than mandatory. Following the meeting, Policy 5.3.10 was deleted and Policy 5.3.9 was changed to be consistent with *Section 47 – Development in the Flood Plain* of the Land Use Bylaw as approved.

- **Heritage Preservation**. As a result input received, it was decided to enhance Policy 5.3.11 to specify that the Regional Municipality should seek to have the site of Tom Draper's historic oil sand extraction operation designated a Provincial Historic Resource.

- **Environmental Reserve (ER)**. It was agreed to change Policy 5.3.14 to read that the amount of land to be taken as environmental reserve will be determined on a site specific basis rather than always to the full extent allowed under the Municipal Government Act.

- **Municipal Reserve (MR)**. It was agreed to change Policy 5.4.5 to read that the Regional Municipality may take up to 10% of land to be subdivided as municipal reserve or cash in lieu rather than always the full 10% allowed under the Municipal Government Act. In determining the need for MR, consideration will also be given to the availability of nearby Crown Land for recreational purposes.

- **Access to Residences on the North Side of the Clearwater River**. It was agreed that subdivision and reserve dedication on the south side of the Clearwater River will be done in a way that maintains access to docking facilities on the south side for residents of the north side. A new Policy 5.5.5 was added to the Area Structure Plan as a result.

The only comment sheet received at the end of the meeting asked that land not be designated as agriculture on *Map 6 – Development Concept*.

Blair Jean also inquired whether any initiatives were being taken to develop or upgrade boat launching facilities within the area. A follow-up meeting is to be arranged with the Planning and Development and Community Services Departments.

Revised policies were circulated to people attending the Public Information Meeting for their review by Friday, August 13, 1999, and comment before the final draft of the Highway 69 / Clearwater River Valley Area Structure Plan was forwarded to Regional Council for First Reading.

List of Person Participating in Public Information Meeting.

Rob Black
Al Blatz
Margaret Bradshaw
Dan Casselman
Carl Deane
Steve Fischer
Larry Gauthier
Chuck Graves
Meridel Graves
Robert Grey
Lyle Hueser
Nancy Hueser
Patricia Hillroch
Trisha Hutton
Blair Jean
Denise Jean
Bervin Mack
Stella McGhee
Harry Osteneck
J. Sadowski
Andrea Spring
Dianne Weber
Tom Weber
Richard Weber
Mary Weber-Blatz

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APPENDIX E

SLOPE STABILITY AND

SOIL SUITABILITY STUDY,

ABBREVIATED VERSION

HIGHWAY 69 / CLEARWATER RIVER VALLEY AREA STRUCTURE PLAN: SLOPE STABILITY AND SOIL SUITABILITY STUDY

ABBREVIATED VERSION

Submitted To:	Regional Municipality of Wood Buffalo
Submitted By:	Terracon Geotechnique Ltd.
Date:	June 9th, 1999

GENERAL

Terracon Geotechnique Ltd. (TGL) was retained by the Regional Municipality of Wood Buffalo (RMWB) to undertake an investigation of slope stability and soils stability for the Highway 69 / Clearwater River Valley Area Structure Plan (ASP) area.

The product of the process will be the geotechnical considerations, which will be integrated into the Area Structure Plan for the subject lands and is intended to provide basic geotechnical soils expertise so that further planning in the area can proceed on the basis of a clear understanding of the soils' utilization principles for the area.

1.0 SCOPE, APPROACH AND METHODOLOGY

An investigation of slope stability and soils stability in the Area Structure Plan area was carried out by reviewing existing geological maps, aerial photographs, relevant geotechnical reports, and the Flood Damage Reduction Program followed by surface reconnaissance to confirm conditions at specific areas. The focus of the work was mass wasting processes and rates, topography, the key geological units and groundwater conditions. TGL has not conducted any new investigations during this study in keeping with the terms of reference.

2.0 GEOLOGICAL SETTING

The area of interest consists of four physiographical sections, the floodplain, lowlands, crests and uplands of the Clearwater Valley located south of the City of Fort McMurray, Alberta.

The study area is underlain predominantly by the Clearwater Formation with outcrops of the McMurray Formation along the Clearwater River and the Grand Rapids

Formation along the southern border. The Devonian limestone of the Waterways Formation is also present along the Clearwater valley floor.

2.1 Hydrogeology

In the highland areas, where the average elevation is 370 m, the water table depth varies between 0 and 23 m below ground elevation, with an average depth of 10 m. In other areas below the 350m contour, the average ground water table elevation is approximately 4m below the ground surface.

3.0 GEOTECHNICAL INVESTIGATIONS

The bedrock soil of the Clearwater Formation has characteristically high slaking properties which cause the clay shale to weather rapidly to a highly plastic clay. The Clearwater Formation clay shales have a local and regional performance record which has repeatedly demonstrated the general slope instability of these materials.

The McMurray Formation underlies the Clearwater Formation and consists of very dense and competent tar sand, clay shales and water sands. Tar sand slopes, when newly excavated, will support steeper slopes which, with erosion and weathering, degrade to 30° to 35°.

The Clearwater River bank is marginally stable in some areas. The majority of the historical failures in the area are of two modes: a) shallow (less than 1.5 m deep) soil slab movement and b) shallow (1.5 m to 3 m deep) retrogressive circular (rotational) and composite slope failures. However, deep-seated failures may also exist along the river valley.

Groundwater levels, pore water pressure build-up either from surface runoff and infiltration or groundwater flow and slope movement due to excavation of soil from the toe of the slope have been identified as the major causes of slope instability in this area.

The mode of failure to be expected are shallow failures in the surficial soils and Clearwater Formation on the steep slopes along the Clearwater Valley and its tributaries. Deep-seated failures are highly unlikely, except where there are significant Clearwater clay shales, because this mode would generally involve shearing within tar sands.

If any developments are contemplated in the bluff areas, the following factors must be considered: the control of surface water runoff and groundwater seepage by positive measures, construction and design which incorporate a minimum amount of cut and fill, and the construction of slope stability remediation structures, like retaining structures and/or gabions. Construction following the recommended setbacks from slopes and development, is driven by site specific geotechnical design.

4.0 ICE JAM FLOOD PARAMETERS AND CHANNEL MIGRATION FOR THE CLEARWATER RIVER

Data indicates that potential ice jams causing flood elevations with return periods of approximately 100 years, 50 years and 20 years have corresponding flood elevations of 250, 248.9, 247.2 meters respectively. The 246.0 m elevation exceeds the "normal" ice run on the Clearwater River and is the approximate flood threshold, above which flooding begins to occur along the left bank of the Clearwater River.

The Clearwater River channel has an irregular meander pattern with flow in a pool and riffle sequence. Our examination of air photos taken between 1949 and 1997 indicates a negligible amount of lateral migration over this 48-year period.

5.0 GUIDELINES FOR DEVELOPMENT IN THE FLOOD PLAIN

The flood plain is defined as the land below the 250m elevation and is covered by unconsolidated surficial material which is usually organic topsoil, fluvial deposits consisting of sand layered with varying silt and clay content. Localized and shallow landslides of this surficial material, due to slope disturbance, has been reported during road construction along Cliff Avenue in the Waterways area. The bedrock and overlying fluvial gravels and sands in the undisturbed state, are generally competent load bearing materials for most structures.

5.1 Existing Applicable Guidelines

The RMWB has established general regulations for development near water bodies and water courses in the draft land use bylaw. The National Housing Authority (NHA) has published standards regarding construction in flood fringe areas (Amendment 9 - 1986-05-30). In addition to these guidelines, the following are suggested:

- Driveways must be not be constructed below the 1:100 year flood level. If fill is required it must be stable.
- Proper drainage must be provided in each lot, sloping away from the structures.

5.2 Development in the Lowlands

The lowlands, as a physiographical region, are described as that area in the Clearwater Valley above the 250m mark and bounded by the valley slope toe and the east boundary of the ASP. Geologically and geotechnically the soil is considered the same as the flood plain. The following guidelines apply in this area but may be superceded by a structure/site specific investigation by a Professional Engineer:

- All construction should be supported on the bedrock, or competent flood plain material (coarse sands and gravels).
- Where the topsoil is too thick and its total removal is not considered cost effective, it should be cleared to depth certified by a Professional Engineer as competent for the proposed improvements.
- A minimum improvement setback of 30.0 m must be allowed from any portion of the slope for all development. Alternatively, a setback criterion based on slope height and slope angle could be established.
- Appropriate erosion and drainage controls should be included in all development plans.
- Any backfill material used must be more permeable than the surrounding material.
- Service line construction and maintenance in the fluvial material (sands and gravels) may be difficult because of potentially high water tables and active groundwater flows.

6.0 GUIDELINES FOR DEVELOPMENT OF THE BLUFF PROPERTIES

The Bluff Properties are sub-divided into slope, crest, and upland development areas. The slope area is subdivided into two slope zones. The lower slope zone lies between the 250m and 300m contour lines. The upper slope zone lies between the 300m contour and the slope crest.

6.1 Lower Slopes (McMurray Formation Subcrop)

The following guidelines are suggested but may be superceded by a structure/ site specific investigation and approval by a Professional Engineer:

- All construction should be supported on the bedrock, the McMurray Formation.

- Where the topsoil is too thick and total removal not considered cost effective, it should be cleared to a depth certified by a Professional Engineer as competent for the proposed development.
- Constructed slopes of soil or disturbed subcrops must not exceed 11 degrees; otherwise an adequate slope stability structure must be designed by a Professional Engineer.
- All slopes in the in-situ McMurray Formation must be below 35 degrees to be safe for building or road construction.
- A minimum building setback of 30.0 m must be allowed from any portion of the slope for all development..
- Clearing on the slope should be minimal and a slope no steeper than 3H:1V is required in order to adequately establish a vegetative cover in the topsoil material.
- Development should have appropriate erosion control structures and drainage control plans.
- Material used for all improvement backfilling must be appropriate especially for strength and drainage considerations.

6.2 Upper Slopes (Clearwater Foundation Subcrop)

This represents Clearwater subcrop and is generally found above the 300m contour to the slope crest. Due to its historical instability, this area is excluded from development except for exceptional purposes which would include major infrastructure and must be accompanied by an appropriate geotechnical investigation.

6.3 Development Along the Crests and Uplands

The following guidelines are suggested:

1) For crests underlain by Clearwater Formation, no development is recommended within a horizontal crest setback distance which is a function of the existing slope angle and slope height. The setback distance is equivalent to an overall slope angle of 8H:1V to 10H:1V. However, if a site specific geotechnical study indicates that the area is naturally stable or some remedial structure will be built, such as a retaining wall, and there will be no threat to the development, then the 100 m setback distance in draft regulation (Land Use Bylaw, RMWB) can be applied.
2) The setback distance should be maintained as a greenbelt to reduce runoff erosion.
3) Any backfill material used in the setback area must be more permeable than the surrounding material.
4) In low lying wet areas, the material should be adequately drained and improved to provide a stable foundation.
5) The Clearwater Formation in horizontal terrains is competent as a bearing surface when confined and undisturbed.
6) No development should be authorized in these areas with topographic slopes exceeding 11° without appropriate geotechnical study and design; the Clearwater Formation being the predominant bedrock.
7) Areas where industrial activities are, or have taken place, must be investigated for contamination and reclaimed before any development is allowed.
8) Severe subcrop slopes (i.e. Buried valleys) in the Clearwater should either be avoided for development or would be subject to a site specific geotechnical investigation.

7.0 ROAD CONSTRUCTION TO SAPRAE CREEK ESTATES

Four options for road development in the area were considered.

1. The extension of the road along the Clearwater Valley Slope to the Draper Estates then a turn south up the slope to Saprae Creek Estates. The slope is approximately

13 degrees and the topsoil is up to 6m thick. Road construction across the slope should be perpendicular up the slope to minimize exposure to the Clearwater Formation.

2. Convert the Old Railway Line (Waterways to Saprae Creek Estates) to a Motorway requiring expansion and rehabilitation of ten bridges/ culvert structures and the construction of a new bridge east of the airport into Saprae Creek Estates. The Old Railway Line exists as a firm base though considerable cut and fill, with the appropriate geotechnical support, will be required to widen the embankment.
3. Rehabilitate and extend the Old Airport Road to Saprae Creek. The Old Airport Road exists as a firm base and no culvert/bridge structures are required on this section. An extension needs to be constructed from the airport to Saprae Creek Estates, which will require a bridge across Saprae Creek.
4. Extend the road in Saprae Creek Estates from the intersection of Sol Peak Drive and Weiss Drive, along the existing 100 mm Diameter Watermain West of the Dry Industrial Lot and to Highway 69. Geotechnical and geological conditions are favorable along this route. Low relief and low slopes, which alleviate geotechnical concerns, combined with favourable geological conditions, makes this an attractive option.

8.0 SUITABILITY OF THE DEVELOPMENT AREAS

Figure 5 outlines the sixteen areas dispersed across the ASP which are deemed geotechnically possible for construction.

9.0 RECOMMENDATIONS AND CONCLUSIONS

- Those areas requiring slope stabilization in the top Clearwater Formation clay shale and the unconsolidated overburden material are best remedied by cutting the slope back to appropriate angles. This type of remediation is generally the most logical and cost effective alternative. Where this cannot be achieved other alternatives, such

as gabions and retaining walls may have to be employed. Each site with Clearwater cut slopes will require its own site investigation and design.

- It appears that ground water seepage and perched water tables contribute to slope failures in the clay shale of the Clearwater. However, because of the high plasticity and low permeability of the shale, drainage is generally not effective. Designs should adopt appropriate safety factors.

- Those areas which have a high potential for erosion can be adequately protected by gabion walls. Gabion walls are the most effect method for erosion control which can provide many years of protection when properly constructed. Low profile earth berms, well vegetated, have had a good record of success for erosion control.

- Reducing slopes also may increase the catchment area and hence the volume of surface runoff. To reduce the erosional effect of increased runoff, adequate surface drainage control must be provided.

This study provides a general assessment of the Area Structure Plan area. Any application for development should be considered on a site specific basis which should include detailed geological and geotechnical evaluations when appropriate.

APPENDIX F

CONTACTS AND REFERENCES

Contacts

Frank Fuger	Transport Canada, Prairie & Northern Region
Francois Gagnon	Secretary-Treasurer, Fort McMurray Catholic Board of Education
Dave Gibson	Marketing Representative, ATCO Gas
Barry Haughian	Director of Plant Operations, Fort McMurray Public School District #2833
Sarah List	Terracon Geotechnique Ltd.
Bob Love	Corridor Pipeline Ltd.
Lee Nichols	Terracon Geotechnique Ltd.
Robbie Robertson	Transport Canada, Prairie & Northern Region

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