Schedule A

FORT MCMURRAY REGIONAL AIRPORT AREA STRUCTURE PLAN BYLAW NO. 12/009

Submitted to

REGIONAL MUNICIPALITY OF WOOD BUFFALO

On behalf of the

FORT MCMURRAY AIRPORT AUTHORITY

Prepared by

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1.0 INTRODUCTION

1.1 Purpose

With a high demand in passenger activity outpacing any improvements to the terminal building, the Fort McMurray Airport Authority has determined that long term growth can only be accommodated through the provision of new infrastructure and expansion of the Fort McMurray Regional Airport (Airport). The current Fort McMurray Municipal Airport Area Structure Plan requires an update to reflect the proposed expansion plans for the Airport. The Fort McMurray Regional Airport is no longer municipally owned and the new area structure plan for the airport is to be called the "Fort McMurray Regional Airport Area Structure Plan (ASP)".

The Fort McMurray Regional Airport Area Structure Plan will replace the current Fort McMurray Municipal Airport Area Structure Plan 2003/061.

This proposed ASP is prepared to reflect the new Airport Development Plan (see Appendix A) for the airport which proposes:

- a potential extension of the length of existing Runway 07-25 from 7,500 ft to 9,000 ft;
- a future second Runway 07R- 25L, should it be required in the future and protection of land for the second runway;
- expanded taxiway network;
- a new air terminal building;
- new air terminal access road and parking;
- supporting service infrastructure; and
- development of airport lands for additional airport support functions and commercial development.

This proposed ASP addresses the implications on surrounding lands and existing and future adjacent uses as a result of the expansion plans for the airport.

1.2 Background

Fort McMurray is located 435 km northeast of Edmonton within the Regional Municipality of Wood Buffalo (Municipality), as shown in *Map 1: Location*, and has become a thriving area serving the resource industry. The Fort McMurray Regional Airport is located approximately 10 km south of the city centre adjacent to the Hamlet of Saprae Creek, see *Map 2: Area Structure Plan Boundary*.

The Fort McMurray Regional Airport was transferred to the Municipality on March 31, 1999. In February 1999, the Fort McMurray Airport Commission was formed to operate the airport under agreement with the Municipality.

On December 1, 2009 the new Fort McMurray Airport Authority (Airport Authority) was formed by an Order in Council of the Province of Alberta to take over the governance of operations of the Fort McMurray Regional Airport from the Fort McMurray Regional Airport Commission. Since January 1, 2010, the Fort McMurray

Regional Airport is owned and operated by the Fort McMurray Airport Authority.

The airport currently provides service as a regional airport from both a passenger and cargo perspective. Presently, scheduled airlines utilizing the airport include Air Canada, Air Canada Jazz, McMurray Aviation, Northwestern Air, Connect Air and WestJet. The airport also serves as an important hub for general aviation, helicopter services, pilot training and fire-fighting efforts.

1.3 Purpose of ASP

The Fort McMurray Regional Airport is an essential public service and an exceedingly important economic tool for the Municipality. This plan recognizes the importance of planning for the future of the airport and regulating land uses in the vicinity of the airport. This ASP provides the regulatory framework for the control and management of land uses on the airport lands based on the updated Development Plans for the airport.

As a statutory plan, the ASP complies with Sections 633, 636, 638 and 692 of the Municipal Government Act (The Act). In accordance with *The Act,* the ASP must describe the following:

- *"the sequence of development proposed for the area;*
- *the land uses proposed for the area, either generally or with respect to specific parts of the area;*
- *the density of population proposed for the area either generally or with respect to specific parts of the area; and*
- *the general location of major transportation routes and public utilities."*

When adopting a statutory plan such as an ASP, *The Act* stipulates the following:

- *"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; and*
- *an ASP must conform to the municipality's Municipal Development Plan."*

Increasing airport services demand from years of high local population and economic growth, fuelled by a strong resource industry, have prompted the need for independent management and master planning of the airport lands and airport operations to be overseen by the Fort McMurray Airport Authority and the Municipality. This ASP addresses the much needed development of the airport and its supportive services. This will help the area's burgeoning population and economy to prosper and take full advantage of the opportunities for growth presented to the Municipality.

1.4 Process

The Municipality and the Fort McMurray Airport Authority both identified a need for a long range planning document for the airport to clarify the land use on the airport and development approval process, to ensure the long term viability of the area and to promote the airport to aviation businesses and the travelling public.
Since the airport is now owned and operated by the Fort McMurray Airport Authority, the Municipality has limited jurisdiction on the development of airport lands and especially airside uses that are directly related to

aviation.

The Fort McMurray Airport Authority and the Municipality have created a *Memorandum of Understanding* (see Appendix B) to describe the mutual expectations of the Municipality and the Airport Authority, their roles, responsibilities and obligations with respect to the provision of municipal services and utilities to the Airport and airport lands and future operations and developments occurring in the airport.

When adopted as bylaw by the Municipality under the Municipal Government Act, this ASP will provide the planning framework for the development of airside and landside uses within the plan area based on the Memorandum of Understanding between the Municipality and the Airport Authority. This ASP will also provide the Municipality the authority for enforcement and a method for review and public input on the development of lands that fall within the jurisdiction of the Municipality, i.e. Landside Business Industrial Area (see Landside Business Industrial Area on *Map 8: Development Concept*).

The lands surrounding the airport lie within the Highway 69 / Clearwater River Valley Area Structure Plan Bylaw No 99/058 which was originally adopted on January 28, 2000 and subsequently amended to delete the areas that fell under the Saline Creek Area Structure Plan, Bylaw No 07/058.

The expansion of the airport lands has also triggered an amendment to the Highway 69 / Clearwater River Valley ASP to remove the airport lands from within its boundaries. The ASP reflects the new Noise Exposure Forecast Contours proposed by the airport which extend beyond the boundaries of the Fort McMurray Regional Airport ASP into the plan area of the Highway 69/Clearwater River Valley ASP.

Concurrent to the preparation of this ASP, the Regional Municipality of Wood Buffalo Land Use Bylaw 99/059 is also proposed to undergo an amendment to revise the boundaries of the A-Airport District (see *Map 3: Existing Zoning*) to reflect the expansion of airport lands and to include a comprehensive list of permitted and discretionary uses that may be considered in the Landside Business Industrial Area within the airport lands.

Armin A. Preiksaitis and Associates was retained in May 2008 to undertake the necessary amendments to both the Highway 69 / Clearwater Area Structure Plan, Bylaw No 99/058 and the Fort McMurray Municipal Airport Area Structure Plan, Bylaw No 03/062) and the Land Use Bylaw 99/059 as required by the Municipality to facilitate the expansion and redevelopment of the Fort McMurray Regional Airport.

A glossary of terms used in this ASP is attached as Appendix C.

2.0 PUBLIC CONSULTATION

Since this plan is adopted as an Area Structure Plan, the requirements of the Municipal Government Act must be met. The Act states:

"636 (1) While preparing a statutory plan, a municipality must provide a means for any person who may be affected by it to make suggestions and representations, notify the public of the plan preparation process and of the means to make suggestions and representations referred to in clause (a)."

Therefore, in order to ensure that the airport meets the needs of the community and the community has the opportunity to provide their comments, several opportunities for public input were provided in the plan preparation process.

2.1 Consultation

This ASP is based on the updated Airport Development Plan included as Appendix A, which has been developed in consultation between the Municipality and the Fort McMurray Airport Authority. The concept for the Airport Development Plan was first publicly released in May 2010, during the Airport Open House hosted by the Airport Authority. Since May 2010, the Airport Development Plan concepts and updates have been posted on the Fort McMurray Airport Website.

In accordance with the Municipality's requirements for public consultation outlined in the Municipality's Engaging Residents: Guidelines for Public Participation, a Public Meeting was held on May 13, 2011, at the MacDonald Island Park in Fort McMurray to provide the public and stakeholders with an opportunity to review and comment on the draft ASP and amendment applications. A newspaper advertisement including a link to the Airport Authority's website, where the draft ASP and amendment report was available for viewing and download, was posted in the Fort McMurray Today newspaper on April 29, 2011.

The notification for the Public Meeting was also posted on the Fort McMurray Airport's website (www.flyfortmac.ca/postings) and the Municipality's website, (http://www.woodbuffalo.ab.ca/living_2227/Events.htm) two weeks prior to the meeting. In addition to the newspaper advertisement, eighteen (18) letters were mailed out to key stakeholders and affected parties including public agencies, Saprae Creek Residents Society and the Rotary Club of Fort McMurray.

While a large number of attendees visited the presentation boards, fifteen (15) attendees signed in and one of the attendees submitted a completed exit survey. The attendee who submitted the exit survey was generally in agreement with the proposed changes and did not raise any concerns regarding the proposed ASP and the proposed amendments.

Generally, the attendees were curious to find out more information regarding the timing and development of the new terminal building and potential for more business development opportunities and hangar spaces for airside business development opportunities.

3.0 REGULATORY AND LEGISLATIVE PARAMETERS

3.1 Municipal

Since January 1, 2010 the Fort McMurray Regional Airport is owned and operated by the Fort McMurray Airport Authority. The Airport Authority shall be responsible for approving developments occurring within the airport lands, especially airside related uses. The Municipality will be responsible for approving developments locating within the landside business industrial areas. The Municipality will also circulate all developments applications located in the vicinity of the airport (See *Map 9: Airport Vicinity Boundary*) to the Airport Authority for comments to ensure that such developments do not interfere with the safe operation of the airport.

3.1.1 Development Control

Based on the *Memorandum of Understanding between the Airport Authority and the Regional Municipality of Wood Buffalo* (included as Appendix B), new 'airside' developments for aviation related uses do not require a development permit. In the case of developments locating in the landside business industrial areas, the tenants of those developments shall be the applicants for development permits, upon receiving approval from the Airport Authority.

However, all developments for which the Municipality has already granted development or building permits shall require municipal approval for changes, including the expansion of such developments. Similarly all developments within the airport shall be required to comply with the building and safety code regulations and shall be required to obtain building permits, in order for the Municipality to provide fire suppression services to the developments on the airport.

Airside firefighting shall be the responsibility of the Airport Authority. Policing, structural fire response and ambulance shall be responsibility of the Municipality and the safety codes shall be in accordance with the National Building Code.

The Airport Authority is responsible for all 'airside' developments located within the boundaries of the airport, ensuring that developments conform to the primary aviation focus of the airport and will not negatively impact the operation of the airport and other adjacent uses.

The airport lands are divided into the following six (6) sub-areas as shown in *Map 8: Development Concept*:

1. Airport Reserve (including Transportation Reserve)
2. Airside Reserve
3. Airside Business Industrial
4. Landside Business Industrial
5. Airside Support
6. Terminal Reserve

A brief description of each sub area and list of intended uses and developments within each sub area is discussed under *Section 5.1 Proposed Land Use on Airport*. The Municipality shall be responsible for issuing development permits to uses and developments located in the Landside Business Industrial area only.

Developments in the Vicinity of the Airport

Developments located within the Airport Vicinity Boundary as shown in *Map 9: Airport Vicinity Boundary*, fall under the jurisdiction of the Municipality. All uses and developments in the Airport vicinity boundary shall be circulated to the Airport Authority for review and recommendation to the Development Authority as to whether the proposed development should be approved with or without conditions, to ensure compatibility and safety with existing and future airport operations and regulations.

The policies within the following documents are pertinent to the Fort McMurray Regional Airport:

3.1.2 Municipal Development Plan, Bylaw No 11/027

The Municipal Development Plan (MDP) is the long range planning document for the Municipality. It deals with all aspects of growth and development at a broader level in order to provide strategic direction to the entire Municipality.

The current MDP was adopted in October 2011. The following Direction provided in the MDP is directly relevant to the planning and development of the Fort McMurray Regional Airport:

Urban Growth Management - Direction U.1.6

"Support expansion and economic development in Airport Area.

As the region grows, air traffic in Fort McMurray will increase. The Municipality will support the expansion of the Fort McMurray Regional Airport, encouraging its transformation from a premier regional airport into an international airport. The Airport Area will become a major employment centre, transportation hub, and centre for economic development. A variety of airside and non-airside uses will be developed in this area to leverage the Airport's ready access to transportation services."

Regional Growth Management – Direction R.2

"Integrated Multi-Modal Mobility Systems

Airport expansion, private airstrips, rail service, water transportation, and new road networks are also important elements of this multi-modal system."

3.1.3 Highway 69 / Clearwater River Valley ASP, Bylaw # 99/058

One of the main objectives of the Highway 69/Clearwater River Valley Area Structure Plan to promote land uses in the vicinity of the airport in a manner that does not inhibit the present and future operations of the Fort McMurray Regional Airport.

The impact of the Fort McMurray Regional Airport on the Clearwater Valley / Highway 69 ASP is primarily related to three items:

- Height restrictions in the vicinity of the airport;
- Conflicting land uses, such as those that create smoke, steam and dust; attract birds; and create electronic interference; and
- Aircraft noise.

The amended Highway 69/Clearwater River Valley Area Structure Plan also restricts any future residential development that falls within the Noise Exposure Forecast Contour (NEF) 25.

In any instance, all developments within the boundaries of the Highway 69/Clearwater River Valley Area Structure Plan must comply with any applicable federal airport zoning as well as municipal land use plans including but not limited to:

- Obstacle Limitation Surfaces as defined in the Fort McMurray Regional Airport ASP;
- The Fort McMurray Airport Zoning Regulations; and
- Noise Exposure Forecast Contours and associated land use restrictions as identified in the Fort McMurray Regional Airport ASP.

3.1.4 Land Use Bylaw No 99/059

Under the Land Use Bylaw 99/059 the airport lands are zoned A – Airport District. The purpose for this district is *"to provide for the continued operation of an airport and to allow development on airport property that will provide for economic and financial viability for the airport."* The Airport District has limited jurisdiction over the entire airport lands.

Most "airside" uses which are developments related to the airport and aviation related uses shall not require a development permit from the Municipality but are required to meet the safety code regulations. For any new "groundside" (or landside) uses which are not aviation related, the Airport Authority or its tenants are required to secure a development permit from the Municipality. Section 129 A - Airport District of the Land Use Bylaw identifies a number of permitted and discretionary uses that may be considered for development on the "Landside Business Industrial" area within the airport lands.

Lands identified as part of the development concept located between the current southern boundary of the airport lands and Highway 69 (Refer to Proposed Airport District in *Map 3 Existing Zoning*) are zoned UE – Urban Expansion. 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*." The limited nature of allowable development within this area would therefore require rezoning from the Municipality before development would be allowed to occur.

3.2 Provincial

Provincial legislation does not regulate the operation of airports, but does affect many of the issues surrounding the airport, such as the environment (particularly water quality, quantity and wildlife), provincial highways and access and impacts on adjacent public lands. Under Provincial legislation land use controls can be implemented by a Municipality in the vicinity of an airport to mitigate conflicts arising from noise from airport operations.

In the 1970's and 1980's, Transport Canada prepared Airport Vicinity Protection Area (AVPA) plans for over 30 airports in the Province including Fort McMurray Regional Airport, which have since been rescinded by the province. The Airport Protection Vicinity Area is no longer in effect.

On December 1, 2009 a new Fort McMurray Airport Authority was formed by an Order in Council of the Province of Alberta to take over the governance of operations of the Fort McMurray Regional Airport from the Fort McMurray Regional Airport Commission.

The Fort McMurray Regional Airport is surrounded by Crown land. For this reason, any land use or development proposal for the airport and its vicinity shall be circulated to the appropriate provincial agency by the Municipality to obtain comments. To accommodate development proposed under the Airport Development Plan (See Appendix A), portions of these lands will have to be acquired (leased or purchased) by the Airport Authority from the Province. At the time of preparation of this ASP, the process for acquisition of lands was ongoing.

3.3 Federal

While a Municipality is regulated by the Province through the Municipal Government Act, an airport is regulated by the Federal Government through Transport Canada and the Aeronautics Act. Under the Aeronautics Act, the *Fort McMurray Airport Zoning Regulations C.R.C.,c.82* was created, which regulates the development of buildings, structures or objects that may lie in the path of the 'approach surfaces', 'the outer surface' and 'transitional surfaces' as described within the Airport Zoning Regulations, see Appendix D.

3.3.1 Transport Canada

Transport Canada and the Aeronautical Act regulate air space and the safe operation of airports. They conduct audits and review traffic volumes. The airport is currently operating under TP 312 4th edition regulations last revised March 2005.

3.3.2 CATSA

In 2002 the new Canadian Air Transport Security Authority (CATSA) organization was formed in response to the security issues that arose after the September 11, 2001 terrorist attack. This organization provides funding, through the collection of a security fee on every airline ticket, to expand and enhance passenger and baggage security screening- facilities at the airport to meet the new security requirements.

3.3.3 NAV CANADA

In 1996, navigational and traffic control activities were separated from the Federal Government and are now provided by a private organization. Any new navigational aids, lighting requirements and development on airport land will be circulated to NAV Canada to ensure that they do not interfere with the safe operation of the airport

4.0 PLAN AREA

The Fort McMurray Regional Airport ASP area consists of the existing Airport lands themselves as well as Crown lands that lie between the southern boundary of the airport lands and Highway 69. To the east, the ASP boundary follows the eastern boundary of the airport lands south until Highway 69. The ASP area follows the northern boundary of the Airport Lands. On the western side, the ASP boundary similarly follows the westernmost boundary of the airport lands south until the centerline of Highway 69. This ASP Plan Area is indicated in *Map 2: Area Structure Plan Boundary*.

There are Crown lands beyond the airport boundary, where tree cutting would be required to accommodate approach/transition surfaces for the future second runway. The Airport Authority is in discussion with Sustainable Resource Development (SRD) to acquire long term leases on these lands to ensure these lands are protected from development.

The following sections outline the physical attributes of the airport and adjacent lands.

4.1 Ownership

The Fort McMurray Regional Airport was transferred to the Municipality on March 31, 1999. In February 1999, the Fort McMurray Airport Commission was formed to operate the airport under agreement with the Municipality.

As of January 1, 2010, the Fort McMurray Regional Airport is owned and operated by the Fort McMurray Airport Authority. The Airport Authority retains the rights to lease parcels of airport land to tenants.

The Fort McMurray Regional Airport is planned to be financially self-sufficient and therefore, it is critical that the airport be allowed to lease and develop airport lands to generate revenue, and self sustain the airport's operations.

4.2 Natural Features

When considering new developments, the Municipality reviews the natural features for purposes of determining hazardous lands that should not be developed, identifying those lands that may be suitable for environmental reserve and other lands that may be suitable for recreation / parks / open space. This is not the case on the airport development. Airport lands are generally selected due to the flat topography and lack of special features. An airport will try and clear or at least cut the height of the trees on lands adjacent to, or in the path of runways to minimize potential height conflicts and to reduce habitat for wildlife. Wildlife and airports are generally not a good mix as wildlife can create serious safety hazards for an airport.

There are two areas of topographic significance on airport land. The first are low-lying areas in the southeast portion of the airport lands. These sites currently do not create a hazard but they may be limited in their ability to be developed if it is deemed uneconomical to fill and are designated as Airport Reserve as shown in *Map 8: Development Concept*.

The second area of significant natural feature is the escarpment on the north side of the airport lands. This land slopes into the Clearwater River Valley and has proven to be unstable in certain areas. Land along the northern edge of the airport boundary, along the top of the escarpment has been identified for development potential. Any development proposed in this area will be required to conduct geotechnical assessments and

any development design will be required to be approved by a certified geotechnical engineer.

4.3 Existing Development

Currently at the airport there is significant hangar line development, along with the current airport terminal building and airport maintenance structures. Aviation related uses that require airside access are the prime tenants for the airport and include many companies which lease space, construct buildings and run their businesses out of the airport.

Other major uses include an aerial tanker base and a number of non-aviation businesses. A new hotel is also located north of the Airport Road. The Fort McMurray Regional Airport also has structures for equipment storage and maintenance.

4.4 Adjacent Land Use

The adjacent land uses are controlled through the Highway 69 / Clearwater River Valley ASP, the Saline Creek ASP as shown in *Map 7: Adjacent Land Use*. The undeveloped crown lands in surrounding area are generally heavily treed whose growth could pose an obstruction at some point in the future. If these trees are on municipal or crown property, the "topping" or cutting down of these trees will likely not be an issue, but will require land acquisition through lease or purchase by the Airport Authority in order to cut the trees.

Currently, these land uses do not appear to conflict with the operation of the airport. However, there are some houses on the southwest side of Saprae Creek that are located within the 2016 Composite Noise Exposure Forecast (NEF) Contour 25. While this is not recommended for future residential development, the existing situation is recognized.

Saprae Creek West Residential Development

Furthermore, during the preparation of this ASP, plans for expansion of residential development in the Saprae Creek Area Structure Plan were submitted to the Municipality and circulated to the Airport Authority for review and comments. As shown on *Map6A: Areas Affected by NEF Contours* portions of the proposed residential developments are located within the proposed NEF 25 contour.

After a review of the proposed development, the Airport Authority has provided its approval supporting the development with conditions acknowledging the presence of noise from the operation of the airport. The proposed residential development in Saprae Creek West ASP is also shown in *Map 7: Adjacent Land Use* as proposed suburban estate residential development.

4.5 Vegetation and Wildlife

Vegetation at the airport is primarily grass and forested areas. Areas of the airport lands continue to be cleared for future development or to remove obstructions. Birds and other wildlife pose a distinct threat to the safe operation of any airport. The goal should be to minimize wildlife and one of the most effective ways of doing this is to reduce habitat in the vicinity.

4.6 Access

The Airport is serviced by Airport Road off of Highway 69. The access is a two lane paved road which is currently in good condition. According to Alberta Transportation, 2002 traffic volumes were 1,530 AADT

(Average Annual Daily Traffic Volume). The road has the capacity for over 5,000 vehicles per day. This road will therefore meet the requirements of the airport until the primary airport terminal is relocated as determined in the Airport Development Plan. Future airport roads and service roads will be constructed to the standards of the Municipality to accommodate future industrial and commercial traffic.

According to the Airport Development Plan, a new road from Highway 69 will provide access to the new terminal building and southern side of the airport property. As a provincial highway, Alberta Transportation is the authority and has jurisdiction for the road access to the highway. Under provincial legislation, Alberta Transportation will review ASPs and any development within 800 m of the centre of the roadway. Should the airport develop land on the south side of the airport, all proposed plans will be circulated to the department to discuss access locations and standards.

The Municipality will, in cooperation with the Airport Authority and key stakeholders evaluate and consider options for traffic assessments to study the implications on Highway 69 of development occurring on Airport lands.

4.7 Noise Exposure Forecast and Planning Contours

In the 1980s, when the Province of Alberta was preparing Airport Vicinity Protection Plans, Noise Exposure Contours were first prepared for the Fort McMurray Regional Airport. The Canadian Noise Exposure Forecast (NEF) has been developed to encourage compatible land use planning in the vicinity of airports. NEFs are official contours and supported by Transport Canada.

The existing noise contours prepared by EBA Engineering Consultants in 2003 represent the year 2020 and assume approximately 70,000 annual movements with a planning peak day of 289 movements. The mix of aircraft included in the analysis included B737-700, DHC6 Twin Otter, DHC7 Dash 7, and C130 Hercules. The contours assumed 75% of arrivals would be on Runway 25, and 25% on Runway 07, and that the day / night split in traffic is 66% / 34%. It should be noted that this percentage of night traffic is considerably higher than what is currently experienced at the Airport.

The proposed 2016 Composite Noise Exposure Forecast as shown in *Map 6: NEF Contours* , prepared in 2010 by Pryde Schropp McComb Inc., is based on Jacobs forecast (see Table 1: Forecasted Aircraft Movements - Medium Growth Scenario) which predicts that aircraft movement at Fort McMurray Regional Airport will peak in the year 2016. As such, the 2016 Noise Exposure Forecast represents the forecast year for the highest total annual traffic movements at the airport until 2030. This maximum scenario is a reasonable planning tool since it is forecasted to occur by 2016.

As shown in *Map 6: NEF Contours*, the proposed 2016 Composite Noise Exposure Forecast contours consist of graphically combining the 2016 Noise Exposure Forecast Contour for the extended runway configuration as well the new second runway into a single comprehensive contour. The resulting contour represents the worst case planning scenario for the airport, and represents the maximum noise exposure forecast for the forecast period.

In order to maximize protection to the airport and minimize land use conflict, it is recommended that new residential development in the vicinity be limited to areas falling outside the NEF 25 as shown in the 2016 Composite Planning Contour. By planning for compatible land uses in the vicinity of the airport, both the Airport Authority and the Municipality can ensure the safe operation of the airport and that no new residential development is negatively impacted by the airport operations.

4.8 Aviation Needs

The Fort McMurray Regional Airport was originally designed to handle up to 300,000 passengers annually. However, recent local economic growth has brought actual volumes above 700,000 annual passengers (in 2008) with 62,200 aircraft movements each year (in 2009). This makes the airport the single busiest airport of any small or medium-sized municipality in Canada.

Further, Jacobs Consultancy was hired to prepare a Fort McMurray Regional Airport Aviation Activity Forecast as shown in Table 1 below. The forecast predicts that aircraft movements at the Fort McMurray Regional Airport will peak in the year 2016.

In light of the current level of activity and the forecasted growth, a major expansion is underway to quadruple the size of the current airport terminal building, provide additional taxiways and terminal apron, increase parking capacity, and provide a new access road, expanded utilities and services.

Additional improvements including a potential second runway would be addressed as demand and development pressures increase.

Table 1: Forecasted Aircraft Movements - Medium Growth Scenario

Year	Air Carrier		Other Comm.	Private	Gov. + Military	Total Itinerant	Local	Total
	Level I-III	Level IV+						
2008	34,885	15,776	4,623	6,453	570	62,307	8,138	70,445
2009	32,304	12,958	4,244	6,328	545	56,379	9,449	65,827
2010	33,057	13,722	4,880	6,410	540	58,609	9,638	68,247
2011	35,440	14,995	5,662	6,539	534	63,171	9,830	73,002
2012	39,001	16,934	6,853	6,735	529	70,052	10,027	80,078
2013	40,116	17,133	6,976	6,756	524	71,504	10,227	81,731
2014	41,936	18,323	7,706	6,876	518	75,360	10,330	85,690
2015	41,862	17,935	7,468	6,837	513	74,615	10,433	85,048
2016	43,385	18,356	7,727	6,880	508	76,856	10,537	87,393
2017	42,780	17,606	7,266	6,803	503	74,959	10,643	85,601
2018	41,321	16,384	6,515	6,680	498	71,397	10,749	82,146
2019	42,027	16,483	6,576	6,690	498	72,274	10,857	83,131
2020	42,639	16,334	6,484	6,675	498	72,630	10,965	83,596
2021	42,684	16,063	6,318	6,647	498	72,210	11,075	83,285
2022	41,884	15,251	5,819	6,565	498	70,017	11,186	81,203
2023	42,487	15,155	5,760	6,555	498	70,455	11,297	81,753
2024	42,565	14,722	5,494	6,511	498	69,791	11,410	81,201
2025	42,809	14,611	5,426	6,500	498	69,843	11,525	81,367
2026	42,733	14,248	5,203	6,463	498	69,145	11,640	80,785
2027	42,716	13,956	5,024	6,434	498	68,628	11,756	80,384
2028	42,064	13,489	4,737	6,386	498	67,175	11,874	79,048
2029	42,330	13,418	4,693	6,379	498	67,317	11,992	79,310
2030	42,937	13,489	4,737	6,386	498	68,047	12,112	80,159

Source: Fort McMurray Aviation Activity Forecast, Jacobs Consultancy, 2009

5.0 DEVELOPMENT CONCEPT

The Fort McMurray Airport Authority is responsible for approving all development on airport property. In so being, the Airport Authority or its tenants will be responsible for acquiring development permits from the Municipality for uses on Landside Business Industrial on airport property upon receiving approval from the authority.

Off airport land uses and development are the responsibility of the Municipality to approve, except where a land use or development permit interferes with the obstacle limitation surfaces of the airport, at which time federal regulations come into play. The Airport Authority shall have the ability to comment on any proposed development that is off airport lands and located within the Airport Vicinity Boundary as shown in *Map 9: Airport Vicinity Boundary*, so as to ensure compatibility with airport operations. On airport land uses are controlled by the Airport Authority. The following section outlines the various land uses and controls.

5.1 Proposed Land Uses on Airport

The land uses of the airport are controlled by the Airport Development Plan (ADP), see Appendix A, which has been prepared considering developable land, and the future infrastructure demands of the airport.

A new Airport Master Plan is currently being prepared. The master plan will ultimately replace the current Airport Development Plan. The most up to date Development Concept from the ADP is illustrated under *Map 8: Development Concept*. The ADP as approved and controlled by the Airport Authority should be used to guide future development of the airport lands, in conjunction with regulations contained within this Area Structure Plan.

As shown on *Map 8: Development Concept*, the airport lands have been divided into the following six (6) sub-areas described below. With the exception of sub-area Landside Business Industrial, the remaining sub-areas are all aviation related airside uses. The following is a description of the six sub-areas and appropriate uses for each sub area:

5.1.1 Airport Reserve

Airport Reserve area means lands within the airport not currently identified for a specific use but protected for future as a reserve. This may include lands which have no development potential due to terrain or water courses etc. The Airport Reserve lands as shown on *Map 8: Development Concept* have limited development potential due to geotechnical issues.

5.1.2 Airside

Airside Reserve area means lands within the airport reserved for aircraft maneuvering and associated utilities and includes uses such as:

- runways
- taxiways
- aprons
- meteorological Installations
- electronic navigation /communication equipment, and
- associated utilities

5.1.3 Airside Business Industrial

Airside Business Industrial area means lands reserved for commercial / light industrial development purposed which require direct access to the airport airside, including runways and taxiways. Airside Business Industrial uses include the following:

- regularly scheduled and charter airlines
- cargo operators
- fixed base operators
- hangar development
- light aircraft manufacturing
- flying club
- aircraft storage
- air ambulance
- aircraft service and maintenance
- aircraft repair and sales
- flight training schools
- couriers
- aircraft fuel operators
- aerial tanker base
- fuel storage
- rotary wing operators, and
- airport support facilities

Occupants of Airside Business Industrial lands must conform to airside safety and security measures to ensure their activities do not jeopardize or threaten the security of the airport. Airside Business Industrial uses will not be required to obtain a development permit from the Municipality. However, existing airside developments for which the Municipality has already granted development permit shall seek municipal approval for any changes, including expansion of such development.

All Airside Business Industrial uses shall be required to obtain a building permit from the Municipality to ensure conformance with safety code regulation and for the purposes of the Municipality providing fire suppression services to these uses.

5.1.4 Landside Business Industrial

Landside Business Industrial area means lands within the airport reserved for commercial and light industrial development purposes which does not require access to the airside. The intent of the Landside Business Industrial area is to promote commercial retail, business and light industrial uses that are complimentary to the functioning of the airport. Landside Business Industrial uses may include the following:

- businesses servicing the air industry
- offices
- gas stations
- car washes
- car rental facilities
- hotel/motel
- food and beverage
- light manufacturing
- museums

- outdoor storage
- retail sales (concession, souvenirs, gift shops, etc.)
- distribution centres
- warehouses
- transportation services and facilities, and
- public utilities

Uses locating within Landside Business Industrial lands may or may not have an aviation focus and are not connected directly to airside access. For any new Landside Business Industrial uses, the Airport Authority shall secure development permits from the Municipality ensuring that such uses will not interfere with the safe and efficient operation of the airport.

All Landside Business Industrial uses shall be required to obtain a building permit from the Municipality or its appointed agency to ensure conformance with safety code regulation. The Municipality shall require all uses to conform to safety code regulations for the purposes of the Municipality providing fire suppression services to uses located on airport lands.

5.1.5 Terminal Reserve

Terminal Reserve area means lands reserved for the Airport Terminal Building and associated infrastructure including:

- terminal building
- terminal reserve
- parking structures
- parking lots
- ground transportation functions
- future transit bus stops
- accessory uses, and
- terminal related infrastructure

As shown in Map 8 – Development Concept, the Airport Authority has identified a potential Transit bus stop in proximity to the location of the new Airport Terminal Building (ATB). The Airport Authority will work with the Municipality to identify the exact size and location of the Transit bus stop at the implementation stage.

The provision of transit bus stop is consistent with the policies outlined in the new Municipal Development Plan which will ensure a high level of multi-modal connectivity from the airport to the various neighbourhoods in the City.

5.1.6 Airport Support

Airport Support area means lands reserved for functions including:

- maintenance structures
- equipment storage sheds
- sand sheds
- fire halls
- air traffic control towers, and
- other airport related supporting functions

5.2 Off Airport Land Use Implications

No land uses on or near airport property will create smoke or steam, penetrate the take-off and approach and transition areas, attract birds or wildlife nor create any electrical interference. In addition, land uses sensitive to noise are also required to be controlled or restricted in the vicinity of the airport to avoid land use conflict.

If developments proposed in the vicinity of the airport create smoke or steam or create any electrical interference, they would have to demonstrate to the Airport Authority that such developments will not interfere with the safe operation of the airport.

The Airport Vicinity area is shown in *Map 9: Airport Vicinity Boundary*, which includes all areas falling under the airport's Obstacle Limitation Surface Zoning. One of the important considerations for this area is to ensure uses that may attract bird hazard, such as a landfill sites are not located within the vicinity of the airport.

As indicated previously, all developments or uses proposed within the airport's vicinity shall be circulated to the Airport Authority for review and approval.

5.2.1 Obstacle Limitation Surface Zoning

Federal Regulation TP312 4th Edition Aerodrome Standards and Recommended Practices outline federal zoning for airports. Chapter 4 of TP312 discusses obstacle restriction and removal. It is the responsibility of the airport operator to adhere to these regulations. Airport Authority can enforce TP312 requirements on airport lands only.

The purpose of these regulations is to:

"define the airspace around aerodromes to be maintained free from obstacles in order to minimize the dangers presented by obstacles to an aircraft, either during an entirely visual approach or during the visual segment of an instrument approach and to prevent the aerodrome from becoming unusable by the growth of obstacles around the aerodrome."

The federal Obstacle Limitation Surface (OLS) zoning regulations establish the limits to which objects may project into the airspace associated with an airport, such that aircraft operations may be conducted safely. OLS surfaces include approach surfaces, takeoff surfaces, transitional surfaces and an outer surface.

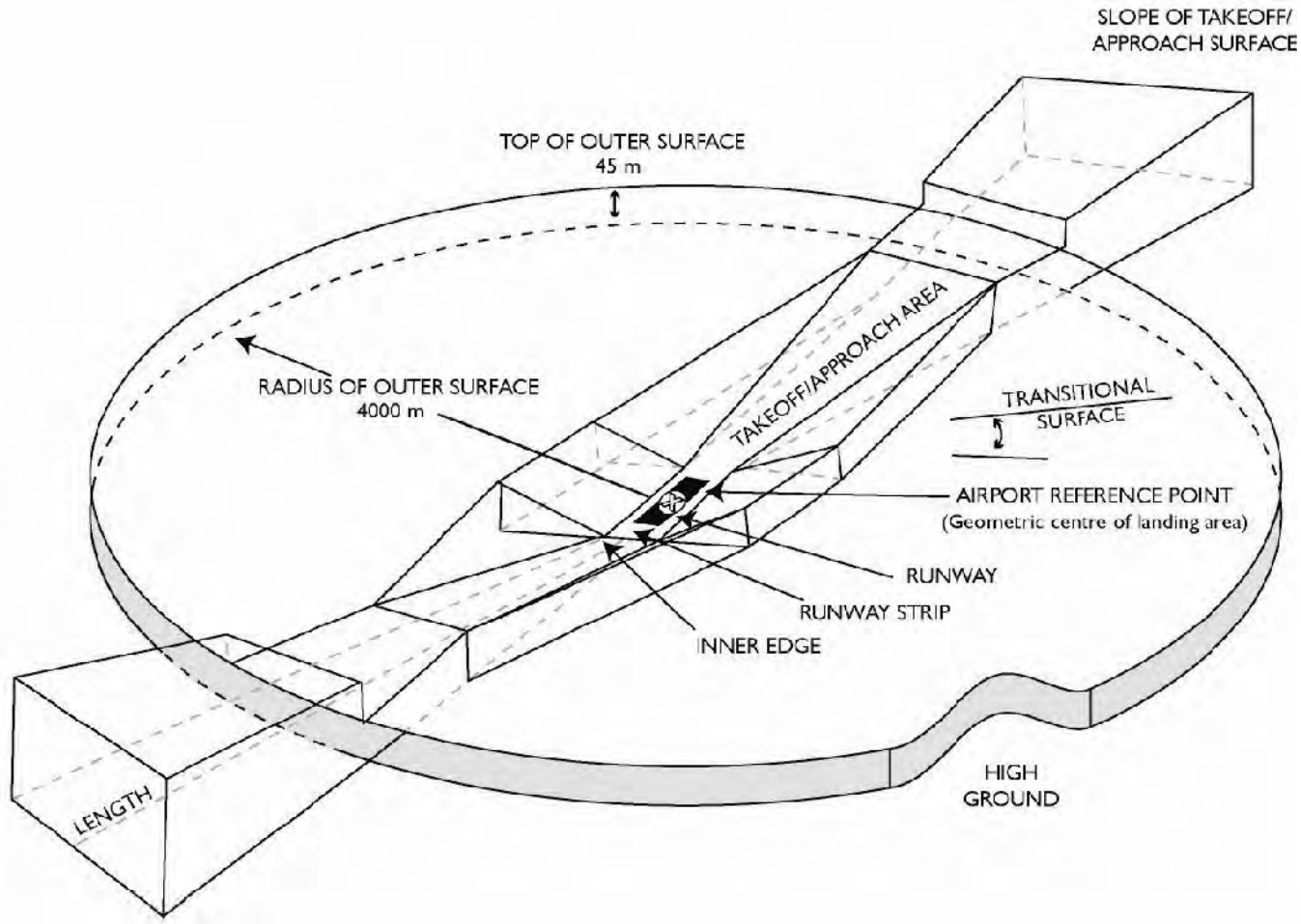
OLS surfaces within the airport property boundary are generally controlled by the airport and protected through appropriate planning and development controls. Beyond the airport property, the protection of the OLS surfaces becomes more tenuous as it involves the support and participation of the local Municipality and/or other levels of government to enforce height restrictions. The primary enforcement tool is the federal Airport Zoning Regulation (AZR), included as Appendix D, which is currently in effect for the Fort McMurray Regional Airport.

As shown in Figure 1 on the following page, there are three obstacle areas of concern that must be protected under the OLS regulation:

1. The Outer Surface (as shown on *Map 5: Obstacle Limitation Surface Zoning*) which comprises a common plane established at a constant elevation of 45 m above the assigned elevation of the aerodrome reference point and extending over a horizontal distance of a minimum of 4,000 m in every direction;

2. The Take-off and Approach Surface. This includes areas off both ends of the runway originating at the elevation of the runway and beginning at the of the end of the Runway strip raising in a vertical plane until it meets the 45 m outer surface limit;
3. The Transitional Surface that follows the edge of the Runway strip and the take off and approach measuring height distance from the elevation point to its intersection with the outer surface.

Figure 1: Obstacle Limitation Surfaces (Source: TP 1247E Land Use In The Vicinity Of Airports, Transport Canada)



There are presently two (2) methods of protecting an airport's Obstacle Limitation Surfaces. The primary method of ensuring the protection of the Obstacle Limitation Surfaces from obstructions is through federal Airport Zoning Regulations (AZRs) (see Appendix D), enacted through Part I, Section 5.4(1) and Sections 5.5 to 5.81 of the *Aeronautics Act*. Under the AZRs, any proposed land uses by the municipalities must give way to the requirements of the regulation. The other method of protection is to purchase land or secure a long term lease. Airports often purchase easements on adjacent lands which allow them the means of trimming or removing vegetation which penetrates the OLS.

At present, the control of off-airport obstructions at Fort McMurray Regional Airport is regulated by a Federal AZR that was implemented by Transport Canada in 1972. At that time, the length of the Runway 07-25 was 6,000 ft (1,828m). However, the registered AZR provided for a future extension of the runway to 7,000 ft. (2,133m) with a total runway strip length of 7,400 ft (2,255m).

In 2007, the existing runway was extended to 7,500 ft. (2,286m), thereby creating 500 ft. (152 m) of runway which is currently unprotected by the AZR. To accommodate unprotected area, a displaced threshold of 500' is provided at the end of Runway 25. The current AZR also does not contain any clauses for regulating electronic zoning, vegetation or bird avoidance.

At present, there does not appear to be any man-made structures which would impact the OLS zoning required for either the existing runway and its proposed extension to 9,000 feet, or the proposed future second runway, even though there are extensive areas of vegetation which would have to be removed in order to accommodate OLS zoning for the existing runway extension and the future parallel runway.

Map 5: Obstacle Limitation Surface Zoning illustrates the zoning for the future development of the airport infrastructure and developments in the vicinity of the airport. These restrictive areas extend off airport property. For this reason, these areas should be included in the municipal referral process to ensure that any future development does not conflict with the height restrictions under the zoning regulations.

It is recommended that the Airport Authority give consideration to amend the Registered AZR to incorporate protection for both the existing runway, proposed extensions and proposed future parallel runway.

5.2.2 Noise Exposure Forecast Contours

As discussed previously in Section 4.7 Noise Exposure Forecast and Planning Contours, the proposed 2016 Composite Noise Exposure Forecast as shown in *Map 6: NEF Contours* is based on the 2009 Jacobs forecast which predicts that aircraft movement at Fort McMurray Regional Airport will peak in the year 2016. As such the 2016 Composite Noise Exposure Forecast represents the forecast year for the highest total annual traffic movements at the airport until 2030.

It is recommended that in order to maximize protection to the airport and minimize conflict, residential development in the vicinity is limited to areas falling outside the NEF 25 (as shown on *Map 6: NEF Contours*) which is based on the 2016 Composite Planning Contours for the Fort McMurray Regional Airport.

By planning for compatible land use in the vicinity of the Airport, both the Airport Authority and the Municipality can ensure the safe operation of the airport and that no new residential development is negatively impacted by the airport operations.

5.2.3 Height Restrictions in the Vicinity of the Airport

Height of structures and buildings in the vicinity of the airport are restricted to ensure that they do not exceed the elevation of the approach surfaces, the outer surface, or the transitional surface. Due to the changing topography and the elevations of the three surfaces, there are no standardized heights for developments in the vicinity of the airport.

Development applications for new uses and developments shall be circulated to the Airport Authority to ensure the proposed building height does not interfere with the three surfaces and thereby does not interfere with the safe operation of the airport.

A detailed description of the each surface is included in the Airport Zoning Regulation, attached as Appendix

D. The Airport Zoning Regulations should be reviewed when evaluating developments proposed in the vicinity of the airport.

5.2.4 Other Uses in the Vicinity of the Airport

Uses such as landfill sites and stormwater management ponds are considered to be hazardous uses as they attract migratory birds. Such uses are discouraged from locating within close proximity of the airport.

Stormwater management ponds should be located in safe areas and should be modified so as not to attract hazardous birds. Public access to stormwater management ponds must be restricted and feeding of birds by the general public must be prohibited.

The size and location of a stormwater management pond will help determine the amount of mitigation required for it to be acceptable. Large ponds near a flight path represent a greater risk to aviation and, in addition to proper design characteristics, must use proactive techniques to prevent birds from landing.

New developments in the vicinity of the airport proposing stormwater management ponds should be circulated to the Airport Authority as part of the Technical Circulation for comments and recommendations.

6.0 SERVICING AND UTILITIES

Both current and future development will be dependent on services available at the airport, many of which are currently provided on the airport site. As development expands in the future, services will consequently have to be expanded to serve new development. Costs of this infrastructure can be covered in a number of ways. The Airport Authority can act as the primary developer and service the land, recouping the costs through lease payments or airport access fees. The provision of municipal services to the airport lands will be in accordance with the Memorandum of Understanding between the Municipality and the Fort McMurray Airport Authority (See Appendix B)

6.1 Existing Servicing

6.1.1 Sanitary Servicing

In the early 1980's Transport Canada installed a sanitary sewer system, including sanitary sewer collection system, sewage pumping station and sewage lagoon.

With the transfer of the Airport to the Municipality in 1999, the Municipality continued to operate and maintain the sewage system. No major expansion of the sewage system or upgrading has been undertaken since the original work completed by Transport Canada in the early 1980's. The existing sewage lagoon is near capacity and cannot accommodate demands imposed by future developments.

6.1.2 Water Supply and Distribution

Transport Canada and the Municipality extended a water supply line from Fort McMurray to the Airport in the early 1980's. This water supply line was connected to a reservoir/pumping station located northwest of the existing Airport Terminal Building.

The water pumping station/reservoir provides a potable water supply/fire protection to the North Field of the Airport. The water distribution system consists of 300 mm Ø watermain with fire hydrants.

Each of the tenants on the North Field have individual water service connections and are metered on an individual basis by the Municipality. The water supply and distribution system is owned, operated and maintained by the Municipality.

In 2010, the Municipality upgraded the water supply line to the Airport. The upgraded water distribution supply line will result in the elimination of the Airport pumping station/reservoir. Decommissioning of the pumping station is currently underway.

6.1.3 Electrical

Electrical supply to the Airport is provided by ATCO Electric. The majority of the electrical power supply is by overhead power lines.

6.1.4 Communications

Telecommunication service to the Airport is provided by Telus. These utilities shall be extended as

development occurs at the airport as part of the development requirements of the tenants or developers in consultation with the utility companies.

6.1.5 Gas

ATCO is the supplier of the natural gas to the Airport. These utilities shall be extended as development occurs at the airport as part of the development requirements of the tenants or developers in consultation with the utility companies.

6.1.6 Solid Waste Management

Presently, solid waste from the airport is handled as commercial waste and is picked up by a commercial hauler and taken to the Fort McMurray landfill. The airport may contract these services to a local commercial hauler and any other airport business would have the same solid waste practice. Should arrangements with commercial pick-up procedures change, a revised solid waste management plan may be required.

6.2 Proposed Servicing

6.2.1 Sanitary

Negotiations are presently underway between the Airport Authority and the Municipality for the provision of a regional sanitary sewer system extending from Fort McMurray through the Saline Creek area to the Airport. Also involved in the discussions were other developers that would receive benefit from this regional sanitary sewer system, as it extends to, and beyond, the Airport.

Plans are to have the regional sanitary sewer system constructed and in operation in the spring of 2013.

6.2.2 Water Supply and Distribution

The Municipality is in the planning/design stage for the extension of the 400 mm diameter watermain that was constructed in 2010. The watermain will extend from its present termination point at Highway 69 and the West Airport Service Road, along Highway 69 to the East Airport Service Road and then northerly to interconnect to the southeast pumping station/reservoir *(See Map 10: Municipal Servicing)*.

This large diameter trunk water distribution system will not only service the existing and proposed development at the Airport, but other surrounding lands proposed for development.

7.0 ENVIRONMENT

When considering the environment of an airport, both on and off airport issues are taken into account. This section provides a summary of the environmental issues at the Fort McMurray Regional Airport. On-airport environmental issues include surface drainage, bird and wildlife control, chemical and fuel control and noise.

Saline Creek runs through the airport property and into the Clearwater River. This eco-system must be protected from any contaminants. The Fort McMurray Airport Authority has an Environmental Management Plan to ensure all environmental issues are adequately addressed. Individual tenants are responsible for any spills and clean up on their lease area. The Airport Authority shall continue to monitor and enforce its environmental policies.

7.1 Noise

Airport-related noise can often cause conflict between airport operators and their neighbors. The best way to mitigate this conflict is to develop Airport Noise Exposure Forecasts and to ensure that local planning authorities take them into consideration when approving adjacent land uses. The Canadian Noise Exposure Forecast (NEF) has been developed to encourage compatible land use planning in the vicinity of airports.

A NEF is calculated by using a Transport Canada noise exposure model that factors in the volume of air traffic, types and sizes of planes, hours of operation, wind direction and other aviation factors. While noise contours are primarily developed for guidance, Transport Canada does not allow any new residential development within the NEF 30 for existing airport. In addition Transport Canada also recommends that residential development not be located within the NEF25 for new airports because at this level, the noise may interfere with many residential activities.

This ASP recommends that new residential development be limited to areas outside the new proposed NEF 25. There are portions of Saprae Creek ASP that are located within the NEF 25. It is expected that these residences may be affected by aircraft noise at certain times of the day and evening, particularly in the summer months when windows are open and people are likely to be spending more time outside.

7.2 Bird and Wildlife Control

The presence of birds and wildlife on an airport property poses a significant safety hazard. Airport managers invoke a program to discourage birds and wildlife by fencing the property, removing habitat or other attractors (such as prey) and using "scare" tactics (such as pyrotechnics). These activities are included in the Airport Operating Manual and are monitored and implemented regularly. The Airport Authority shall continue to apply the Airport Operating Manual guidance in that regard.

7.3 Vegetation

The main characteristics in the area are the steep river valley for the Clearwater River with slopes up to 12.4° and a depth of 117 m, and boggy areas surrounding the airport (including on-airport property). The airport is outside of the 1:100 year flood plain (defined as 250 m above sea level). The predominant vegetation includes aspen, black spruce, larch, willow and birch. Tree height off-airport property could become an issue in future. While federal zoning restricts the height of the trees, the Municipality does not have the authority or jurisdiction to actually force private landowners to cut or top their trees. Several municipalities are

investigating a tripartite agreement that would authorize a Municipality to enforce federal regulations by acting on behalf of the Crown. The Municipality will monitor the success of these agreements to determine if such an arrangement would be suitable for the Municipality.

8.0 POLICIES

These policies have been developed based on review of existing plans, policies and consultation with the Airport Authority, the Municipality and the public to ensure that development at the airport is financially viable, environmentally responsible, and ensures the ongoing operation of the Fort McMurray Regional Airport.

8.1 Municipal Responsibility

8.1.1 The Land Use Bylaw shall be amended to reflect the airport related uses and provide certainty of use for those uses identified under Section 5.1 Proposed Land Uses on Airport.

8.1.2 The Highway 69 /Clearwater River Valley ASP shall be amended to reflect the requirements of the airport and restrictions imposed by the future infrastructure developments.

8.1.3 A developer or tenant authorized by the Airport Authority will provide, as part of the development permit application, the following information: (should components of the checklist not be completed to the satisfaction of the Municipality, the development permit approval shall not be recommended):

- a site map, illustrating the general locations of all proposed buildings or structures;
- a description of the proposed uses and the corresponding area required for each use;
- a description of the nature of the uses and the number of proposed parking spaces;
- a description of heights above sea level of all buildings and structure proposed;
- a description of any proposed emissions including smoke and vapour plumes;
- an environmental audit for the site, and a mitigation or mediation plan for any issues found on the site, if deemed necessary by the Airport Authority;
- an environmental management plan describing how any emergencies, spills or other environmental issues will be dealt with;
- architectural drawings for the proposed buildings and structures including proposed building materials;
- a report prepared by a qualified engineer demonstrating how the development will be tied into the piped water and sewer system and the airport; and
- individual access to the internal airport roads will be constructed to the satisfaction of the Municipality.

8.1.4 The Municipality will not allow any development on lands adjacent to the airport that may impact on the existing or future operation of the airport. All proposed developments located within the Airport Vicinity Boundary as shown in *Map 9: Airport Vicinity Boundary,* shall be circulated to the Airport Authority for comments and to ensure that such developments shall not interfere with the safe and efficient operation of the Airport.

8.1.5 The Municipality will not allow any future residential development on lands adjacent to the airport that fall within the Noise Exposure Forecast 25 for the airport. Existing and planned residential developments to the east of the airport falling within the NEF 25 at the time of adoption of this ASP may continue to exist as approved.

8.1.6 The Municipality shall be responsible for the provision of water supply and sanitary services to the Airport Lands in accordance with the Memorandum of Understanding between the Airport Authority

and the Municipality (See Appendix B – Memorandum of Understanding).

8.1.7 The Municipality shall continue to provide fire protection and suppression services to the Airport Land for structural fires only and the Municipality shall continue to maintain and operate the hydrants on the Airport Lands.

8.2 Airport Authority's Responsibility

8.2.1 The Airport Authority shall be solely responsible for electric power, natural gas and telephone service to the Airport Lands and will deal directly with the provider of those services.

8.2.2 The Airport Authority shall be solely responsible for the maintenance and operation of any roads on Airport Lands except for those roads within the boundaries of the Airport Lands that are contained in a registered road plan or road allowance, which shall continue to be the responsibility of the Municipality to maintain and operate.

8.2.3 The Airport Authority, unless otherwise agreed to by the Municipality, shall be solely responsible for the maintenance and operation of that portion of the Water Supply System that distributes water to tenants on the Airport Lands, being that portion of the Water Supply System past the curb stop in the Water Supply System.

8.2.4 The Airport Authority shall be solely responsible for the maintenance, operation and upkeep of the Storm Water Drainage System unless otherwise agreed to by the Municipality.

8.2.5 The Airport Authority and its tenants shall continue to pay for municipal services and utilities at rates established by the Municipality by by-law, resolution or policy from time-to-time.

8.2.6 With respect to any portion of the Water Supply System that, as a result of the construction by the Municipality of a new water main or facilities, becomes used solely for the purpose of supplying the Airport Lands with water service, the Airport Authority shall become responsible for the ownership, maintenance and operation of such portions, unless otherwise agreed to by the Municipality. The Municipality shall continue to operate those mains and facilities within the Airport Lands that provide water service not only to the Airport Lands but to other customers and lands outside of the Airport Lands. The Airport Authority shall cooperate with the Municipality to facilitate and allow for the construction of any additions to the Water Supply System on the Airport Lands necessary for this purpose.

8.2.7 The Airport Authority, unless otherwise agreed to by the Municipality, shall be solely responsible for any upgrades or development of the Sanitary Sewage System on Airport Lands. In the event of any expansion or development of the Airport, the Authority also shall be solely responsible to construct, own, operate and maintain the Sanitary Sewage System to service that new development in compliance with all applicable legislation and regulations, unless otherwise agreed to by the Municipality in writing. Once the Sanitary Sewage System is connected to the Municipality's sewage system, the ownership, operation and management of the Sanitary Sewage System shall become the sole responsibility of the Authority.

8.3 Mutual Responsibility of the Airport Authority and Regional Municipality of Wood Buffalo

8.3.1 The Municipality and the Airport Authority shall work together following the Effective Date of adoption of this ASP, to define in more detail their respective obligations and responsibilities for the supply of municipal services and utilities to the Authority for the benefit of the occupants of the Airport Lands and the residents of the Municipality.

8.3.2 The Municipality and the Airport Authority shall work towards the development and execution of a Servicing Agreement for the Airport Lands to provide for the future supply of municipal services and utilities to the Airport Lands that may or may not include operations and maintenance of Authority-owned roads, operations and maintenance of the Water Supply System, operations and maintenance of the Storm Water Drainage System, and municipal bus service, all on terms and conditions to be mutually agreed to by the Municipality and the Authority.

8.3.1 Any new development on the Airport Lands by the Authority shall require a development agreement with Municipality that shall set out the Authority's and Municipality's respective responsibilities for the delivery of services to the new development. The Authority shall secure development permits from the Municipality for any new 'groundside' developments not directly related to aviation. New 'airside' developments for aviation-related purposes shall not require development permits. However, existing airside developments for which the Municipality has already granted development or building permits shall require the Municipality's approval for any changes, including the expansion of such developments. All buildings on the Airport Lands, whether or not there is a requirement to obtain permits from the Municipality, shall comply with building and safety code regulations for the purpose of the Municipality providing fire suppression services. The Authority may engage Superior Safety Codes Inc., or a successor agency to provide permitting and inspection services to the Municipality for the purpose of obtaining approvals or inspections for fifty percent (50%) of the normal building permit fee.

8.4 Environmental Management

8.4.1 The Airport Authority shall complete a storm water management plan, at the time that a second runway is constructed, that will focus on off-airport impact and will consider the full build out of the infrastructure.

8.4.2 The Airport Authority shall prepare an environmental management system and implement a system of regular audit requirements for the Airport and tenants.

8.4.3 At such time as there is interest in the development of the land north of the terminal building, the developer shall be responsible for full geotechnical, slope stability and soil suitability testing, completed by a qualified professional engineer to determine construction standards for any structures proposed, to the satisfaction of the Municipality.

9.0 IMPLEMENTATION

9.1 Land Availability

While there are over 680.00 ha (1,680.00 ac) of land managed by the Airport Authority, not all of these lands are considered developable. Restrictions on development include:

- lands already developed;
- lands within take off and approach and transition restrictions;
- lands unsuited to development due to topography or drainage; and
- lands protected for future aviation infrastructure expansion.

Based on the Airport Development Plan included as Appendix A, lands availability for airside and groundside commercial and light industrial development is distributed as follows:

Table 2: Land Availability for Development at Fort McMurray Regional Airport

	Airport Sub Areas	Area (hectares / acres)
1.	Terminal Reserve	31.40 ha (77.6 ac)
2.	Airside Business Industrial	62.49 ha (154.4 ac)
3.	Landside Business Industrial	139.59 ha (344.9 ac)
4.	Airport Support Functions	5.64 ha (13.9 ac)
5.	Airside Reserve	413.2 ha (1021.0 ac)
6.	Airport Reserve	24.02 ha (59.35 ac)
7.	Transportation Reserve	4.0 ha (9.88 ac)
Total		680.34 ha (1681.2 ac)

These lands could, when fully developed and leased, provide significant revenue to the airport for future operating and capital reserve. The development concept for the airport lands is controlled separately by the Airport Development Plan (Appendix A), which will eventually be replaced by the Airport's Master Plan currently being prepared by the Airport Authority.

This area structure plan provides the generalized land uses for the airport which will remain consistent with the Master Plan. This ASP may not necessarily require an amendment once the Airport Master Plan is adopted, if the two documents are consistent.

9.2 Capital Plan

Capital costs for an airport are generally significant. For this reason, the Airport Authority has prepared a long term 30 year Capital Plan. The Airport Authority operates on the basis of a five year Business Plan which is based on the 30 year Capital Plan.

In future, the Airport Authority may apply for funding for specific projects. Projects may be funded through a variety of methods including Airport Capital Reserve, partnerships with private developers, airport

improvement fees, the Municipality and other sources that become available.

9.3 Amending and Reviewing the ASP

A long range planning document requires two components to be successful:

- day to day use and implementation; and
- a review process to ensure the document remains current and effective.

This is achieved by commitment of the Airport Authority and the Municipality to use and enforce this document and a process for reviewing and amending the document.

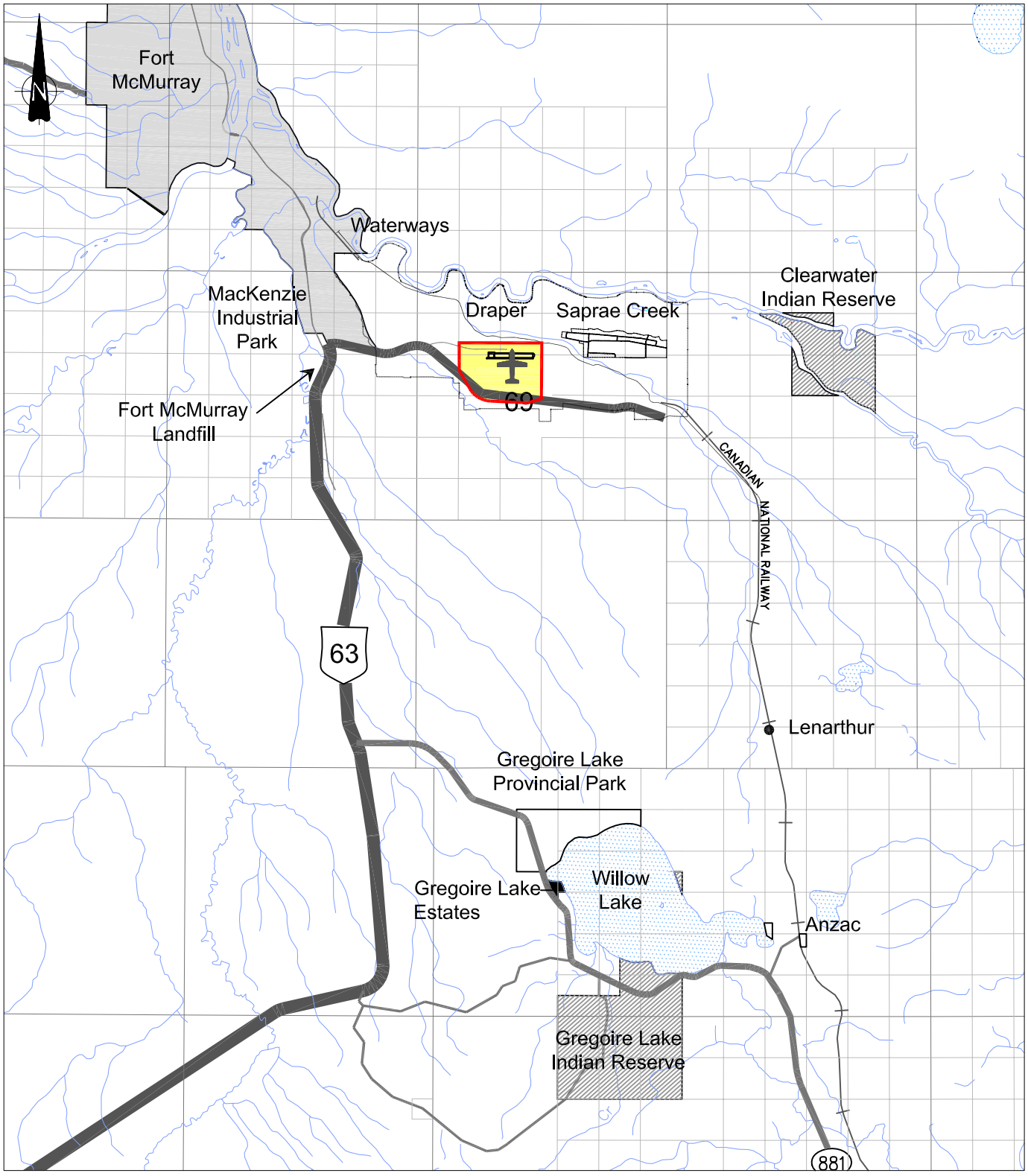
For this reason, the Airport Authority will periodically review ongoing developments on airport lands and identify any issues with the ASP or the Land Use Bylaw. After this review, the Airport Authority will present an update report to Council. If the update report includes recommendations for amendments, the Airport Authority will work with the Municipality to implement these changes to ensure that the ASP and Airport District regulations in the Land Use Bylaw are current and effective. If these documents are still current and effective, amendments shall not be required.

The Airport Authority shall undertake a full ASP review every five years. This review shall re-evaluate the vision and the activities on the airport and the projections to determine if the report still reflects the direction of the airport and the Airport Authority.

10.0 MAPPING

List of Maps:

1) Map 1: Location
2) Map 2: Area Structure Plan Boundary
3) Map 3: Existing Zoning
4) Map 4: Future Land Use
5) Map 5: Obstacle Limitation Surface Zoning
6) Map 6: NEF Contours
7) Map 6a: Existing and Proposed Areas Affected by NEF Contours
8) Map 7: Adjacent Land Uses
9) Map 8: Development Concept
10) Map 9: Airport Vicinity Boundary
11) Map 10: Municipal Servicing



Legend

- Fort McMurray Regional Airport ASP Area
- Fort McMurray
- Indian Reserve
- Water Course
- Fort McMurrary Airport

0 1250 3750 7500m

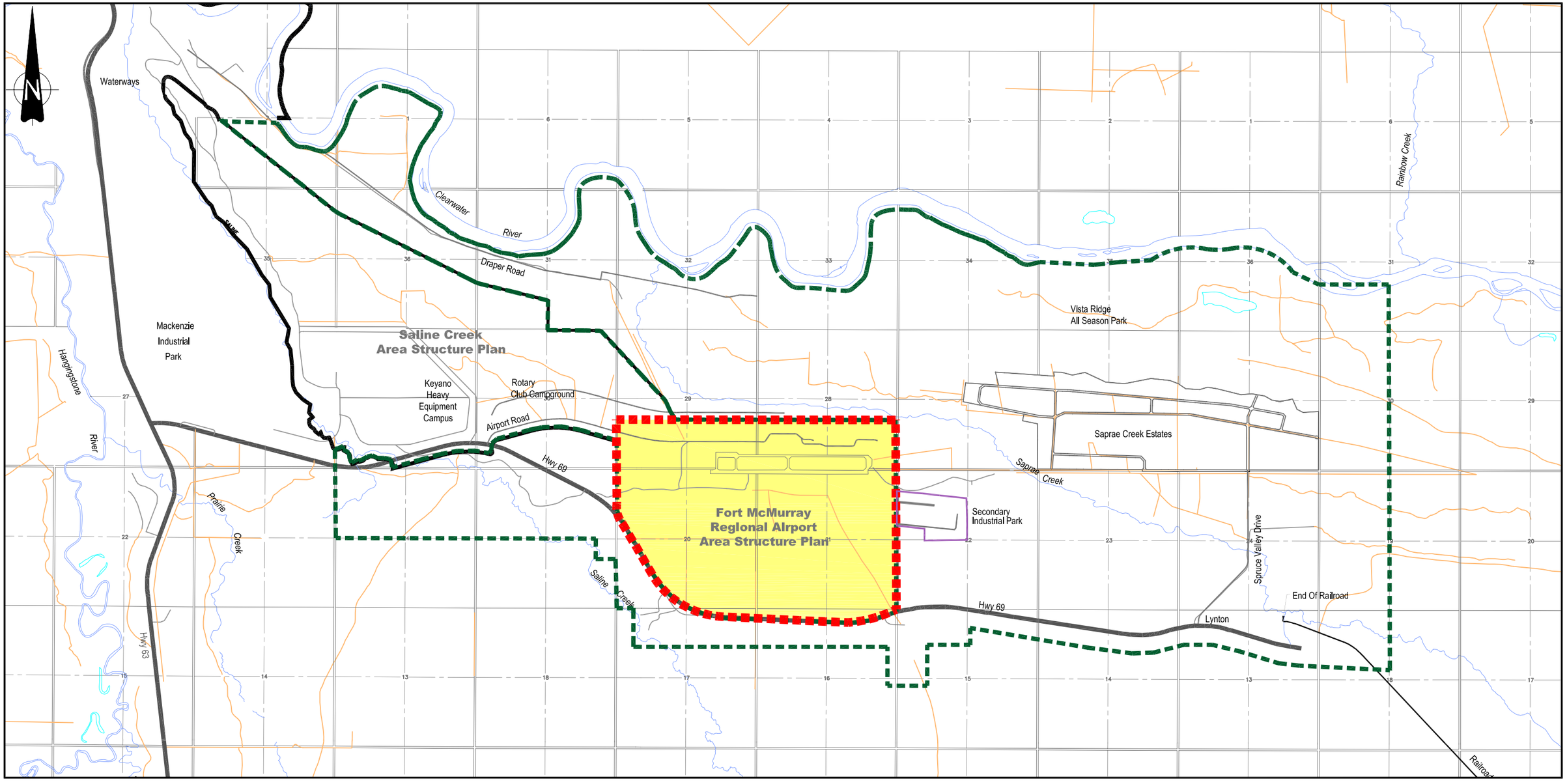
Map 1
Location

Fort McMurray Regional Airport Area Structure Plan (ASP)

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- New Boundary for Hwy 69/Clearwater River Valley ASP
- Secondary Industrial Park
- Highway
- Cutlines
- Water Course

0 375 750 1500m

NOTE: Areas have been generalized and are only approximate.
All information should be verified.

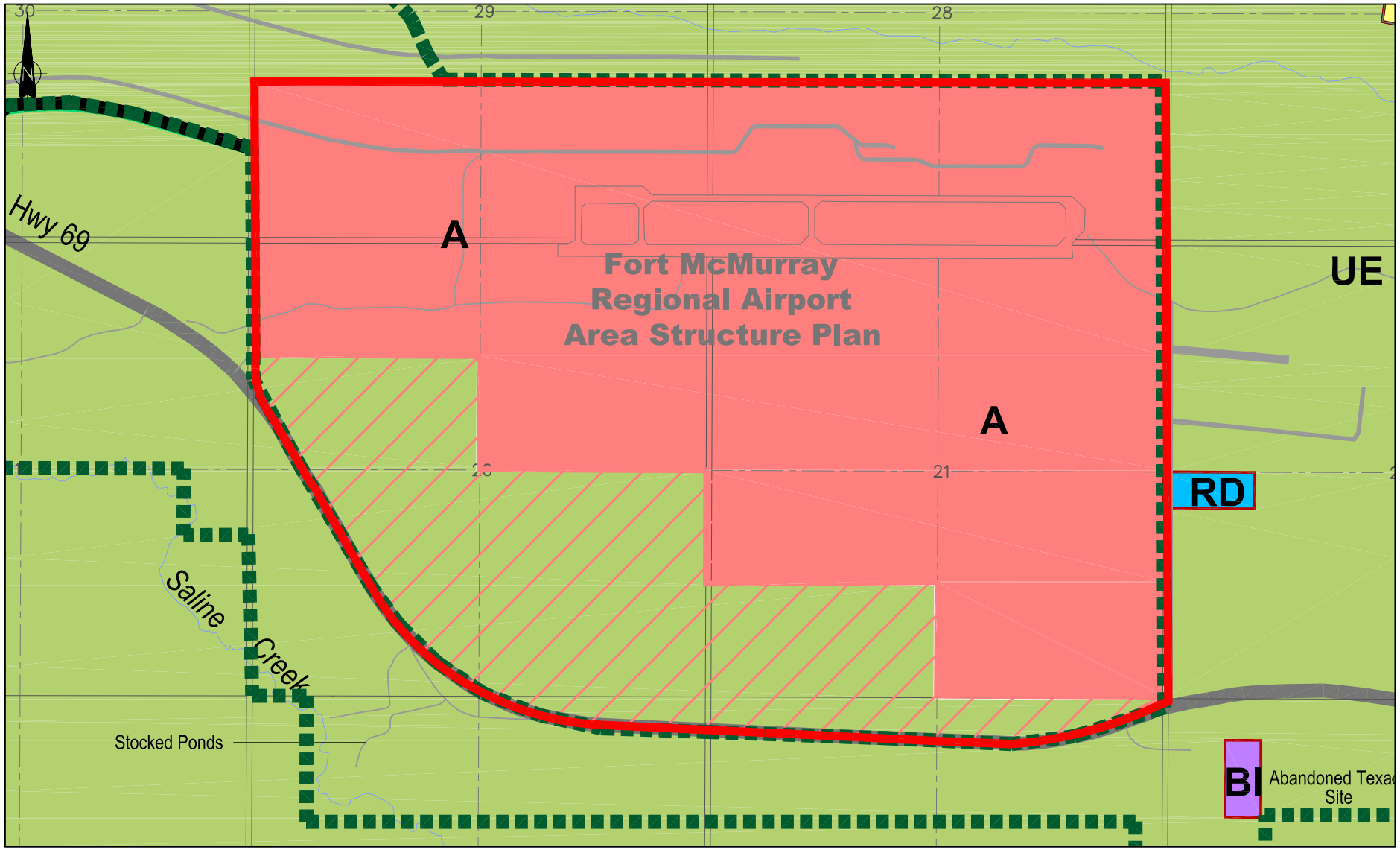
Map 2
Fort McMurray Regional Airport Area Structure Plan Boundary

Fort McMurray Regional Airport Area Structure Plan

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- Hwy 69/Clearwater River Valley ASP Boundary
- Water Course
- BI - Business Industrial
- UE - Urban Expansion
- RD - Rural District
- A - Airport District
- Proposed: UE - Urban Expansion to A - Airport District

0 187.5 375 750m

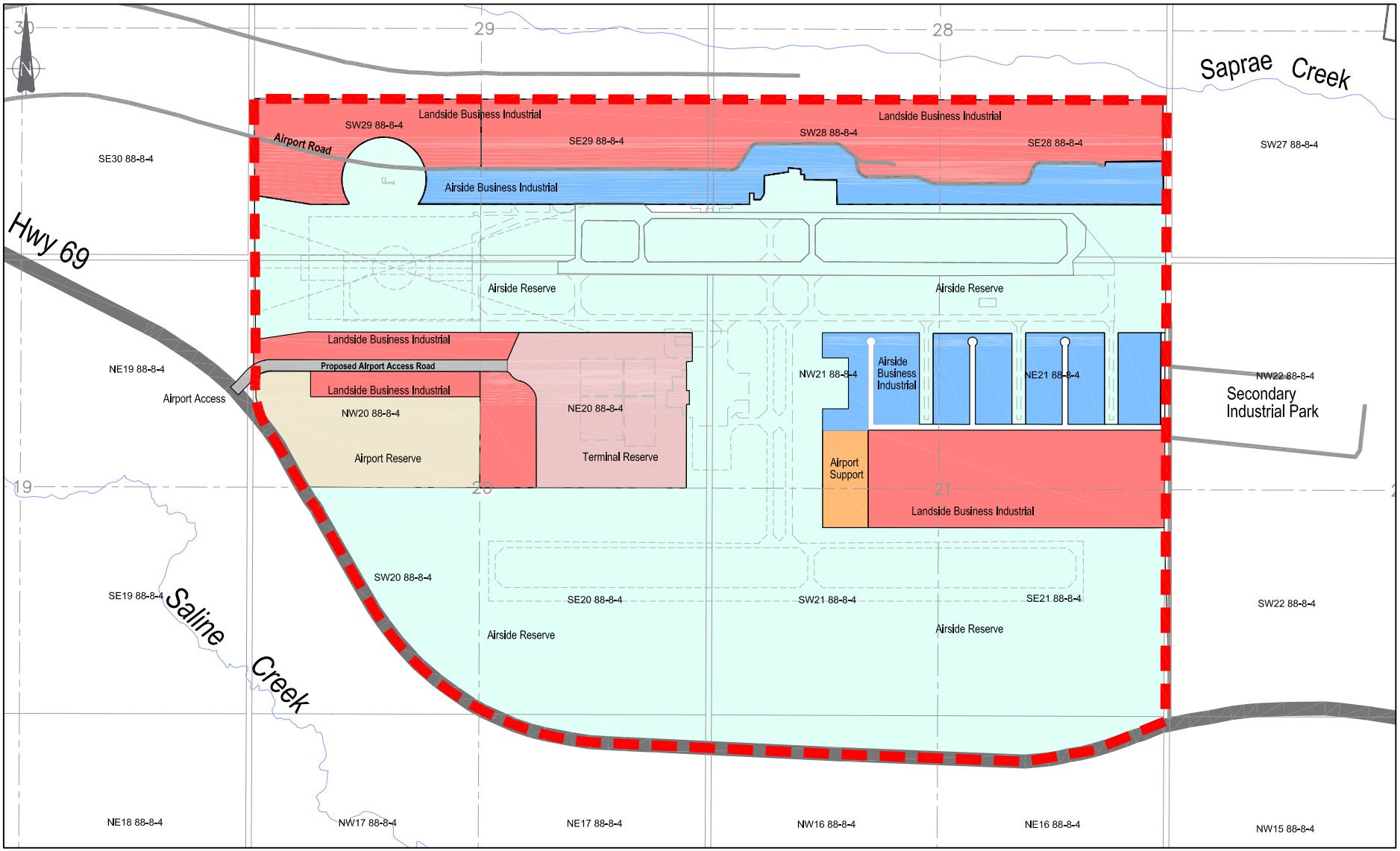
Map 3
Existing Zoning
Fort McMurray Regional Airport Area Structure Plan

Armin A. Preiksaitis & Associates Ltd.

Regional Municipality of Wood Buffalo

Source: Land Use Bylaw 99/059 as amended, accessed January 2012.

Date: February 2012



Legend

Fort McMurray Regional Airport ASP Boundary

NOTE: The A - Airport District in the Land Use Bylaw 99/059 has the same boundary as the ASP boundary.

0 187.5 375 750m

Airport Sub Areas:

1. Airport Reserve
2. Airside Reserve
3. Airside Business Industrial
4. Landside Business Industrial
5. Airport Support
6. Terminal Reserve

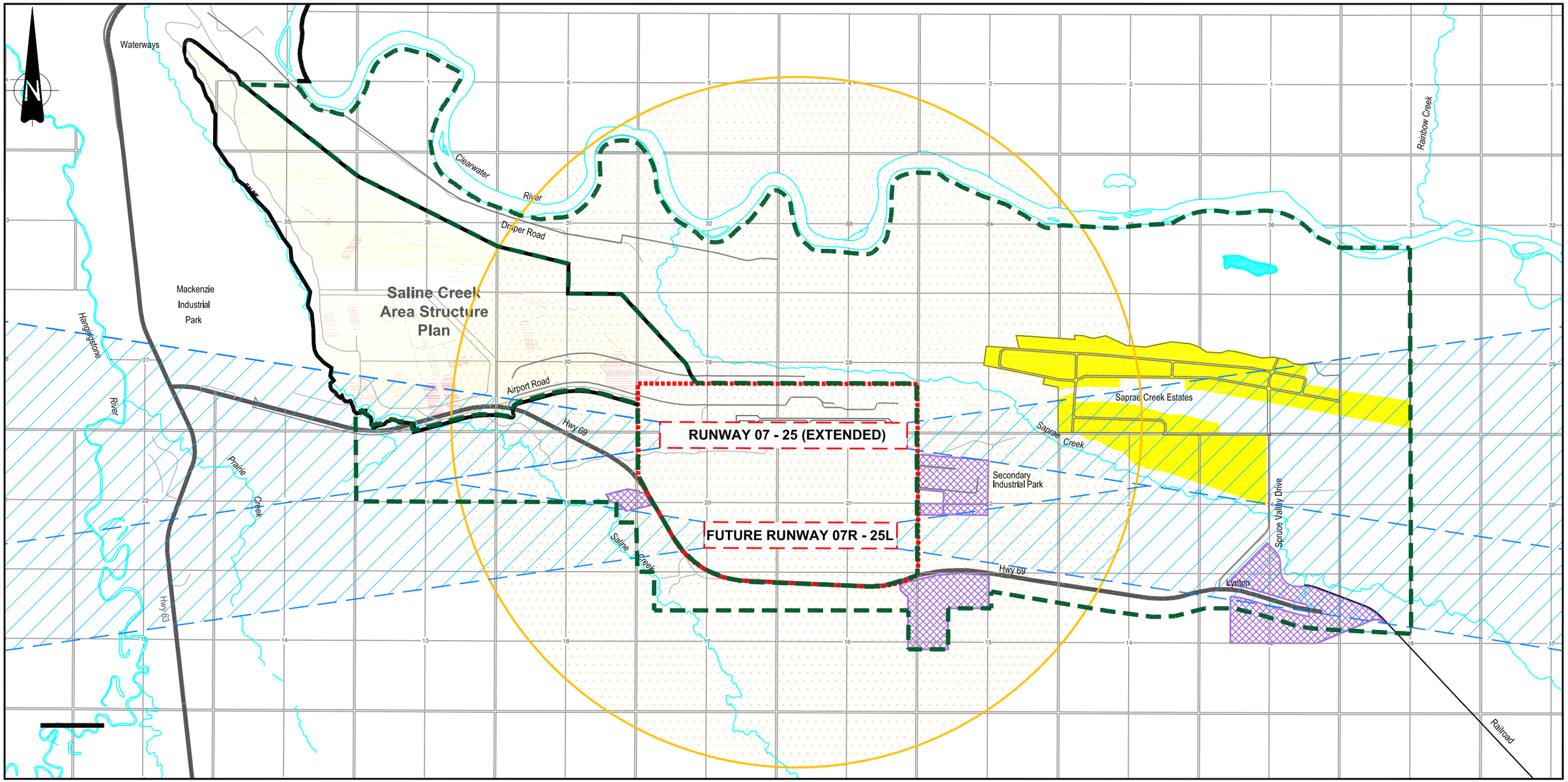
NOTE: Areas have been generalized and are only approximate. All information should be verified.

Map 4
Future Land Use
Fort McMurray Regional Airport Area Structure Plan

Armin A. Preiksaitis & Associates Ltd.

Regional Municipality of Wood Buffalo

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- Highway 69 / Clearwater Valley ASP Boundary
- Water Course
- Runway Strip - includes 60 m beyond the end of each Runway threshold and is 150 m either side of the runway centreline.

0 375 750 1500m

Note: Obstacle Limitation Surface Zoning includes the Outer Surface Area and the Take-off and Approach Surfaces

- Outer Surface Area
- Take-off and Approach Surface
- Existing Suburban Estate Residential
- Proposed Business Industrial

Note: The proposed NEF Contours are derived from the "Fort McMurray Regional Airport Zoning Analysis Discussion Paper" included as Appendix E of the Area Structure Plan

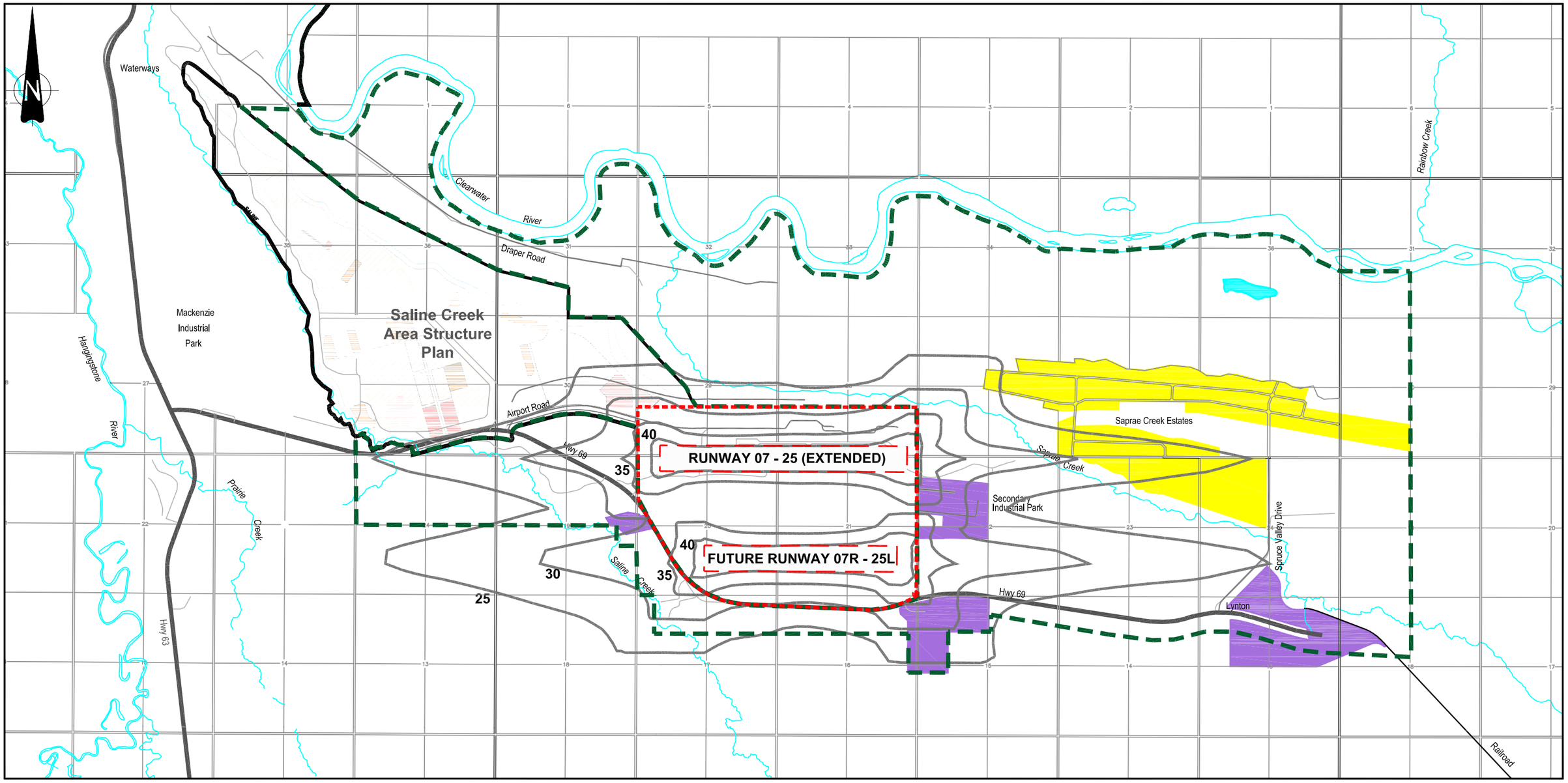
Map 5
Obstacle Limitation Surface Zoning

Fort McMurray Regional Airport Area Structure Plan

Armin A. Preiksaitis & Associates Ltd.

Regional Municipality of Wood Buffalo

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- Hwy 69 Clearwater River Valley ASP Boundary
- Airport Runway
- Highway
- Water Course
- Noise Exposure Forecast (NEF) Contours
- Existing Suburban Estate Residential
- Proposed Business Industrial

0 375 750 1500m

Note: The proposed NEF Contours are derived from the "Fort McMurray Regional Airport Noise Exposure Forecast Discussion Paper" included as Appendix F of the Area Structure Plan

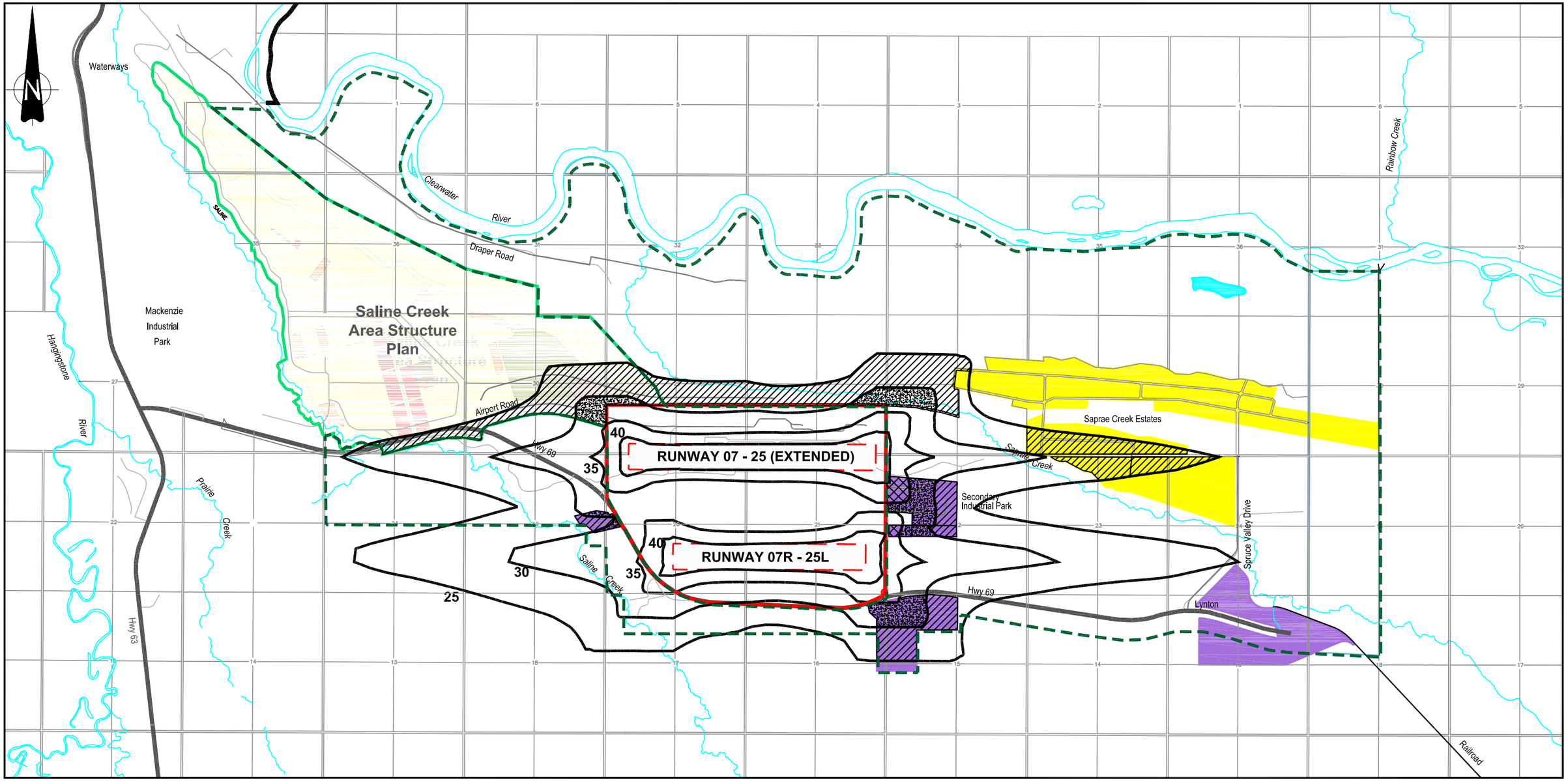
Map 6
Noise Exposure Forecast Contours

Fort McMurray Regional
Airport Area Structure Plan

Armin A. Preiksaitis & Associates Ltd.

Regional Municipality of Wood Buffalo

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- Hwy 69 Clearwater River Valley ASP Boundary
- Surrounding ASP Boundaries
- Airport Runway
- Highway
- Major Roadway
- Water Course
- NEF Contours
- Areas Affected by NEF (25)
- Areas Affected by NEF (30)
- Areas Affected by NEF (35)
- Proposed Business Industrial
- Existing Suburban Estate Residential

0 375 750 1500m

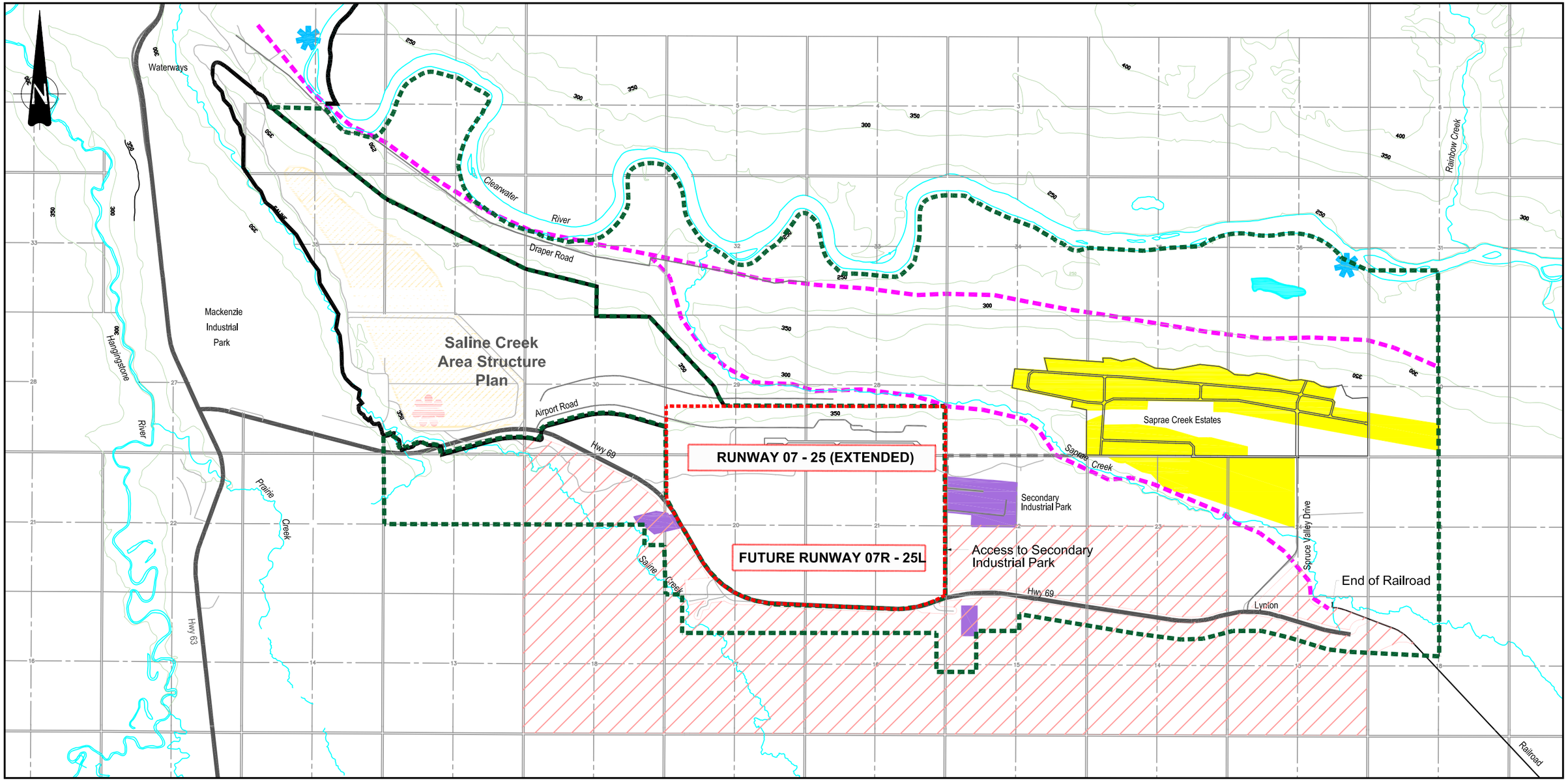
Map 6 - A
Existing and Proposed Development Areas Affected by NEF Contours

Fort McMurray Regional Airport Area Structure Plan

Armin A. Preiksaitis & Associates Ltd.

Regional Municipality of Wood Buffalo

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- New Hwy 69 Clearwater River Valley ASP Boundary
- Airport Runway
- Highway
- Possible Boat Launch
- Potential Trail Development
- Water Course
- Contour Lines
- Commericial Industrial Land Use Study Area
- Existing Suburban Estate Residential
- Business Industrial

0 375 750 1500m

NOTE:Areas have been generalized and are only approximate, current as of January 2012.
All information should be verified.

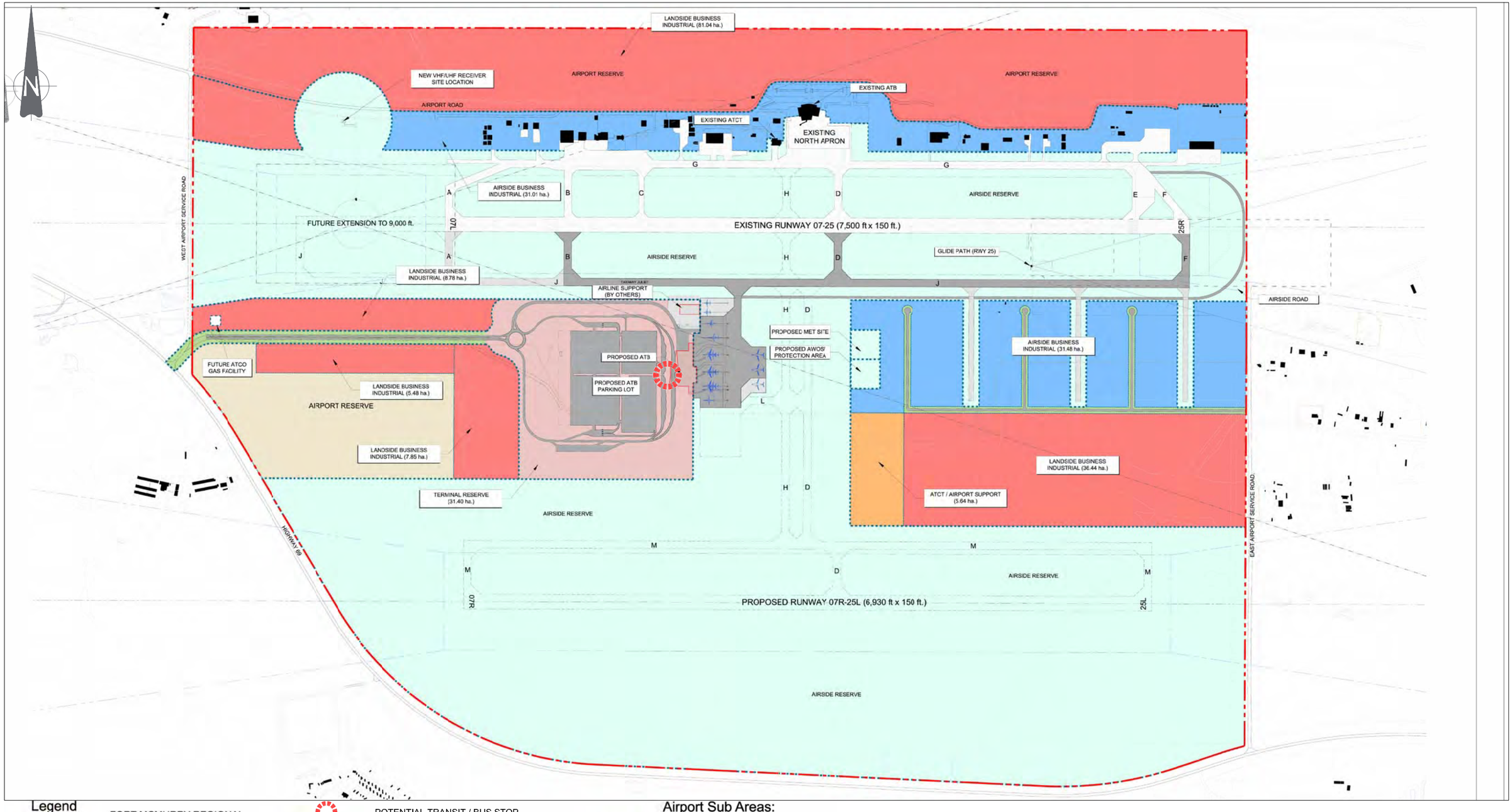
Map 7
Adjacent Land Uses

Fort McMurray Regional Airport Area Structure Plan

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012



Legend

- FORT MCMURRY REGIONAL AIRPORT ASP BOUNDARY
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING FENCE LINE
- EXISTING DITCH LINE
- EXISTING WATER COURSE
- EXISTING TRAIL
- EXISTING TREE LINE
- EXISTING LEGAL BOUNDARY
- EXISTING PRE-LOADING LIMITS
- ELECTRONIC PROTECTION AREA
- POTENTIAL TRANSIT / BUS STOP
- RUNWAY APPROACH SURFACE
- RUNWAY STRIP
- EXISTING AIRSIDE PAVEMENTS
- PROPOSED OPENING DAY PAVEMENTS
- PROPOSED 2019 PAVEMENTS
- PROPOSED FUTURE PAVEMENTS
- EXISTING STRUCTURES / BUILDINGS
- FUTURE STRUCTURES / BUILDINGS

Airport Sub Areas:

- AIRPORT RESERVE
- AIRSIDE RESERVE
- AIRSIDE BUSINESS INDUSTRIAL
- LANDSIDE BUSINESS INDUSTRIAL
- AIRPORT SUPPORT
- TRANSPORTATION RESERVE
- TERMINAL RESERVE

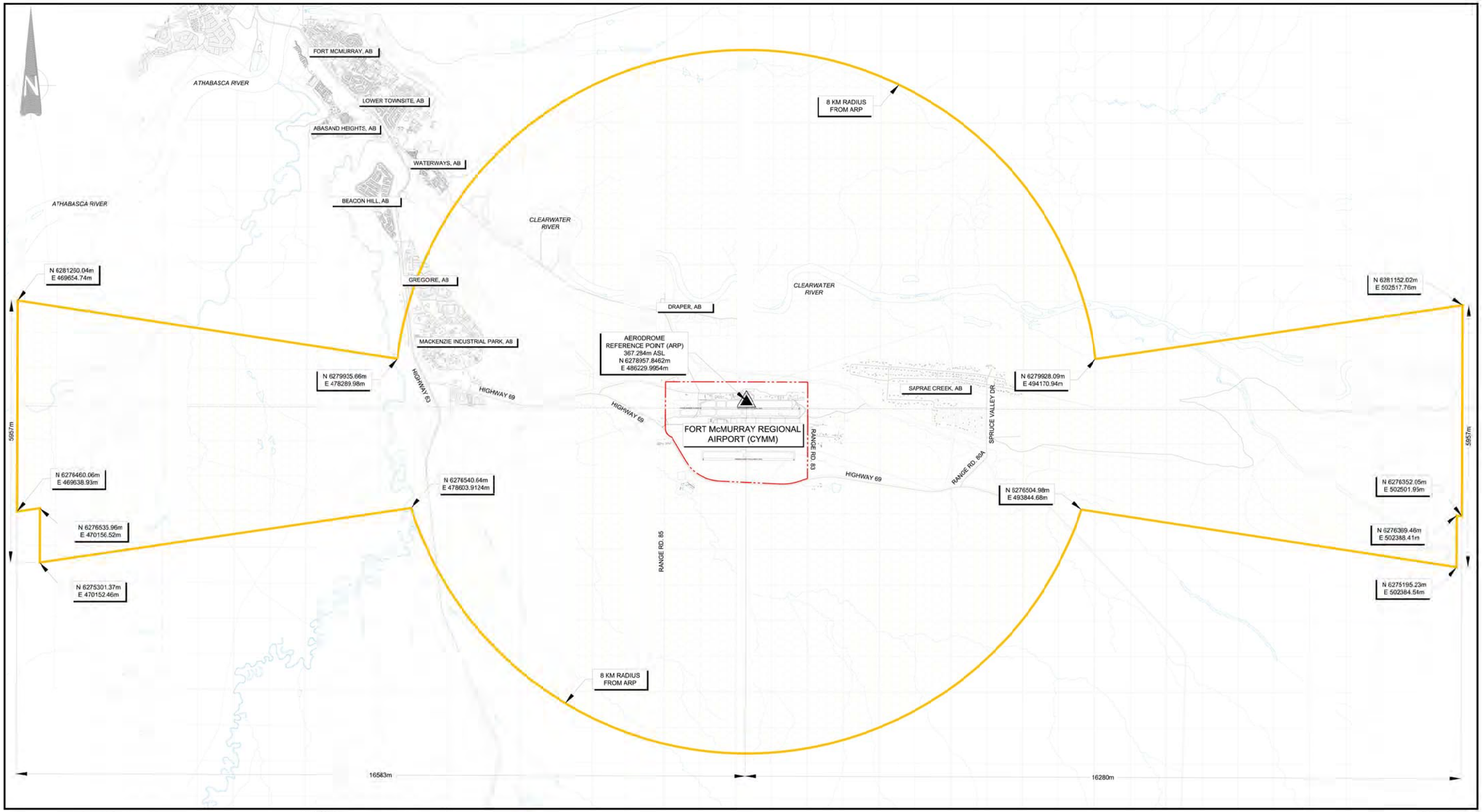
Map 8
Development Concept
Fort McMurray Regional Airport Area Structure Plan

PRYDE SCHROPP McCOMB INC. AVIATION GROUP

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012



LEGEND

- AIRPORT BOUNDARY
- ROADWAY
- LOT FABRIC
- WATERCOURSE
- AIRPORT IMPACT PROTECTION AREA

NOTES:

1. FOR PLANNING PURPOSES ONLY.
2. DRAWING IS SHOWN IN UTM PROJECTION NAD83 ZONE 12.
3. THE AIRPORT VICINITY BOUNDARY AREA COMBINES TP312 AND TP1247 ZONING TO SIMPLIFY THE IDENTIFICATION OF PROPOSED DEVELOPMENTS THAT COULD POSE A POTENTIAL RISK TO AIRPORT OPERATIONS.
4. BUILDINGS, LOT LINES, ROAD AND CONCESSION INFORMATION PROVIDED BY THE COMMUNICATIONS TECHNOLOGY DEPARTMENTS, REGIONAL MUNICIPALITY OF WOOD BUFFALO (MAY 31, 2010).

0 750 1500 3000m

Map 9

Airport Vicinity Boundary

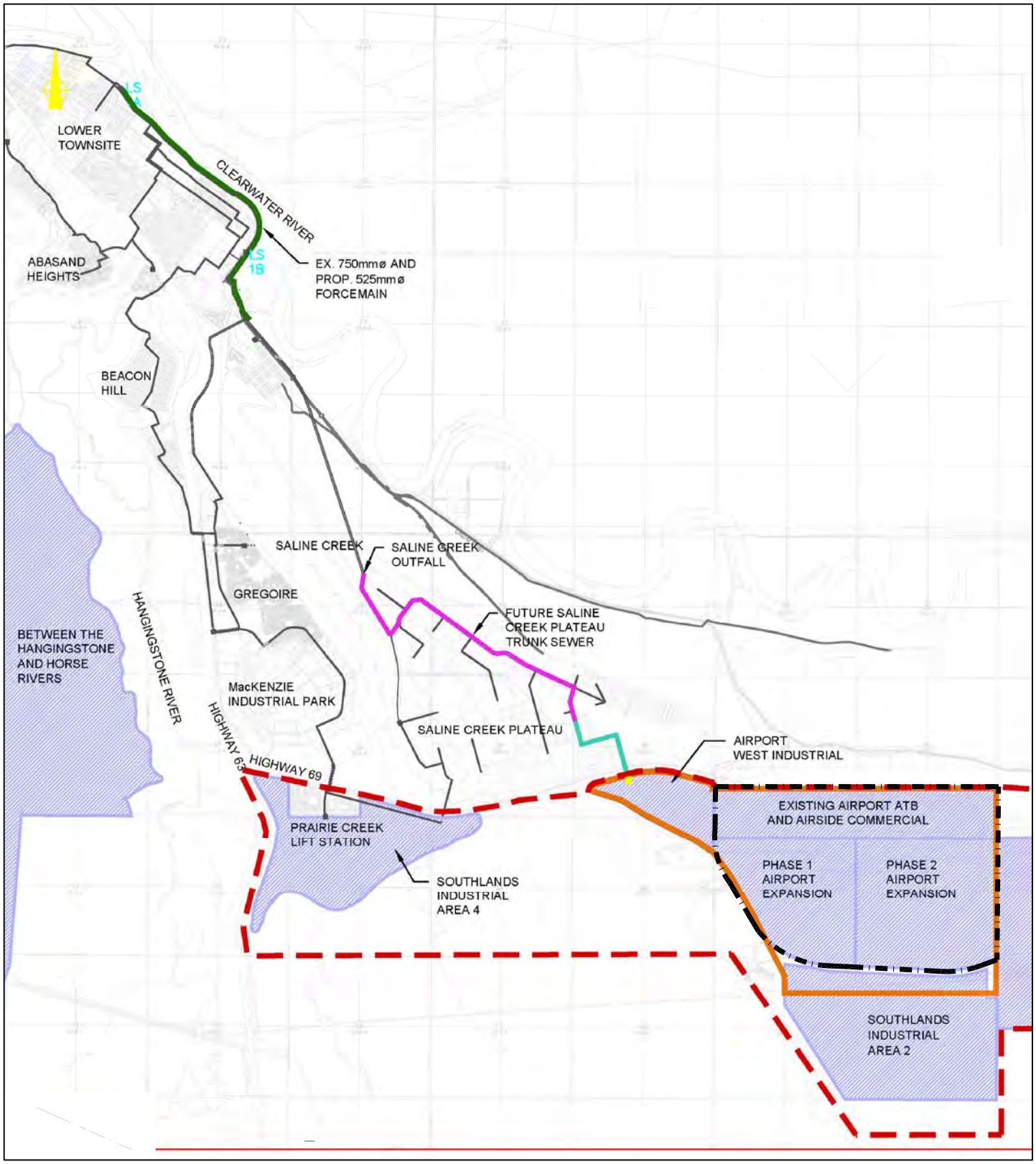
Fort McMurray Regional Airport Area Structure Plan

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

PRYDE SCHROPP McCOMB
A DIVISION OF GENIVAR

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012



Legend

- Fort McMurray Regional Airport ASP Boundary
- Existing Sanitary System
- Study Area
- Proposed Development Areas
- 400mmø Sanitary Forcemain
- Saline Creek Plateau Gravity Trunk
- Clearwater Forcemain Twinning
- Pump Station
- Serviceable Area

NOTE: Areas have been generalized and are only approximate.
All information should be verified.

Source: Land Use Bylaw 99/059 as amended accessed February 2012.

0 750 1500 3000m

Map 10
Municipal Servicing

Fort McMurray Regional
Airport Area Structure Plan

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Date: February 2012

APPENDIX A

FORT MCMURRAY REGIONAL AIRPORT – AIRPORT DEVELOPMENT PLAN

LANDSIDE BUSINESS INDUSTRIAL (81.04 ha.)

NEW VHF/UHF RECEIVER SITE LOCATION

AIRPORT RESERVE

AIRPORT RESERVE

AIRPORT ROAD

EXISTING ATB

EXISTING ATCT

EXISTING NORTH APRON

WEST AIRPORT SERVICE ROAD

AIRSIDE BUSINESS INDUSTRIAL (31.01 ha.)

AIRSIDE RESERVE

FUTURE EXTENSION TO 9,000 ft.

07L

EXISTING RUNWAY 07-25 (7,500 ft x 150 ft.)

25R

AIRSIDE RESERVE

GLIDE PATH (RWY 25)

TAXIWAY JULIET

AIRLINE SUPPORT (BY OTHERS)

AIRSIDE ROAD

PROPOSED MET SITE

PROPOSED AWOS/ PROTECTION AREA

AIRSIDE BUSINESS INDUSTRIAL (33.12 ha.)

FUTURE ATCO GAS FACILITY

LANDSIDE BUSINESS INDUSTRIAL (8.53 ha.)

PROPOSED ATB

PROPOSED ATB PARKING LOT

AIRPORT RESERVE

LANDSIDE BUSINESS INDUSTRIAL (7.85 ha.)

LANDSIDE BUSINESS INDUSTRIAL (36.44 ha.)

ATCT / AIRPORT SUPPORT (5.64 ha.)

TERMINAL RESERVE (31.40 ha.)

AIRSIDE RESERVE

EAST AIRPORT SERVICE ROAD

HIGHWAY 69

AIRSIDE RESERVE

AIRSIDE RESERVE

07R

PROPOSED RUNWAY 07R-25L (6,930 ft x 150 ft.)

25L

AIRSIDE RESERVE

Revised: JULY 11, 2011

PRYDE SCHROPP McCOMB
A DIVISION OF GENIVAR AVIATION GROUP

OTTAWA TEL: (613) 233-1566 FAX: (613) 233-2364
TORONTO TEL: (905) 678-8582 FAX: (905) 678-8582
CALGARY TEL: (403) 270-9777 FAX: (403) 270-0133
KITCHENER TEL: (519) 571-3255 FAX: (519) 571-3255
PORT ELGIN TEL: (519) 389-4343 FAX: (519) 389-4728
www.psmi.ca

SCALE 1:5000
ON 24"X36" (ARCH D)

75 0 75 150 225 375 METRES
300 150 0 300 750 1125 FEET

GENERAL LEGEND

- AIRPORT ASP BOUNDARY
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING FENCE LINE
- EXISTING DITCH LINE
- EXISTING WATER COURSE
- EXISTING TRAIL
- EXISTING TREE LINE
- EXISTING LEGAL BOUNDARY
- EXISTING PRE-LOADING LIMITS
- ELECTRONIC PROTECTION AREA
- RUNWAY APPROACH SURFACE
- RUNWAY STRIP
- EXISTING AIRSIDE PAVEMENTS
- PROPOSED OPENING DAY PAVEMENTS
- PROPOSED 2019 PAVEMENTS
- PROPOSED FUTURE PAVEMENTS
- EXISTING STRUCTURES / BUILDINGS
- FUTURE STRUCTURES / BUILDINGS

LAND USE INFORMATION

- AIRPORT RESERVE
- AIRSIDE RESERVE
- AIRSIDE BUSINESS INDUSTRIAL
- LANDSIDE BUSINESS INDUSTRIAL
- AIRPORT SUPPORT
- TRANSPORTATION RESERVE
- TERMINAL RESERVE

Client/Project
CDZ
FORT MCMURRAY REGIONAL AIRPORT
AIRPORT EXPANSION PROJECT

Figure No.
1

Title
AIRPORT DEVELOPMENT PLAN

P:\10425 Fort McMurray Airport\240\Planning & GA\Airfield\Dev & LUP\10425 - Airport Dev & LUP - Rev10A - 071111.dwg
2011 July 11, 9:49 a.m.

APPENDIX B

MEMORANDUM OF UNDERSTANDING BETWEEN REGIONAL MUNICIPALITY OF WOOD BUFFALO AND FORT McMURRAY AIRPORT AUTHORITY

MEMORANDUM OF UNDERSTANDING BETWEEN REGIONAL MUNICIPALITY OF WOOD BUFFALO AND FORT McMURRAY AIRPORT AUTHORITY

MEMORANDUM OF UNDERSTANDING effective as of the 1st day of January, A.D., 2010,
BETWEEN:

REGIONAL MUNICIPALITY OF WOOD BUFFALO,
a specialized municipality established under the laws of the Province of Alberta,
(hereinafter referred to as "the Regional Municipality"),

OF THE FIRST PART,

- and -

FORT MCMURRAY AIRPORT AUTHORITY,
an authority incorporated under the *Regional Airports Authorities Act* (Alberta)
(hereinafter referred to as "the Authority"),

OF THE SECOND PART.

WHEREAS pursuant to the terms contained in a Transition and Transfer Agreement dated effective the 1st day of January, 2010 between the Regional Municipality and the Authority (the "Agreement"), the Regional Municipality and the Authority provided for the transfer of the Regional Municipality's membership in the Fort McMurray Regional Airport Commission (the "Commission") to the Authority and the transfer to the Authority by the Regional Municipality of certain lands that are described in the Agreement as the Airport Lands; and

WHEREAS the Authority has, as of the Effective Date, assumed responsibility for the ownership, operation, management, administration and future development of the Airport, Airport Lands and associated infrastructure as hereinafter defined; and

WHEREAS the Regional Municipality and the Authority wish to enter into a Memorandum of Understanding to describe the Regional Municipality's and the Authority's respective expectations and understandings of the obligations and responsibilities of one another for the provision of Municipal Services and Utilities to the Airport and the Airport Lands and the future operation and development of the Airport;

NOW, THEREFORE, THE REGIONAL MUNICIPALITY AND THE AUTHORITY wish to enter into a Memorandum of Understanding to describe the mutual expectations of the Regional Municipality and the Authority of their respective roles, responsibilities and obligations with respect to the provision of Municipal Services and Utilities to the Airport and the Airport Lands and the future operation and development of the Airport.

ARTICLE ONE
DEFINITIONS

1. In this Memorandum of Understanding, unless the context provides otherwise, the following words or phrases shall have the following meanings:

   a. **"Agreement"** means the Transition and Transfer Agreement dated effective January 1, 2010 between the Regional Municipality and the Authority;

   b. **"Airport"** means the Fort McMurray Airport which, following the Effective Date described in the Agreement, will be owned, operated and managed by the Authority;

   c. **"Airport Lands"** means those lands owned by the Authority that have been transferred by the Regional Municipality to the Authority.

   d. **"Authority"** means the Fort McMurray Airport Authority, an authority incorporated under the *Regional Airports Authorities Act* (Alberta).

   e. **"Commission"** means the Fort McMurray Regional Airport Commission, a not-for-profit corporation established by the Regional Municipality under the *Companies Act (*Alberta) to manage and operate the Airport between March 30, 1999 and January 1, 2010.

   f. **"Effective Date"** means January 1, 2010.

   g. **"Municipal Services and Utilities"** means services that have been provided by the Regional Municipality to the Commission and will, in future, as described in this Memorandum, be provided to the Authority, including road maintenance, water, sanitary sewer, waste collection and disposal, emergency services, and fire suppression and protection.

   h. **"Regional Municipality"** means the Regional Municipality of Wood Buffalo, a specialized municipality established under the laws of the Province of Alberta.

   i. **"Water Supply System"** means the existing water mains, pipes, valves, pumps, reservoir, water service connections and all appurtenances thereto that are presently owned by the Regional Municipality and located within the Airport Lands, a portion of which are used to provide water service to the Airport and the Airport Lands.

   j. **"Sanitary Sewage System"** means the existing sewage mains, pipes, valves, pumps, sanitary service connections and all appurtenances thereto, including the existing sewage lagoon, which are located wholly within the Airport Lands.

   k. **"Storm Water Drainage System"** means the storm water drainage system wholly within the Airport Lands as it exists on the Effective Date.

ARTICLE TWO
THE REGIONAL MUNICIPALITY'S RESPONSIBILITES

2.1 From and after the Effective Date, any Municipal Services and Utilities, including water and sanitary service, provided by the Regional Municipality to the Airport Lands will be provided at such rate or rates, whether combined or separate, as may be determined by municipal by-laws, resolutions and policies as amended from time-to-time.

2.2 The Regional Municipality will be responsible for the maintenance and upkeep of the Water Supply System, subject to Articles 3.3 and 3.6.

2.3 From and after the Effective Date, the Regional Municipality will continue on the Authority's behalf to operate and maintain the Sanitary Sewage System as it exists on the Effective Date at no charge to the Authority. The Regional Municipality will remedy any defaults or deficiencies in the Sanitary Sewage System as it exists on the Effective Date, excepting those related to the sewage lagoon. The Regional Municipality shall not be responsible for any additions or upgrades to the Sanitary Sewage System, as outlined below in Article 3.7.

2.4 The Regional Municipality shall continue to provide fire protection and suppression services to the Airport Land for structural fires only and the Regional Municipality will continue to maintain and operate the hydrants on the Airport Lands.

ARTICLE THREE
AUTHORITY'S RESPONSIBILITIES

3.1 The Authority will be solely responsible for electric power, natural gas and telephone service to the Airport Lands and will deal directly with the provider of those services.

3.2 From and after the Effective Date, unless otherwise agreed to by the Regional Municipality, the Authority shall be solely responsible for the maintenance and operation of any roads on Airport Lands except for those roads within the boundaries of the Airport Lands that are contained in a registered road plan or road allowance, which will continue to be the responsibility of the Regional Municipality to maintain and operate.

3.3 The Authority, unless otherwise agreed to by the Regional Municipality, shall be solely responsible for the maintenance and operation of that portion of the Water Supply System that distributes water to tenants on the Airport Lands, being that portion of the Water Supply System past the curb stop in the Water Supply System.

3.4 From and after the Effective Date, the Authority shall be solely responsible for the maintenance, operation and upkeep of the Storm Water Drainage System unless otherwise agreed to by the Regional Municipality.

3.5 The Authority will continue to pay for Municipal Services and Utilities at rates established by the Regional Municipality by by-law, resolution or policy from time-to-time.

3.6 With respect to any portion of the Water Supply System that, as a result of the construction by the Regional Municipality of a new water main or facilities, becomes used solely for the purpose of supplying the Airport Lands with water service, the Authority shall become responsible for the ownership,

maintenance and operation of such portions, unless otherwise agreed to by the Regional Municipality. The Regional Municipality will continue to operate those mains and facilities within the Airport Lands that provide water service not only to the Airport Lands but to other customers and lands outside of the Airport Lands. The Authority will cooperate with the Regional Municipality to facilitate and allow for the construction of any additions to the Water Supply System on the Airport Lands necessary for this purpose.

3.7 The Authority, unless otherwise agreed to by the Regional Municipality, shall be solely responsible for any upgrades or development of the Sanitary Sewage System on Airport Lands. In the event of any expansion or development of the Airport, the Authority also shall be solely responsible to construct, own, operate and maintain the Sanitary Sewage System to service that new development in compliance with all applicable legislation and regulations, unless otherwise agreed to by the Regional Municipality in writing. Once the Sanitary Sewage System is connected to the Regional Municipality's sewage system, the ownership, operation and management of the Sanitary Sewage System shall become the sole responsibility of the Authority. The Authority shall also be responsible for any costs of decommissioning the Sanitary Sewage System after the Effective Date, including required remediation or reclamation following such a decommissioning.

ARTICLE FOUR
MUTUAL RESPONSIBILITIES AND OBLIGATIONS OF THE AUTHORITY AND WOOD BUFFALO

4.1 The Regional Municipality and the Authority will work together following the Effective Date to define in more detail their respective obligations and responsibilities for the supply of Municipal Services and Utilities to the Authority for the benefit of the occupants of the Airport Lands and the residents of Wood Buffalo.

4.2 The Regional Municipality and the Authority will work towards the development and execution of a Servicing Agreement for the Airport Lands to provide for the future supply of Municipal Services and Utilities to the Airport Lands that may or may not include operations and maintenance of Authority-owned roads, operations and maintenance of the Water Supply System, operations and maintenance of the Storm Water Drainage System, and municipal bus service, all on terms and conditions to be mutually agreed to by the Regional Municipality and the Authority.

4.3 Any new development on the Airport Lands by the Authority shall require a development agreement with Wood Buffalo that shall set out the Authority's and Wood Buffalo's respective responsibilities for the delivery of services to the new development. The Authority shall secure development permits from the Regional Municipality for any new 'groundside' developments not directly related to aviation. New 'airside' developments for aviation-related purposes do not require development permits. However, existing airside developments for which the Regional Municipality has already granted development or building permits shall require the Regional Municipality's approval for any changes, including the expansion of such developments. All buildings on the Airport Lands, whether or not there is a requirement to obtain permits from the Regional Municipality, shall comply with building and safety codes and regulations for the purpose of the Regional Municipality providing fire suppression services. The Authority may engage Superior Safety Codes Inc., or a successor agency to provide permitting and inspection services to the Regional Municipality for the purpose of obtaining approvals or inspections for fifty percent (50%) of the normal building permit fee.

IN WITNESS WHEREOF Wood Buffalo and the Authority have both entered into this Memorandum of Understanding the day and year first above written.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Per: _____
Mayor Melissa Blake

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Per: _____
Glen Laubenstein
Chief Administrative Officer

FORT MCMURRAY AIRPORT AUTHORITY

Per: _____
Scott Clements
President and Chief Executive Officer

669692

MEMORANDUM OF UNDERSTANDING entered into this 1st day of January, A.D., 2010.

BETWEEN:

THE REGIONAL MUNICIPALITY OF WOOD BUFFALO,
a specialized municipality established under the laws of the Province of Alberta,
(hereinafter referred to as "Wood Buffalo"),
OF THE FIRST PART,

- and -

FORT MCMURRAY AIRPORT AUTHORITY,
an authority incorporated under the *Regional Airports Authorities Act* (Alberta)
(hereinafter referred to as "the Authority"),
OF THE SECOND PART.

MEMORANDUM OF UNDERSTANDING

REYNOLDS, MIRTH, RICHARDS & FARMER LLP
Barristers & Solicitors
3200, 10180 – 101 Street
Edmonton, AB T5J 3W8
Phone: (780) 497-3360
Fax: (780) 429-3044

Responsible Lawyer: R. Allan Farmer, Q.C.
File Number: 78605-029-RAF

APPENDIX C

FORT MCMURRAY REGIONAL AIRPORT AREA STRUCTURE PLAN - GLOSSARY OF TERMS

GLOSSARY OF TERMS

Prior to 1999, the majority of regional airports were the sole responsibility and jurisdiction of the Federal Government. Since the transfer of airports to municipalities, airport authorities, airport commissions etc., many of the functions previously managed by the Federal Government are now within the purview of municipalities. However, there is often not a clear understanding of airport issues and terms. The preparation of an airport document requires some explanation of the terminology applied to airport development. The following provides a number of terms used in this Area Structure Plan and their definitions.

Aerodrome — any area of land, water (including frozen surface thereof) or other supporting surface used or designed, prepared, equipped or set apart for use either in whole or in part for the arrival and departure, movement or servicing of aircraft and includes any building, installations and equipment in connection there within.

Aircraft Movements — any arrival or departure of an aircraft.

Aircraft Movement Projections — a projection of the number of aircraft expected to utilize the aerodrome during the projection period of time.

Airport — an aerodrome for which, under Part Ill of the Air Regulations of the Aeronautics Act, an airport certificate has been issued by the Federal Minister of Transportation.

Airport Reserve — means lands within the airport not identified for a specific use but protected as reserve lands. This may include lands which have no development potential due to terrain, water courses, etc.

Airport Support — means lands reserved for airport support functions including maintenance structures, equipment storage sheds, sand sheds, fire halls, air traffic control tower and other airport related supporting functions.

Airport Terminal Building (ATB) — any structure used for the processing of passengers for the purpose of enplaning or deplaning an aircraft and may include all services for the travelers.

Airside — the movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is secured and controlled.

Airside Business Industrial — means lands reserved for commercial / light industrial development purposed which require direct access to the airport airside areas such as runways and taxiways.

Airside Reserve — means lands within the airport reserved for aircraft maneuvering including runways, taxiways, aprons and associated utilities.

Apron — that part of an aerodrome, other than the maneuvering area, intended to accommodate the loading and unloading of passengers and cargo, refueling, servicing, maintenance and parking of the aircraft, deicing, and any movement of the aircraft, vehicles and pedestrians necessary for such purposes.

Critical Aircraft — the airplane or airplanes identified from among the airplanes the aerodrome is

intended to serve as having the most demanding operational requirements with respect to the determination of movement area dimensions, pavement bearing strength and other physical characteristics in the design of aerodromes.

Cross Wind Runway — a runway that is aligned to meet the needs of the secondary wind direction to allow for smaller aircraft to land in such conditions.

Displaced Threshold — a threshold not located at the extremity of the runway. Displaced thresholds are used when an obstacle in the final approach area intrudes into the specific obstruction clearance surfaces. Displacing the threshold provides the required obstacle free slope. The declared landing distance (LDA) which assumes a specified obstacle clearance plane is therefore measured from the displaced threshold; however there is no restriction to an aircraft actually landing on the usable runway prior to the displaced threshold. This portion of the runway is also available for take-off or rollout.

Fixed Wing Aircraft — an airplane, as opposed to a helicopter.

Glycol — a de-icing chemical used to clear a plane of frost or ice for safe travel.

Groundside — lands within the airport boundaries that do not have direct access to airside land or uses and is not considered secured.

Landside Business Industrial — means lands within the airport reserved for commercial /light industrial development purposes which does not require access to the airside.

Noise Exposure Forecast (NEF) — an unit of measurement of aircraft sound and vibration used to predict level of community annoyance. It is calculated by the Ministry of Transport Canada's NEF program in the vicinity of airports. Areas identified by this program as having a high impact are discouraged from residential land development. See http://www.tc.gc.ca/eng/civilaviation/publications/tp1247-part4-part4-2-1471.htm for more information.

Obstacle — all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect the aircraft in flight.

Obstacle Limitation Surface — a surface that establishes the limit to which objects may project into the airspace associated with an aerodrome so that aircraft operations at the aerodrome may be conducted safely. Obstacle limitation surfaces consist of the Outer Surface, Take-off and Approach Surfaces and the Transition Surface and are regulated by Transport Canada (See Figure 1: Obstacle Limitation Surface).

Obstruction Zoning — this is a federally applied zoning that protects and identifies the critical Obstruction Limitation Surface.

Outer Surface — a surface located in a horizontal plane above an aerodrome and its environs at a constant height of 45 metres measured from the reference point (elevation at the centre point of the runway) of the airport (See Figure 1: Obstacle Limitation Surface).

Rotary Wing Aircraft — an aircraft that does not have fixed wings and includes helicopters.

Runway – a defined rectangular area on a land aerodrome for the landing and take-off of aircraft

Runway Strip — a defined strip, including the runway, on a land aerodrome to reduce the risk of damage to an aircraft running off a runway. .

Take-off and Approach Surface — an inclined plane beyond the end of a runway and preceding the threshold of a runway at an angle dictated by the code of the runway into which no obstacles may penetrate (See Figure 1: Obstacle Limitation Surface).

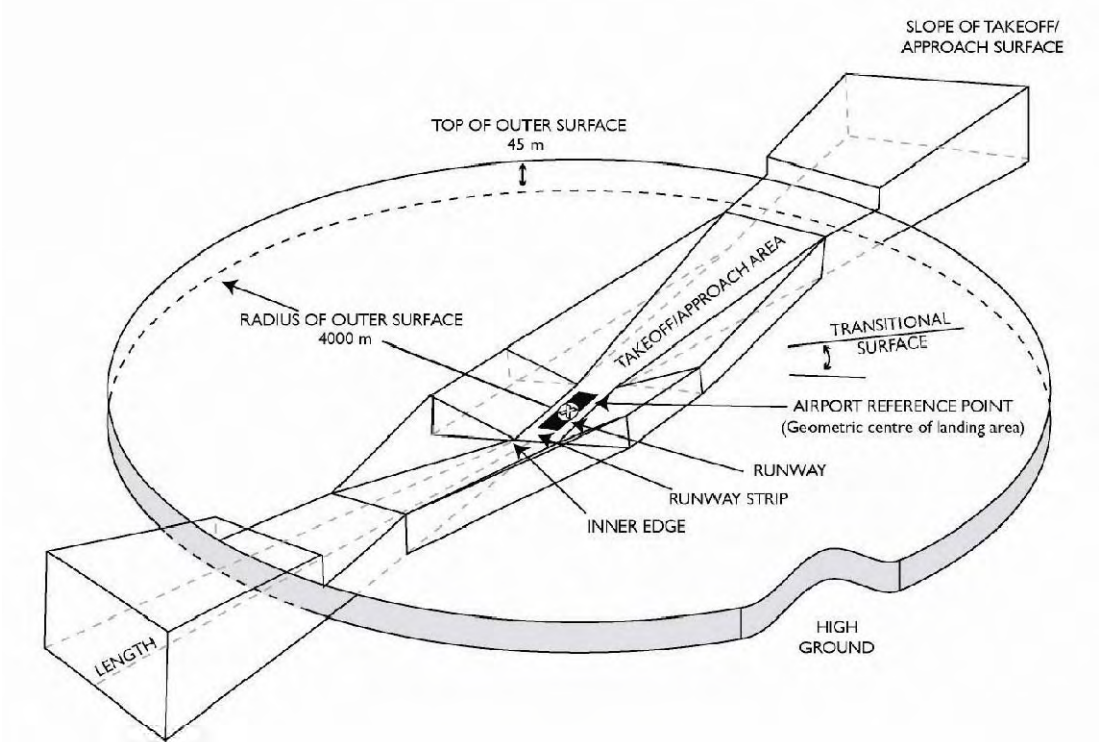
Taxiway — a defined path on aerodrome land established for taxiing of aircraft and intended to provide a link between one part of the aerodrome and another.

Terminal Reserve — means lands within the airport reserved for the Airport Terminal Building and associated infrastructure.

Transitional Surface — a complex surface along the side of a runway strip and part of the side of the side of the approach surface, that slopes upwards and outwards towards the outer surface and may restrict the heights of structures along the hangar line (See Figure 1: Obstacle Limitation Surface).

Transportation Reserve — means lands within the airport reserved for landside road access.

Figure 1: Obstacle Limitation Surfaces



APPENDIX D

FORT MCMURRAY REGIONAL AIRPORT – AIRPORT ZONING REGULATIONS

CANADA

CONSOLIDATION

CODIFICATION

Fort McMurray Airport Zoning Regulations

Règlement de zonage de l’aéroport de Fort McMurray

C.R.C., c. 82

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...

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CHAPTER 82

AERONAUTICS ACT

Fort McMurray Airport Zoning Regulations

REGULATIONS RESPECTING ZONING AT FORT MCMURRAY AIRPORT

SHORT TITLE

1. These Regulations may be cited as the *Fort McMurray Airport Zoning Regulations*.

INTERPRETATION

2. In these Regulations,

"airport" means Fort McMurray Airport, in the vicinity of Fort McMurray, in the Province of Alberta; (*aéroport*)

"airport reference point" means the point described in Part I of the schedule; (*point de repère de l'aéroport*)

"approach surface" means an imaginary inclined plane extending upward and outward from each end of the strip along and at right angles to the projected centre line thereof, which approach surface is more particularly described in Part III of the schedule; (*surface d'approche*)

"Minister" [Revoked, SOR/93-401, s. 2]

"outer surface" means an imaginary surface located above and in the immediate vicinity of the airport, which outer surface is more particularly described in Part IV of the schedule; (*surface extérieure*)

"strip" means the rectangular portion of the landing area of the airport, including the runway prepared for the take-off and landing of aircraft in a particular direction, which strip is more particulary described in Part V of the schedule; (*bande*)

"transitional surface" means an imaginary inclined plane extending upward and outward from the lateral limits of a strip and its approach surfaces, which transitional surface is more particularly described in Part VI of the schedule. (*surface de transition*)

SOR/93-401, s. 2.

CHAPITRE 82

LOI SUR L'AÉRONAUTIQUE

Règlement de zonage de l'aéroport de Fort McMurray

RÈGLEMENT DE ZONAGE CONCERNANT L'AÉROPORT DE FORT MCMURRAY

TITRE ABRÉGÉ

1. Le présent règlement peut être cité sous le titre : *Règlement de zonage de l'aéroport de Fort McMurray*.

INTERPRÉTATION

2. Dans le présent règlement,

« aéroport » désigne l'aéroport de Fort McMurray, situé à proximité de Fort McMurray dans la province d'Alberta; (*airport*)

« bande » désigne la partie rectangulaire de l'aire d'atterrissage de l'aéroport, y compris la piste spécialement aménagée pour le décollage et l'atterrissage des aéronefs dans une direction déterminée; chaque bande est décrite de façon plus détaillée à la partie V de l'annexe; (*strip*)

« ministre » [Abrogée, DORS/93-401, art. 2]

« point de repère de l'aéroport » désigne le point décrit à la partie I de l'annexe; (*airport reference point*)

« surface d'approche » désigne un plan incliné imaginaire qui s'étend vers l'extérieur et vers le haut à partir de chaque extrémité d'une bande, dans le sens du prolongement de l'axe de cette bande et perpendiculairement à ce prolongement; cette surface d'approche est décrite de façon plus détaillée à la partie III de l'annexe; (*approach surface*)

« surface de transition » désigne un plan incliné imaginaire qui s'étend vers l'extérieur et vers le haut à partir des limites latérales d'une bande et de ses surfaces d'approche; cette surface de transition est décrite de façon plus détaillée à la partie VI de l'annexe; (*transitional surface*)

« surface extérieure » désigne une surface imaginaire située au-dessus et dans les alentours immédiats de l'aéroport; cette surface extérieure est décrite de façon plus détaillée à la partie IV de l'annexe. (*outer surface*)

DORS/93-401, art. 2.

3. For the purposes of these Regulations, the airport reference point is deemed to be 1,205 feet above sea level.

APPLICATION

4. These Regulations apply to all the lands and lands under water, including public road allowances, adjacent to or in the vicinity of the airport, that consist of

(*a*) the lands the outer limits of which are described in Part II of the schedule; and

(*b*) the lands directly beneath the approach surface, other than such lands as from time to time form part of the airport and such lands as form the Clearwater Indian Reserve No. 175.

GENERAL

5. No person shall erect or construct, on any land or any land under water to which these Regulations apply, any building, structure or object or any addition to any existing building, structure or object, the highest point of which will exceed in elevation at the location of that point any of the surfaces hereinafter set out that project immediately over and above the surface of the land at that location, namely,

(*a*) the approach surfaces;

(*b*) the outer surface; or

(*c*) the transitional surfaces.

3. Aux fins du présent règlement, le point de repère de l'aéroport est réputé être à 1 205 pieds au-dessus du niveau de la mer.

APPLICATION

4. Le présent règlement s'applique à tous les terrains, y compris les terrains immergés et les emprises de voies publiques, contigus à l'aéroport ou situés dans ses alentours immédiats,

a) dont les limites extérieures sont définies à la partie II de l'annexe; ou

b) situés directement sous la surface d'approche, sauf ceux qui, à l'occasion, font partie de l'aéroport et ceux qui constituent la réserve indienne n° 175 de Clearwater.

DISPOSITIONS GÉNÉRALES

5. Il est interdit d'ériger ou de construire, sur un terrain ou un terrain immergé auquel s'applique le présent règlement, un bâtiment, ouvrage ou objet ou un rajout à un bâtiment, ouvrage ou objet déjà existant, dont le sommet dépasserait le niveau, à cet endroit, de l'une quelconque des surfaces indiquées ci-après qui surplombent immédiatement la surface du terrain à cet endroit, à savoir :

a) les surfaces d'approche;

b) la surface extérieure; ou

c) les surfaces de transition.

SCHEDULE
(ss. 2 and 4)

PART I

AIRPORT REFERENCE POINT

Being a point distant 500 feet measured northerly and perpendicular to the centre line of runway 07-25 from a point distant 4,580.43 feet measured westerly along the centre line from the intersection of the said centre line with the easterly boundary of the Northeast quarter of Section 21, Township 88, Range 8, West of the 4th Meridian, and which said intersection is distant southerly 74.53 feet, more or less, from the northeast corner of said quarter section.

PART II

DESCRIPTION OF OUTER LIMITS OF LANDS

BOUNDED AS FOLLOWS: on the north by the northern boundaries of Section 36, Township 88, Range 9, West of the 4th Meridian, and Sections 31, 32, 33, 34 and 35, Township 88, Range 8, West of the 4th Meridian and their productions across the road allowances; on the East by the eastern boundaries of Sections 14, 23, 26 and 35, Township 88, Range 8, West of the 4th Meridian and their productions across road allowances; on the South by the southern boundaries of Sections 14, 15, 16, 17 and 18, Township 88, Range 8, West of the 4th Meridian, and Section 13, Township 88, Range 9, West of the 4th Meridian and their productions across road allowances; on the West by the western boundaries of Sections 13, 24, 25 and 36, Township 88, Range 9, West of the 4th Meridian and their productions across road allowances; which outer limits are shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PART III

DESCRIPTION OF EACH APPROACH SURFACE

Being a surface abutting each end of the strip associated with the runway designated as 07-25 and more particularly described as follows:

(*a*) a surface abutting the end of the strip associated with runway approach 07 consisting of an inclined plane having a ratio of one (1) foot measured vertically to fifty (50) feet measured horizontally rising to an imaginary horizontal line drawn at right angles to the projected centre line of the strip, one thousand (1,000) feet measured vertically above the elevation at the end of the strip and fifty thousand (50,000) feet measured horizontally from the end of the strip, the outer ends of the imaginary horizontal line being eight thousand (8,000) feet from the projected centre line, and

(*b*) a surface abutting the end of the strip associated with runway approach 25 consisting of an inclined plane having a ratio of one (1) foot measured vertically to fifty (50) feet measured horizontally rising to an imaginary horizontal line drawn at right angles to the projected centre line of the strip, one thousand (1,000) feet measured vertically above the elevation at the end of the strip and fifty thousand (50,000) feet measured horizontally from the end of the strip, the outer ends of the imaginary horizontal line being eight thousand (8,000) feet from the projected centre line, excepting thereout all that portion of the said surface contained within the

ANNEXE
(art. 2 et 4)

PARTIE I

POINT DE REPÈRE DE L'AÉROPORT

Soit un point situé à une distance de 500 pieds mesurés perpendiculairement à l'axe de la piste 07-25 en direction du nord à partir d'un point situé à une distance de 4 580,43 pieds mesurés en direction de l'ouest sur l'axe à partir de l'intersection dudit axe et de la limite est du quart nord-est de la section 21 du township 88, rang 8, à l'ouest du 4e méridien, ladite intersection se trouvant à 74,53 pieds, plus ou moins, au sud de l'angle nord-est dudit quartier de section.

PARTIE II

DESCRIPTION DES LIMITES EXTÉRIEURES DES TERRAINS

BORNÉS COMME SUIT : au nord, par les limites nord de la section 36, township 88, rang 9, à l'ouest du 4e méridien, et des sections 31, 32, 33, 34 et 35, township 88, rang 8, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; à l'est, par les limites est des sections 14, 23, 26 et 35, township 88, rang 8, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; au sud, par les limites sud des sections 14, 15, 16, 17 et 18, township 88, rang 8, à l'ouest du 4e méridien, et de la section 13, township 88, rang 9, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; à l'ouest par les limites ouest des sections 13, 24, 25 et 36, township 88, rang 9, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; lesdites limites extérieures sont indiquées sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PARTIE III

DESCRIPTION DE CHACUNE DES SURFACES D'APPROCHE

Soit une surface qui aboutit à chacune des extrémités de la bande correspondant à la piste désignée sous le numéro 07-25, plus particulièrement décrite comme suit :

a) une surface qui aboutit à l'extrémité de la bande correspondant à l'approche de la piste 07, constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre cinquante (50) pieds dans le sens horizontal et qui s'élève jusqu'à une ligne horizontale imaginaire tracée perpendiculairement au prolongement de l'axe de la bande, à mille (1 000) pieds de hauteur par rapport au niveau de l'extrémité de la bande dans le sens vertical et à cinquante mille (50 000) pieds de l'extrémité de la bande dans le sens horizontal, les extrémités extérieures de la ligne horizontale imaginaire étant à huit mille (8 000) pieds du prolongement de l'axe, et

b) une surface qui aboutit à l'extrémité de la bande correspondant à l'approche de la piste 25, constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre cinquante (50) pieds dans le sens horizontal et qui s'élève jusqu'à une ligne horizontale imaginaire tracée perpendiculairement au prolongement de l'axe de la bande, à mille (1 000) pieds de hauteur par rapport au niveau de l'extrémité de la bande dans le sens vertical et à cinquante mille (50 000) pieds de l'extrémité de la bande dans le sens horizontal, les extrémités extérieures de la ligne horizontale imaginaire étant à

vertical projections of the boundaries of the Clearwater Indian Reserve No. 175,

which approach surfaces are shown on Department of Public Works Plan E. 1017, dated September 28, 1972.

PART IV

DESCRIPTION OF THE OUTER SURFACE

Being an imaginary surface consisting of

(*a*) a common plane established at a constant elevation of one hundred and fifty (150) feet above the assigned elevation of the airport reference point, and

(*b*) where the common plane described in paragraph (*a*) is less than thirty (30) feet above the surface of the ground, an imaginary surface located thirty (30) feet above the surface of the ground,

which outer surface is shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PART V

DESCRIPTION OF STRIP

The strip associated with the runway designated as 07-25 is one thousand (1,000) feet in width, five hundred (500) feet being on each side of the centre line of the runway, and seven thousand four hundred (7,400) feet in length, as shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PART VI

DESCRIPTION OF EACH TRANSITIONAL SURFACE

Being a surface consisting of an inclined plane rising at a ratio of one (1) foot measured vertically to seven (7) feet measured horizontally at right angles to the centre line and centre line produced of the strip and extending upward and outward from the lateral limits of the strip and its approach surfaces to an intersection with the outer surface, as shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

huit mille (8 000) pieds du prolongement de l'axe, à l'exception de toute la portion de ladite surface comprise à l'intérieur des prolongements verticaux des limites de la réserve indienne nº 175 de Clearwater,

lesdites surfaces d'approche sont indiquées sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PARTIE IV

DESCRIPTION DE LA SURFACE EXTÉRIEURE

Soit une surface imaginaire constituée

a) d'un plan commun établi à une hauteur constante de cent cinquante (150) pieds au-dessus de l'altitude désignée du point de repère de l'aéroport, et

b) d'une surface imaginaire située à trente (30) pieds au-dessus de la surface du sol, lorsque le plan commun décrit à l'alinéa *a*) est à moins de trente (30) pieds au-dessus de la surface du sol,

ladite surface extérieure est indiquée sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PARTIE V

DESCRIPTION DE LA BANDE

La bande correspondant à la piste désignée sous le numéro 07-25 est large de mille (1 000) pieds, soit cinq cents (500) pieds de chaque côté de l'axe de la piste, et longue de sept mille quatre cents (7 400) pieds, tel qu'indiqué sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PARTIE VI

DESCRIPTION DE CHACUNE DES SURFACES DE TRANSITION

Soit une surface constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre sept (7) pieds dans le sens horizontal, suivant une direction perpendiculaire à l'axe et au prolongement de l'axe de la bande, qui s'étend vers l'extérieur et vers le haut à partir des limites latérales de la bande et de ses surfaces d'approche jusqu'à intersection avec la surface extérieure, tel qu'indiqué sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

APPENDIX E

FORT MCMURRAY REGIONAL AIRPORT ZONING ANALYSIS DISCUSSION PAPER

GENIVAR
formerly PSMI

FORT MCMURRAY REGIONAL AIRPORT

AIRPORT ZONING ANALYSIS

DISCUSSION PAPER

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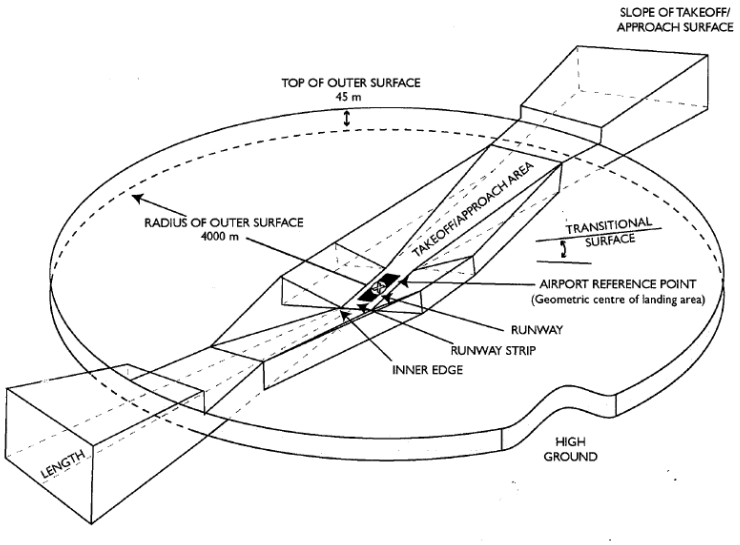
1.0 Background

To ensure the long-term operational and commercial viability of an airport, it is important that appropriate airport zoning controls are established and enforced. These controls are implemented to protect the Obstacle Limitation Surfaces (OLS) and are a requirement of Airport Certification. The OLS surfaces establish the limits to which objects may project into the airspace associated with an airport, such that aircraft operations may be conducted safely. OLS surfaces include *approach surfaces*, *takeoff/approach surface*, *transitional surfaces* and an *outer surface*. The following figure illustrates the Obstacle Limitation Surfaces associated with a typical airport.



OLS surfaces within the airport property boundary are generally controlled by the airport and protected through appropriate planning and development controls. Beyond the airport property, the protection of the OLS surfaces becomes more tenuous as it involves the support and participation of the local municipality and/or other levels of government to enforce height restrictions.

Efforts by both the municipalities and provinces to protect OLS zoning through municipal bylaws and provincial legislation have been met by legal challenges. Case law within Canada has established that municipal and provincial land use planning cannot regulate lands in the interest of aeronautical safety. These matters fall under federal jurisdiction and can only be regulated through the *Aeronautics Act*.

Municipal zoning by-laws can recognize the presence of an airport but cannot be used to regulate aeronautics. Even though they cannot be enforced, the height restrictions contained

in municipal zoning by-laws do assist in advising adjacent landowners/ municipal officials of the height limitations around airports.

The Province of Alberta previously regulated land use around airports using Airport Vicinity Protection Areas Regulations (AVPA) that were administered and enforced by provincial regulation at many airports across Alberta. With the change from the Planning Act to Part 17 of the Municipal Government Act in 1995, a major shift occurred in placing more emphasis upon land use regulation at the local municipal level (as opposed to a provincial or regional level). At the same time, the Province divested itself from all AVPA regulations except those for the two international airports – Calgary and Edmonton. With the exception to the recently revised Calgary and Edmonton AVPA, all AVPA regulations have since been deemed to be *ultra vires* (non applicable).

There are presently two (2) methods of protecting an airport's Obstacle Limitation Surfaces. The primary method of ensuring the protection of the Obstacle Limitation Surfaces from obstructions is through federal Airport Zoning Regulations (AZRs) enacted through Part I, Section 5.4(1) and Sections 5.5 to 5.81 of the Aeronautics Act. Under the AZRs, any proposed land uses by the municipalities must give way to the requirements of the regulation.

AZRs can be implemented through a *Federal AZR Process,* or a *Federal/Provincial AZR Process* whereby the federal government may enter into an agreement with a provincial authority to regulate the use of lands. Historically, the *Federal AZR Process* was undertaken by Transport Canada for airports under its control. The *Federal/Provincial AZR Process* is typically used today by most airports as it has been demonstrated to be more cost effective and requires less time to implement. The *Federal/Provincial AZR Process* cannot be used at an airport that has Federal Airport Zoning Regulations already in effect.

A second alternative to protect for OLS requirements is for airports to purchase lands and/or easements (air rights) which would limit the height of obstacles. Generally, lands only have to be purchased to a point where the OLS are 20 to 25m above the ground. Airports often purchase easements on adjacent lands which permits them the opportunity of trimming or removing vegetation which penetrates the OLS.

2.0 Existing Airport Zoning Regulations

At present, the control of off-airport obstructions at Fort McMurray Regional Airport is regulated by a *Federal AZR* that was implemented by Transport Canada in 1972. At that time, the length of the Runway 07-25 was 6,000 ft (1,828m). However, the registered AZR provided for a future extension of the runway to 7,000 ft. (2,133m) with a total runway strip length of 7,400 ft (2,255m).

A description of the Fort McMurray Airport Zoning Regulations, current to June 16, 2010, is provided in Appendix A. A figure (dated September 28, 1972) showing affected lands is provided in Appendix B.

Although Federal AZR's can include clauses for disposal of waste, electronic zoning, and natural growth, the current AZR for Fort McMurray Regional Airport only identifies protection from buildings and other man-made structures.

In 2007, Runway 07-25 was extended at both ends to a total of 2,286m (7,500 ft.). Although the existing AZR protects for the 305m (1,000 ft.) extension to the west (Runway 07), it does not protect for the 152m (500 ft.) extension to the east (Runway 25). As a result, there is a displaced threshold on Runway 25 of 152m (500 ft.)

In summary, the deficiencies associated with the existing Federal AZR include the following:

- Current AZR contains no clauses for electronic zoning, natural growth or disposal of waste
- Runway 25 (east end) – is protected for a 152m (500 ft.) displacement of the threshold, thus limiting its published Landing Distance Available (LDA).

3.0 Airport Development Plan

The proposed Airport Development Plan (November 25, 2010, Revision No. 8A) for Fort McMurray Regional Airport provides for a potential expansion of the existing Runway 07-25 to 9,000 ft. (2,743m), and the construction of a future 6,930 ft. (2,112m) parallel runway located 3,796 ft. (1,157m) south of the existing runway. The existing runway is designed to Code 4 Instrument Precision standards as would the future parallel runway.

The location of the proposed future runway was based on minimizing the impact from potential OLS obstructions on privately held lands and maximizing the potential length of the runway. The methodology used to determine the location of the future parallel runway is described in a Discussion Paper titled *Analysis of Alternative Future Parallel Runway Locations* prepared by Genivar, formerly PSMI, and dated June 2010.

The Airport Development Plan for Fort McMurray Regional Airport is provided in Appendix C.

4.0 Obstacle Limitation Surfaces Zoning Requirements

4.1 REQUIREMENTS

To protect for the airside development identified in the Airport Development Plan, updated OLS zoning is required for both the existing and future runways. The zoning required to protect these runways is illustrated in Appendix D. This zoning would potentially impact a significant amount of lands surrounding the airport.

Table 1 describes the OLS zoning requirements associated with both the existing runway (extended to 9,000 ft. / 2,743m) and the future parallel runway. The proposed OLS zoning for the existing runway would remove the requirement for the 152m (500 ft.) displacement at the east (Runway 25) end.

Table 1
OLS Requirements

Element	Requirement	
	Existing Runway 07-25 (Extended)	**Future Runway 07R-25L***
Code	4D Instrument Precision	4D Instrument Precision
Runway Length	2,743.2m (9,000 ft.)	2,112.26m (6,930 ft.)
Threshold 07 Elevation	367.19m ASL	373m ASL
Threshold 25 Elevation (No Displacement)	367.93m ASL	378m ASL
Runway Strip Length	2863.2m	2232.26m
Runway Strip Width	300m	300m
Approach Surface Slope	1:50	1:50
Approach Surface Length	15,000m	15,000m
Approach Surface Divergence	15%	15%
Transitional Surface Slope	1:7	1:7
Outer Surface Elevation	413.004m ASL	413.004m ASL

* Note: Runway threshold elevations are based on preliminary site grading plan and are subject to change.

4.2 IMPACTS OF OLS ZONING

On lands surrounding an airport, the OLS zoning, if properly enforced, restricts the height of structures and vegetation. This in turn can limit the scale and nature of development, and impact how municipalities designate land uses.

For airports located within built-up urban areas, the OLS zoning can place a significant constraint on development and impact land values. In rural areas, OLS zoning impacts are generally less significant, given the nature of surrounding development, but can impact the location of taller structures such as antennas, power transmission towers, and silos.

At present, there does not appear to be any man-made structures which would impact the OLS zoning required for either the extended existing runway or the proposed future runway. However, there are extensive areas of vegetation which would have to be removed and/or trimmed in order to accommodate OLS zoning for the new parallel runway. It has been identified that approximately 15.6 ha of land would have to be cleared of trees because they would penetrate the proposed approach surfaces. This is described in the *Analysis of Alternative Future Parallel Runway Locations* Discussions Paper.

5.0 Obstacle Limitation Surfaces Protection

5.1 GENERAL

Municipal planning, through a revised Area Structure Plan (ASP) can regulate, to some extent, the nature of development which occurs on lands impacted by the OLS zoning. However, the only means to fully protect existing and proposed OLS zoning requirements would be through the preparation and registration of an amended AZR which would take into account the existing runway, a potential extension of the existing runway, and the development of the future parallel runway.

5.2 AIRPORT ZONING REGULATIONS

The amended AZR must be enacted based upon either an Airport Master Plan or through a municipal Official Development Plan such as an ASP. With respect to Fort McMurray Regional Airport, because the current AZR was undertaken through the *Federal AZR Process* it must be also be amended using this same process. The steps in amending the AZR for Fort McMurray Regional Airport include the following:

1. The Airport Authority recognizes the need for an amendment to the AZR and applies to Transport Canada through the Regional Director.

2. Aeronautical zoning requirements would be confirmed. If a clause regarding bird hazards is to be included, then a report provided by a bird hazard specialist is required, defining areas requiring protection.

3. The Airport Authority would post a surety bond for the total estimated cost. The Airport Authority would be responsible for the full cost of amending the AZR. These costs are typically $250,000 - $300,000.

4. Public Works and Government Services Canada (PWGSC) would prepare required AZR documentation including text and maps.

5. A public consultation process would be undertaken.

6. The amended AZR would be published in the 'Canada Gazette' and local papers, and an opportunity would be provided for representations from the public.

7. A submission would be prepared for approval by Privy Council.

8. The approved zoning regulations would be deposited in appropriate registry offices.

9. The approved zoning regulations would be published in local papers.

5.3 AREA STRUCTURE PLAN AMENDMENTS

Area Structure Plans (ASP) are implemented by a municipality to provide land uses, access and servicing, and policy direction for specific neighbourhoods or areas of the municipality. The principles and objectives established in each plan guide growth of future neighbourhoods by setting out general locations for major land uses (e.g. residential, commercial, industrial, schools and parks), major roadways, utility servicing, trail systems, and potential population density.

At present, Fort McMurray Regional Airport is described under two ASPs. The first is the Fort McMurray Municipal Airport Area Structure Plan (Airport ASP). The second is the Highway 69 / Clearwater River Valley Area Structure Plan (Highway 69 ASP).

Both of these ASP's are currently going through a review process and are being amended. The following text refers to the ASP's which are currently in effect with the municipality.

Airport ASP

The existing Airport ASP was adopted by The Regional Municipality of Wood Buffalo (RMWB) Council in 2004, and updated in 2008. The Airport ASP, prepared in response to the transfer of the Airport's ownership to the RMWB in 1999, identified a strategic vision for the airport and described appropriate land uses within the airport property boundaries. A figure illustrating the extent of the Airport ASP is provided in Appendix E.

With respect to off-airport land use implications and protection of OLS zoning, the Airport ASP makes a couple of references. Section 8.2 of the Airport ASP makes reference to Transport Canada TP312 4th Edition OLS zoning requirements and includes Figure 9 (provided in Appendix E) which illustrates 'Future Obstruction Areas'. The ASP further states:

"Figure 9 illustrates both the existing obstruction zoning and the obstruction zoning for future development of the airport infrastructure. These restrictive areas extend off airport property. For this reason, these areas should be included in the municipal referral process to ensure that any future development does not exceed the height restrictions. Transport Canada is responsible for removal of any obstacles."

In addition, Appendix C of the Airport ASP recommends that the Municipal Development Plan:

"Recognize airport development guidelines as set out in:

a) Airport District, as established in the Land Use Bylaw to regulate development on airport lands.

b) Federal Obstruction Zoning to ensure that land uses adjacent to the airport do not impact the safe and continued operation of the airport through excessive

height, creation of smoke, steam and dust, attraction of birds and electrical interference

c) *Tripartite agreements between the Federal, provincial and municipal government that may allow the municipality to enforce the federal regulations within the Obstruction Zone.*

Although the Airport ASP makes general references to Federal Obstruction Zoning, the document does not specifically make reference to *Fort McMurray Airport Zoning Regulations C.R.C., c. 82,* nor does the document adequately describe the OLS zoning in graphic form. Similarly, no specific references were found in the current RMWB Municipal Development Plan regarding OLS zoning protection for the Airport.

Highway 69 ASP

The Highway 69 / Clearwater River Valley Area Structure Plan was adopted by Regional Council in 2000 and last updated in 2008. It represents an area of land located immediately southeast of the Fort McMurray Urban Area and includes the Airport District as defined in the Municipal Zoning Bylaw. The primary objectives of the Highway 69 ASP include: "*determining future land uses for the area*" and "*promoting a land use pattern that does not inhibit present and future operations of Fort McMurray Airport*".

The Highway 69 ASP states:

"Development at the airport is regulated by the Airport District in the land Use Bylaw, a protocol agreement between the Regional Municipality of Wood Buffalo and the Fort McMurray Airport Commission and federal regulations (Transport Canada TP312). The lands surrounding the airport are regulated by federal Obstruction Zoning, which ensures that no new development is built in such a manner that it will threaten the future safe and continued operation of the airport. Currently there are no land uses that interfere with the operation of the airport and the proposed land uses outlined in the Highway 69/Clearwater River valley ASP do not pose any concern."

As proposed in the Highway 69 ASP Development Concept (Appendix F), with the exception of some existing industrial uses and a proposed expansion to the Saprae Creek Estates residential area, much of the lands surrounding the airport would remain as natural open space.

The Highway 69 ASP does not specifically address the issue of off-airport OLS zoning nor does it identify, in diagrammatic form, the areas surrounding the airport which are potentially impacted by either OLS zoning and/or noise impacts.

In conclusion, it is felt that neither the existing Airport ASP, nor the Highway 69 ASP adequately speak to off-airport impacts of OLS zoning or noise and that these should be

specifically addressed with appropriate land use/development controls. Amendments to both ASPs are recommended and are presently being processed by the Airport Authority and RMWB.

6.0 Recommendations

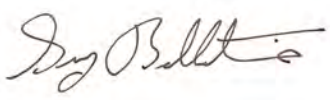
It is recommended that:

1. The Fort McMurray Regional Airport Authority give consideration to initiating a process to amend the Registered AZR to incorporate protection for both the existing and proposed parallel runways.

2. The Airport ASP and the Highway 69 ASP should be amended to include the OLS zoning requirements identified in Appendix D, and that future off-airport development be guided by these zoning requirements.

3. The RMWB Municipal Development Plan should be amended to recognize the OLS zoning requirements for the Airport.

All of which is respectfully submitted,



Greg Ballentine, B.E.S., B.Arch.
Senior Aviation Planner / Architect

P:\10425 Fort McMurray Airport\Clerical\General\Reports\Discussion Paper\OLS Zoning\10425 Zoning Analysis Discussion Paper FINAL gpb cv 061611.doc

GENIVAR
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APPENDIX A
FORT MCMURRAY AIRPORT ZONING REGULATIONS

JUNE 16, 2010

CANADA

CONSOLIDATION

CODIFICATION

Fort McMurray Airport Zoning Regulations

Règlement de zonage de l'aéroport de Fort McMurray

C.R.C., c. 82

C.R.C., ch. 82

Current to June 16, 2010

À jour au 16 juin 2010

Published by the Minister of Justice at the following address:
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http://laws-lois.justice.gc.ca

OFFICIAL STATUS OF CONSOLIDATIONS

Subsections 31(1) and (3) of the *Legislation Revision and Consolidation Act*, in force on June 1, 2009, provide as follows:

Published consolidation is evidence

31. (1) Every copy of a consolidated statute or consolidated regulation published by the Minister under this Act in either print or electronic form is evidence of that statute or regulation and of its contents and every copy purporting to be published by the Minister is deemed to be so published, unless the contrary is shown.

...

Inconsistencies in regulations

(3) In the event of an inconsistency between a consolidated regulation published by the Minister under this Act and the original regulation or a subsequent amendment as registered by the Clerk of the Privy Council under the *Statutory Instruments Act*, the original regulation or amendment prevails to the extent of the inconsistency.

CARACTÈRE OFFICIEL DES CODIFICATIONS

Les paragraphes 31(1) et (3) de la *Loi sur la révision et la codification des textes législatifs*, en vigueur le 1er juin 2009, prévoient ce qui suit :

Codifications comme élément de preuve

31. (1) Tout exemplaire d'une loi codifiée ou d'un règlement codifié, publié par le ministre en vertu de la présente loi sur support papier ou sur support électronique, fait foi de cette loi ou de ce règlement et de son contenu. Tout exemplaire donné comme publié par le ministre est réputé avoir été ainsi publié, sauf preuve contraire.

[...]

Incompatibilité — règlements

(3) Les dispositions du règlement d'origine avec ses modifications subséquentes enregistrées par le greffier du Conseil privé en vertu de la *Loi sur les textes réglementaires* l'emportent sur les dispositions incompatibles du règlement codifié publié par le ministre en vertu de la présente loi.

CHAPTER 82

AERONAUTICS ACT

Fort McMurray Airport Zoning Regulations

REGULATIONS RESPECTING ZONING AT FORT MCMURRAY AIRPORT

SHORT TITLE

1. These Regulations may be cited as the *Fort McMurray Airport Zoning Regulations*.

INTERPRETATION

2. In these Regulations,

"airport" means Fort McMurray Airport, in the vicinity of Fort McMurray, in the Province of Alberta; (*aéroport*)

"airport reference point" means the point described in Part I of the schedule; (*point de repère de l'aéroport*)

"approach surface" means an imaginary inclined plane extending upward and outward from each end of the strip along and at right angles to the projected centre line thereof, which approach surface is more particularly described in Part III of the schedule; (*surface d'approche*)

"Minister" [Revoked, SOR/93-401, s. 2]

"outer surface" means an imaginary surface located above and in the immediate vicinity of the airport, which outer surface is more particularly described in Part IV of the schedule; (*surface extérieure*)

"strip" means the rectangular portion of the landing area of the airport, including the runway prepared for the take-off and landing of aircraft in a particular direction, which strip is more particulary described in Part V of the schedule; (*bande*)

"transitional surface" means an imaginary inclined plane extending upward and outward from the lateral limits of a strip and its approach surfaces, which transitional surface is more particularly described in Part VI of the schedule. (*surface de transition*)

SOR/93-401, s. 2.

CHAPITRE 82

LOI SUR L'AÉRONAUTIQUE

Règlement de zonage de l'aéroport de Fort McMurray

RÈGLEMENT DE ZONAGE CONCERNANT L'AÉROPORT DE FORT MCMURRAY

TITRE ABRÉGÉ

1. Le présent règlement peut être cité sous le titre: *Règlement de zonage de l'aéroport de Fort McMurray*.

INTERPRÉTATION

2. Dans le présent règlement,

«aéroport» désigne l'aéroport de Fort McMurray, situé à proximité de Fort McMurray dans la province d'Alberta; (*airport*)

«bande» désigne la partie rectangulaire de l'aire d'atterrissage de l'aéroport, y compris la piste spécialement aménagée pour le décollage et l'atterrissage des aéronefs dans une direction déterminée; chaque bande est décrite de façon plus détaillée à la partie V de l'annexe; (*strip*)

«ministre» [Abrogée, DORS/93-401, art. 2]

«point de repère de l'aéroport» désigne le point décrit à la partie I de l'annexe; (*airport reference point*)

«surface d'approche» désigne un plan incliné imaginaire qui s'étend vers l'extérieur et vers le haut à partir de chaque extrémité d'une bande, dans le sens du prolongement de l'axe de cette bande et perpendiculairement à ce prolongement; cette surface d'approche est décrite de façon plus détaillée à la partie III de l'annexe; (*approach surface*)

«surface de transition» désigne un plan incliné imaginaire qui s'étend vers l'extérieur et vers le haut à partir des limites latérales d'une bande et de ses surfaces d'approche; cette surface de transition est décrite de façon plus détaillée à la partie VI de l'annexe; (*transitional surface*)

«surface extérieure» désigne une surface imaginaire située au-dessus et dans les alentours immédiats de l'aéro-

3. For the purposes of these Regulations, the airport reference point is deemed to be 1,205 feet above sea level.

APPLICATION

4. These Regulations apply to all the lands and lands under water, including public road allowances, adjacent to or in the vicinity of the airport, that consist of

(*a*) the lands the outer limits of which are described in Part II of the schedule; and

(*b*) the lands directly beneath the approach surface, other than such lands as from time to time form part of the airport and such lands as form the Clearwater Indian Reserve No. 175.

GENERAL

5. No person shall erect or construct, on any land or any land under water to which these Regulations apply, any building, structure or object or any addition to any existing building, structure or object, the highest point of which will exceed in elevation at the location of that point any of the surfaces hereinafter set out that project immediately over and above the surface of the land at that location, namely,

(*a*) the approach surfaces;

(*b*) the outer surface; or

(*c*) the transitional surfaces.

port; cette surface extérieure est décrite de façon plus détaillée à la partie IV de l'annexe. (*outer surface*)

DORS/93-401, art. 2.

3. Aux fins du présent règlement, le point de repère de l'aéroport est réputé être à 1 205 pieds au-dessus du niveau de la mer.

APPLICATION

4. Le présent règlement s'applique à tous les terrains, y compris les terrains immergés et les emprises de voies publiques, contigus à l'aéroport ou situés dans ses alentours immédiats,

a) dont les limites extérieures sont définies à la partie II de l'annexe; ou

b) situés directement sous la surface d'approche, sauf ceux qui, à l'occasion, font partie de l'aéroport et ceux qui constituent la réserve indienne nº 175 de Clearwater.

DISPOSITIONS GÉNÉRALES

5. Il est interdit d'ériger ou de construire, sur un terrain ou un terrain immergé auquel s'applique le présent règlement, un bâtiment, ouvrage ou objet ou un rajout à un bâtiment, ouvrage ou objet déjà existant, dont le sommet dépasserait le niveau, à cet endroit, de l'une quelconque des surfaces indiquées ci-après qui surplombent immédiatement la surface du terrain à cet endroit, à savoir :

a) les surfaces d'approche;

b) la surface extérieure; ou

c) les surfaces de transition.

SCHEDULE
(ss. 2 and 4)

PART I

AIRPORT REFERENCE POINT

Being a point distant 500 feet measured northerly and perpendicular to the centre line of runway 07-25 from a point distant 4,580.43 feet measured westerly along the centre line from the intersection of the said centre line with the easterly boundary of the Northeast quarter of Section 21, Township 88, Range 8, West of the 4th Meridian, and which said intersection is distant southerly 74.53 feet, more or less, from the northeast corner of said quarter section.

PART II

DESCRIPTION OF OUTER LIMITS OF LANDS

BOUNDED AS FOLLOWS: on the north by the northern boundaries of Section 36, Township 88, Range 9, West of the 4th Meridian, and Sections 31, 32, 33, 34 and 35, Township 88, Range 8, West of the 4th Meridian and their productions across the road allowances; on the East by the eastern boundaries of Sections 14, 23, 26 and 35, Township 88, Range 8, West of the 4th Meridian and their productions across road allowances; on the South by the southern boundaries of Sections 14, 15, 16, 17 and 18, Township 88, Range 8, West of the 4th Meridian, and Section 13, Township 88, Range 9, West of the 4th Meridian and their productions across road allowances; on the West by the western boundaries of Sections 13, 24, 25 and 36, Township 88, Range 9, West of the 4th Meridian and their productions across road allowances; which outer limits are shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PART III

DESCRIPTION OF EACH APPROACH SURFACE

Being a surface abutting each end of the strip associated with the runway designated as 07-25 and more particularly described as follows:

(*a*) a surface abutting the end of the strip associated with runway approach 07 consisting of an inclined plane having a ratio of one (1) foot measured vertically to fifty (50) feet measured horizontally rising to an imaginary horizontal line drawn at right angles to the projected centre line of the strip, one thousand (1,000) feet measured vertically above the elevation at the end of the strip and fifty thousand (50,000) feet measured horizontally from the end of the strip, the outer ends of the imaginary horizontal line being eight thousand (8,000) feet from the projected centre line, and

(*b*) a surface abutting the end of the strip associated with runway approach 25 consisting of an inclined plane having a ratio of one (1) foot measured vertically to fifty (50) feet measured horizontally rising to an imaginary horizontal line drawn at right angles to the projected centre line of the strip, one thousand (1,000) feet measured vertically above the elevation at the end of the strip and fifty thousand (50,000) feet measured horizontally from the end of the strip, the outer ends of the imaginary horizontal line being eight thousand (8,000) feet from the projected centre line, excepting thereout all that portion of the said surface contained within the

ANNEXE
(art. 2 et 4)

PARTIE I

POINT DE REPÈRE DE L'AÉROPORT

Soit un point situé à une distance de 500 pieds mesurés perpendiculairement à l'axe de la piste 07-25 en direction du nord à partir d'un point situé à une distance de 4 580,43 pieds mesurés en direction de l'ouest sur l'axe à partir de l'intersection dudit axe et de la limite est du quart nord-est de la section 21 du township 88, rang 8, à l'ouest du 4e méridien, ladite intersection se trouvant à 74,53 pieds, plus ou moins, au sud de l'angle nord-est dudit quartier de section.

PARTIE II

DESCRIPTION DES LIMITES EXTÉRIEURES DES TERRAINS

BORNÉS COMME SUIT : au nord, par les limites nord de la section 36, township 88, rang 9, à l'ouest du 4e méridien, et des sections 31, 32, 33, 34 et 35, township 88, rang 8, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; à l'est, par les limites est des sections 14, 23, 26 et 35, township 88, rang 8, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; au sud, par les limites sud des sections 14, 15, 16, 17 et 18, township 88, rang 8, à l'ouest du 4e méridien, et de la section 13, township 88, rang 9, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; à l'ouest par les limites ouest des sections 13, 24, 25 et 36, township 88, rang 9, à l'ouest du 4e méridien, et leur prolongement en travers des emprises de voies publiques; lesdites limites extérieures sont indiquées sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PARTIE III

DESCRIPTION DE CHACUNE DES SURFACES D'APPROCHE

Soit une surface qui aboutit à chacune des extrémités de la bande correspondant à la piste désignée sous le numéro 07-25, plus particulièrement décrite comme suit :

a) une surface qui aboutit à l'extrémité de la bande correspondant à l'approche de la piste 07, constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre cinquante (50) pieds dans le sens horizontal et qui s'élève jusqu'à une ligne horizontale imaginaire tracée perpendiculairement au prolongement de l'axe de la bande, à mille (1 000) pieds de hauteur par rapport au niveau de l'extrémité de la bande dans le sens vertical et à cinquante mille (50 000) pieds de l'extrémité de la bande dans le sens horizontal, les extrémités extérieures de la ligne horizontale imaginaire étant à huit mille (8 000) pieds du prolongement de l'axe, et

b) une surface qui aboutit à l'extrémité de la bande correspondant à l'approche de la piste 25, constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre cinquante (50) pieds dans le sens horizontal et qui s'élève jusqu'à une ligne horizontale imaginaire tracée perpendiculairement au prolongement de l'axe de la bande, à mille (1 000) pieds de hauteur par rapport au niveau de l'extrémité de la bande dans le sens vertical et à cinquante mille (50 000) pieds de l'extrémité de la bande dans le sens horizontal, les extrémités extérieures de la ligne horizontale imaginaire étant à

vertical projections of the boundaries of the Clearwater Indian Reserve No. 175,

which approach surfaces are shown on Department of Public Works Plan E. 1017, dated September 28, 1972.

huit mille (8 000) pieds du prolongement de l'axe, à l'exception de toute la portion de ladite surface comprise à l'intérieur des prolongements verticaux des limites de la réserve indienne nº 175 de Clearwater,

lesdites surfaces d'approche sont indiquées sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PART IV

DESCRIPTION OF THE OUTER SURFACE

Being an imaginary surface consisting of

(*a*) a common plane established at a constant elevation of one hundred and fifty (150) feet above the assigned elevation of the airport reference point, and

(*b*) where the common plane described in paragraph (*a*) is less than thirty (30) feet above the surface of the ground, an imaginary surface located thirty (30) feet above the surface of the ground,

which outer surface is shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PARTIE IV

DESCRIPTION DE LA SURFACE EXTÉRIEURE

Soit une surface imaginaire constituée

a) d'un plan commun établi à une hauteur constante de cent cinquante (150) pieds au-dessus de l'altitude désignée du point de repère de l'aéroport, et

b) d'une surface imaginaire située à trente (30) pieds au-dessus de la surface du sol, lorsque le plan commun décrit à l'alinéa *a*) est à moins de trente (30) pieds au-dessus de la surface du sol,

ladite surface extérieure est indiquée sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PART V

DESCRIPTION OF STRIP

The strip associated with the runway designated as 07-25 is one thousand (1,000) feet in width, five hundred (500) feet being on each side of the centre line of the runway, and seven thousand four hundred (7,400) feet in length, as shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PARTIE V

DESCRIPTION DE LA BANDE

La bande correspondant à la piste désignée sous le numéro 07-25 est large de mille (1 000) pieds, soit cinq cents (500) pieds de chaque côté de l'axe de la piste, et longue de sept mille quatre cents (7 400) pieds, tel qu'indiqué sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

PART VI

DESCRIPTION OF EACH TRANSITIONAL SURFACE

Being a surface consisting of an inclined plane rising at a ratio of one (1) foot measured vertically to seven (7) feet measured horizontally at right angles to the centre line and centre line produced of the strip and extending upward and outward from the lateral limits of the strip and its approach surfaces to an intersection with the outer surface, as shown on Department of Public Works Plan No. E. 1017, dated September 28, 1972.

PARTIE VI

DESCRIPTION DE CHACUNE DES SURFACES DE TRANSITION

Soit une surface constituée d'un plan incliné à raison de un (1) pied dans le sens vertical contre sept (7) pieds dans le sens horizontal, suivant une direction perpendiculaire à l'axe et au prolongement de l'axe de la bande, qui s'étend vers l'extérieur et vers le haut à partir des limites latérales de la bande et de ses surfaces d'approche jusqu'à intersection avec la surface extérieure, tel qu'indiqué sur le plan E. 1017 du ministère des Travaux publics, daté du 28 septembre 1972.

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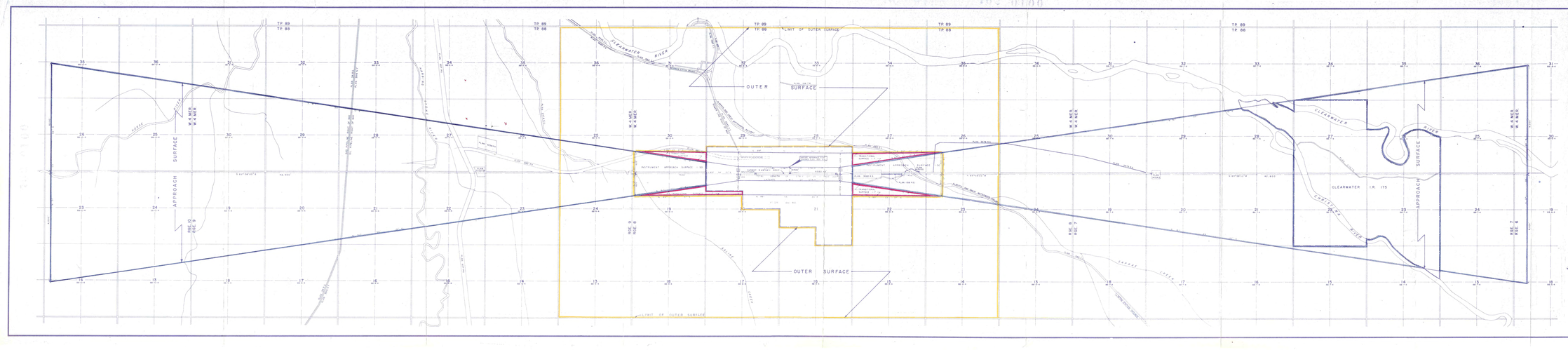
APPENDIX B
FORT MCMURRAY AIRPORT ZONING REGULATIONS FIGURE (1972)



762 0100

THIS IS A PLAN OF CERTAIN LANDS SHOWN WITHIN COLOURED LINES HEREON AND A DESCRIPTION OF WHICH IS ATTACHED HERETO, WHICH ARE AFFECTED BY ZONING REGULATIONS WITH RESPECT TO THE FORT McMURRAY AIRPORT AT FORT McMURRAY IN THE PROVINCE OF ALBERTA. THE SAID PLAN AND DESCRIPTION BEING DEPOSITED UNDER AUTHORITY OF THE AERONAUTIC ACT, CHAPTER A-3, R.S.C. 1970.

DATED AT OTTAWA THIS 8th DAY OF May 1974.

André Lachambre
SECRETARY, DEPARTMENT OF TRANSPORT

ALBERTA LAND SURVEYOR

LEGEND

APPROACH SURFACE OUTLINED BLUE
TRANSITIONAL SURFACE OUTLINED RED
OUTER SURFACE OUTLINED YELLOW
AIRPORT BOUNDARIES ARE SHOWN THUS

NOTE

BEARINGS SHOWN HEREON ARE ASTRONOMIC
ALL ELEVATIONS ARE GEODETIC

DEPOSITED

762 0100

DEPARTMENT OF PUBLIC WORKS
PROPERTY SERVICES

PLAN SHOWING LANDS AFFECTED BY ZONING REGULATIONS FOR

FORT McMURRAY AIRPORT

R.D.D., J.A.B.
SEPT. 26, 1972.
PROPERTY SERVICES, EDMONTON, ALTA.

FILE: 80,049
SCALE: 1" = 2000'

E.1017

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APPENDIX C
AIRPORT DEVELOPMENT PLAN

NOVEMBER 25, 2010, REVISION NO. 8A

GENERAL LEGEND

- EXISTING AIRPORT BOUNDARY
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING FENCE LINE
- EXISTING DITCH LINE
- EXISTING WATER COURSE
- EXISTING TRAIL
- EXISTING TREE LINE
- EXISTING LEGAL BOUNDARY
- EXISTING PRE-LOADING LIMITS
- ELECTRONIC PROTECTION AREA
- RUNWAY APPROACH SURFACE
- RUNWAY STRIP
- EXISTING AIRSIDE PAVEMENTS
- PROPOSED OPENING DAY PAVEMENTS
- PROPOSED 2019 PAVEMENTS
- PROPOSED FUTURE PAVEMENTS
- EXISTING STRUCTURES / BUILDINGS
- FUTURE STRUCTURES / BUILDINGS

LAND USE INFORMATION

- AIRPORT RESERVE
- AIRSIDE RESERVE
- AIRSIDE COMMERCIAL
- LANDSIDE COMMERCIAL
- AIRPORT SUPPORT
- TRANSPORTATION RESERVE
- TERMINAL RESERVE

SCALE 1:5000
ON 24"X36" (ARCH D)

75 0 75 150 225 375 METRES
300 150 0 300 750 1125 FEET

PRYDE SCHROPP McCOMB INC.
AVIATION GROUP

OTTAWA	TORONTO	CALGARY	KITCHENER	PORT ELGIN
TEL: (613) 233-1566	TEL: (905) 678-8582	TEL: (403) 270-9777	TEL: (519) 571-3251	TEL: (519) 389-4343
FAX: (613) 233-2364	FAX: (905) 678-8582	FAX: (403) 270-0133	FAX: (519) 571-3251	FAX: (519) 389-4728

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Client/Project
FORT MCMURRAY REGIONAL AIRPORT
AIRPORT EXPANSION PROJECT

Revised By: CDZ

Figure No.
1

Title
AIRPORT DEVELOPMENT PLAN

GENIVAR
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APPENDIX D
OLS ZONING REQUIREMENTS

Notes

1. FOR PLANNING PURPOSES ONLY
2. DRAWING IS SHOWN IN UTM PROJECTION NAD83 ZONE 12.
3. OBSTACLE LIMITATION SURFACES BASED ON TP312 4TH EDITION (1993) STANDARDS FOR CODE 4 INSTRUMENT PRECISIONS RUNWAYS.
4. EXISTING RUNWAY THRESHOLD LOCATIONS BASED ON COMBINED SURVEYS COMPLETED SEPTEMBER 29, 2006 AND JULY 5, 2007 BY PRYDE SCHROPP McCOMB INC.
5. PROPOSED RUNWAY THRESHOLD LOCATIONS AND ELEVATIONS BASED ON CURRENT AIRPORT DEVELOPMENT PLAN INITIATIVES.
6. OFFSITE BUILDINGS, LOT LINES, ROAD AND CONCESSION INFORMATION PROVIDED BY THE COMMUNICATIONS TECHNOLOGY DEPARTMENT, REGIONAL MUNICIPALITY OF WOOD BUFFALO (MAY 31, 2010).

LEGEND

- EXISTING AIRPORT BOUNDARY
- EXISTING AIRPORT AIRSIDE PAVEMENTS
- PROPOSED AIRPORT AIRSIDE PAVEMENTS
- EXISTING AIRPORT ROADS
- PROPOSED AIRPORT ROADS
- EXISTING WATER COURSE
- EXISTING TRAIL
- MUNICIPAL LOT FABRIC
- PRIMARY MUNICIPAL ROADS
- SECONDARY MUNICIPAL ROADS
- ELECTRONIC PROTECTION AREA
- RUNWAY STRIP
- RUNWAY APPROACH SURFACE
- TRANSITIONAL SURFACE
- OUTER SURFACE
- 425.00m OLS ELEVATION CONTOUR
- AERODROME REFERENCE POINT
- EXISTING BUILDINGS
- PROPOSED BUILDINGS

AIRPORT INFORMATION

AIRPORT REFERENCE POINT (ARP)

ARP ELEVATION:	367.284m (1,205 ft.) ASL
ARP LOCATION:	NORTHING 6278957.8462m EASTING 486229.9954m

RUNWAY 07L-25R

RUNWAY CLASSIFICATION:	CODE 4 INSTRUMENT PRECISION
RUNWAY LENGTH:	2743.2m (9000 ft.)
THRESHOLD 07L:	367.19m ASL NORTHING 6278810.4612m EASTING 484706.7531m
THRESHOLD 25R:	367.93m ASL NORTHING 6278801.4283m EASTING 487449.9383m
THRESHOLD 25R DISPLACED:	367.92m ASL DISPLACED 152.4m (500 ft.) NORTHING 6278801.9301m EASTING 487297.5391m
RUNWAY SLOPE:	0.00032% WEST TO EAST
RUNWAY STRIP LENGTH:	2863.2m
RUNWAY STRIP WIDTH:	300m
APPROACH SURFACE SLOPE:	1:50
APPROACH SURFACE LENGTH:	15000m
APPROACH SURFACE DIVERGENCE:	15%
TRANSITIONAL SURFACE SLOPE:	1:7
OUTER SURFACE ELEVATION:	413.004m ASL

RUNWAY 07R-25L

RUNWAY CLASSIFICATION:	CODE 4 INSTRUMENT PRECISION
RUNWAY LENGTH:	2112.264m (6930 ft.)
THRESHOLD 07R:	373.00m (1223.75 ft.) ASL NORTHING 6277651.7639m EASTING 485220.2761m
THRESHOLD 25L:	378.00m (1240.16 ft.) ASL NORTHING 6277644.8086m EASTING 487332.5287m
RUNWAY SLOPE:	0.00331% WEST TO EAST
RUNWAY STRIP LENGTH:	2232.264m (7323.70 ft.)
RUNWAY STRIP WIDTH:	300m
APPROACH SURFACE SLOPE:	1:50
APPROACH SURFACE LENGTH:	15000m
APPROACH SURFACE DIVERGENCE:	15%
TRANSITIONAL SURFACE SLOPE:	1:7
OUTER SURFACE ELEVATION:	413.004m ASL

SCALE 1:12,500

100 0 50 150 250 500 750 METRES

500 0 250 500 1000 2500 FEET

Revisions

No.	Description	By	Appd.	Date
0	PRELIMINARY FIRST SUBMISSION	JJH	BRP	2010.08.05
1	PRELIMINARY FIRST SUBMISSION	JJH	BRP	2010.08.09

DRAFT

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Client/Project

FORT McMURRAY AIRPORT AUTHORITY

FORT McMURRAY AIRPORT (CYMM)

FORT McMURRAY, AB

Drawing/Title

SKETCH A
FORT MCMURRAY REGIONAL AIRPPORT
OBSTACLE LIMITATION SURFACES
PROPOSED AIRPORT ZONING

Designed by.	JJH	Scale	1:3000 (114X36 SHEET)	
Dwn by.	JJH	Reviewed by.	BRP	Project No.
Revision	1	Drawing No.	SKETCH A	10425

GENIVAR
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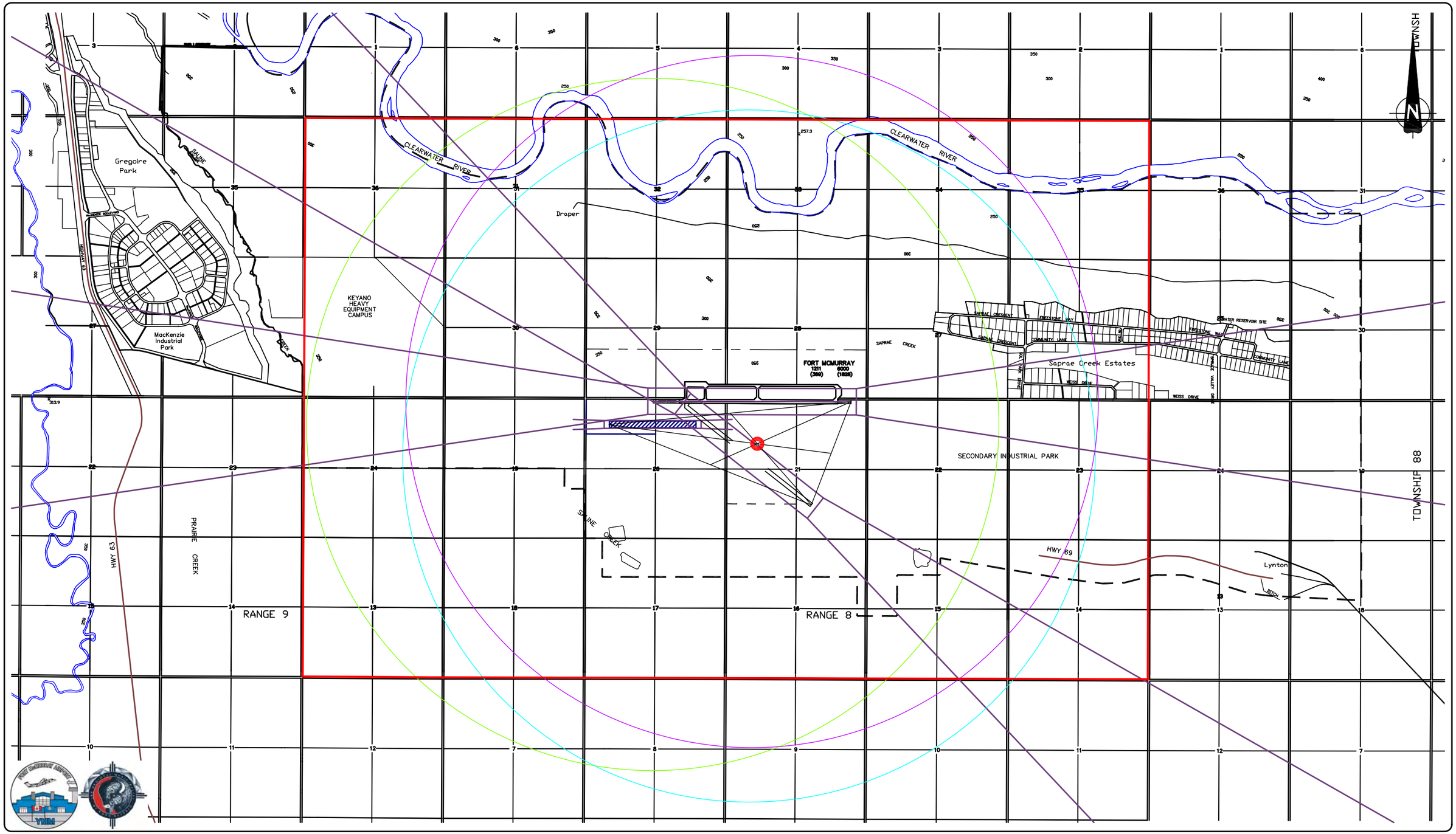
APPENDIX E
AIRPORT AREA STRUCTURE PLAN (EXISTING)



SHEET TITLE

REGIONAL MUNICIPALITY OF WOOD BUFFALO AND FORT McMURRAY AIRPORT COMMISSION

FORT McMURRAY MUNICIPAL AIRPORT AREA STRUCTURE PLAN

LEGEND

- ASP BOUNDARY
- AIRPORT BOUNDARY
- EXISITING PAVED ROADS

DRAWN/CHECKED BY: ANS/PAM

DATE/EBA PROJECT NO.: 03/05/29 9600050

SCALE: 1:10000 (0 100 300 500m)

EBA Engineering Consultants Ltd.

TITLE/EBA DRAWING NO.

FUTURE OBSTRUCTION AREAS
FIGURE 9B

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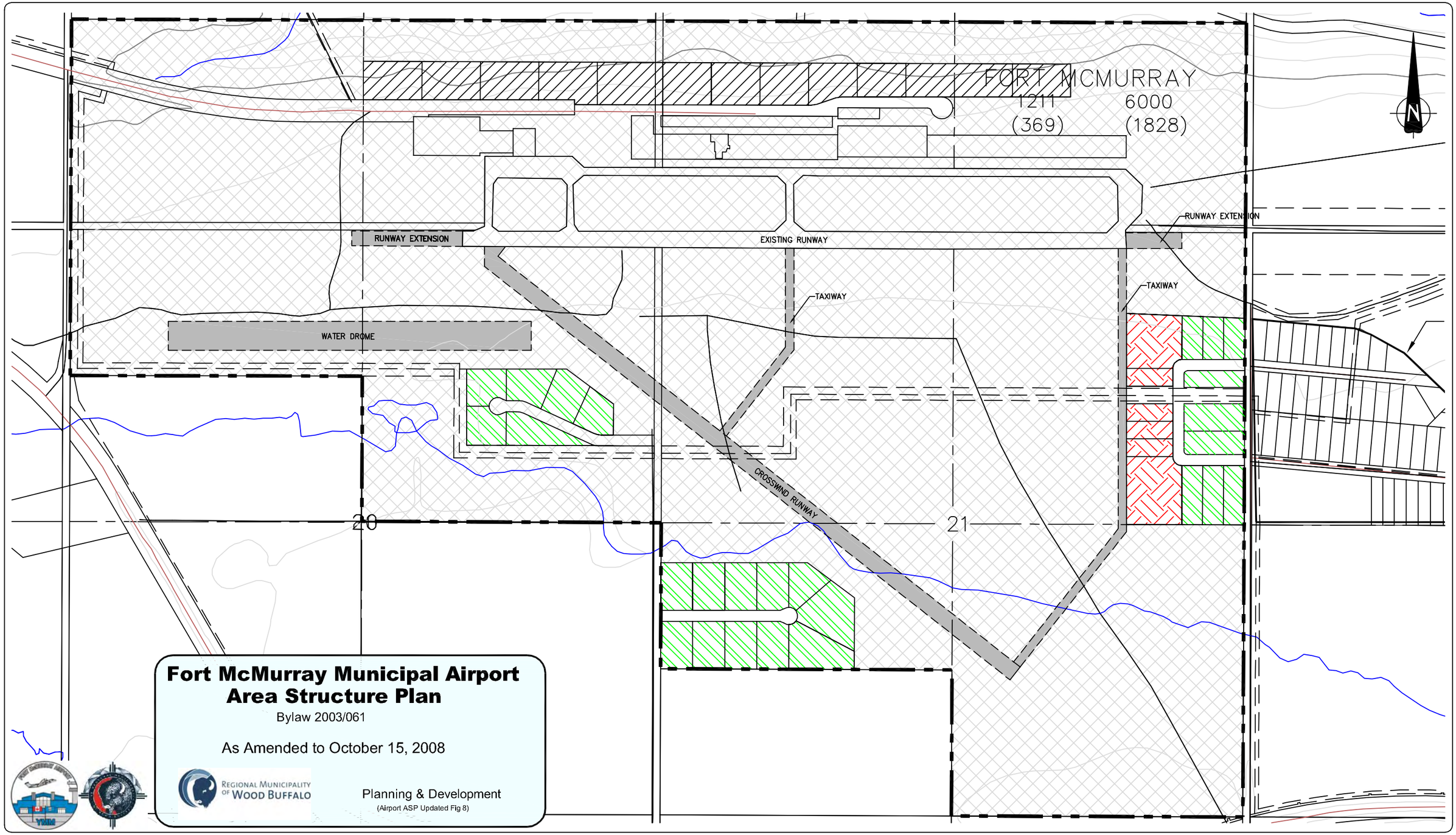

Fort McMurray Municipal Airport Area Structure Plan

Bylaw 2003/061

As Amended to October 15, 2008

Regional Municipality of Wood Buffalo

Planning & Development

(Airport ASP Updated Fig 8)

SHEET TITLE

REGIONAL MUNICIPALITY OF WOOD BUFFALO
AND FORT McMURRAY AIRPORT COMMISSION
FORT McMURRAY MUNICIPAL AIRPORT AREA STRUCTURE PLAN

LEGEND

- AIRPORT BOUNDARY
- FUTURE AIRPORT INFRASTRUCTURE
- AIRSIDE AVIATION RELATED
- GROUNDSIDE AVIATION RELATED
- OPERATING RESERVE
- GROUNDSIDE INDUSTRIAL

DRAWN/CHECKED BY: ANS/PAM

DATE/EBA PROJECT NO.: 03/05/29 9600050

SCALE: 1:10000 (0 100 300 500m)

EBA Engineering Consultants Ltd.

TITLE/EBA DRAWING NO.: FUTURE LAND USE FIGURE 8

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GENIVAR
formerly PSMI

APPENDIX F
HIGHWAY 69 / CLEARWATER RIVER VALLEY
AREA STRUCTURE PLAN

DEVELOPMENT CONCEPT

Highway 69/Clearwater River Valley Area Structure Plan

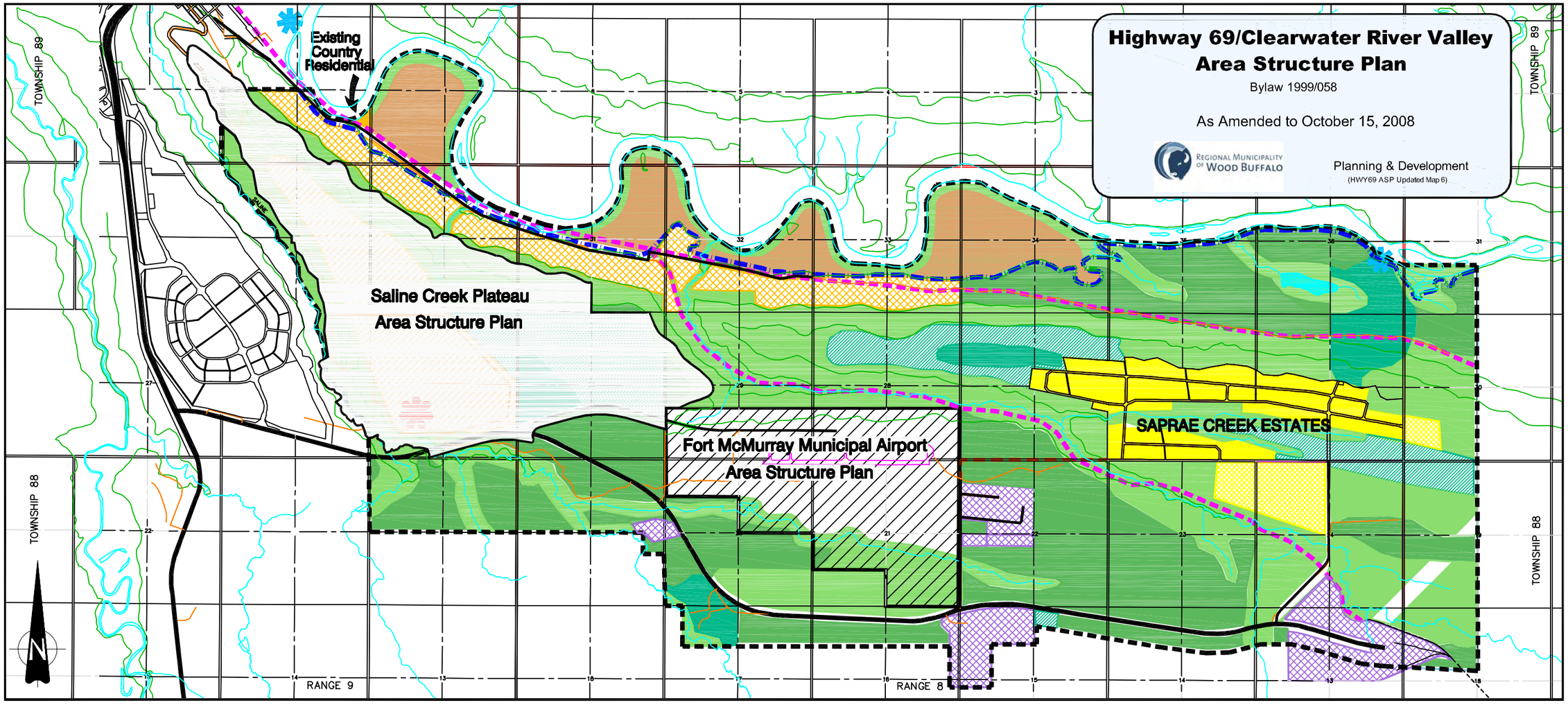
Bylaw 1999/058

As Amended to October 15, 2008

Regional Municipality of Wood Buffalo

Planning & Development

(HWY69 ASP Updated Map 6)



Legend

- ASP Boundary
- Airport District
- Proposed Urban Residential
- Existing Suburban Estate Residential
- Proposed Suburban Estate Residential
- Existing Country Residential
- Proposed Country Residential
- Proposed Business Industrial
- Existing Parks and Recreation
- Proposed Parks and Recreation
- Proposed Small Holdings
- Environmentally Sensitive Areas
- Open Space
- Potential Trail Development
- Approximate 250m Contour
- Possible Boat Launch
- Village Commercial/ Community Centre
- Possible Additional Access to Saprae Creek Estates

Armin A. Preiksaitis & Associates Ltd.

0 1000 3000m

NOTE:
This is a conceptual land use framework. Areas have been generalized and are only approximate. All information should be verified. Land use data based on information gathered in June 1999.

REGIONAL MUNICIPALITY OF WOOD BUFFALO

Map 6
Development Concept

Highway 69 / Clearwater River Valley Area Structure Plan
BYLAW 99/058

APPENDIX F

FORT MCMURRAY REGIONAL AIRPORT NOISE EXPOSURE FORECAST DISCUSSION PAPER

FORT MCMURRAY REGIONAL AIRPORT
NOISE EXPOSURE FORECAST
DISCUSSION PAPER

Prepared for:

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Fort McMurray Regional Airport Authority
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Tel: 780 709-3900
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Prepared by:

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DP 9.2.1

June 2011 PSMI Project No. 10425

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1.0 Background

1.1 INTRODUCTION

Airport-related noise can often cause conflict between airport operators and their neighbours. The best way to mitigate this conflict is to develop Airport Noise Exposure Forecasts and to ensure that local planning authorities take them into consideration when approving adjacent land uses.

As a component of the **Airport Development Plan** for Fort McMurray Regional Airport (Airport), Genivar, formerly PSMI has prepared Noise Exposure Forecasts utilizing Transport Canada's latest forecast model. These exposure forecasts take into consideration the possibility that a second parallel runway could be constructed at the Airport in the future. The proposed location of this runway is 3,796 ft. (1,157m) south of the existing runway.

Although a future runway will not likely be required for capacity reasons, it would provide the Airport with operational redundancy in the event that the existing runway is closed for maintenance or for snow clearing operations. The **Airport Development Plan** for Fort McMurray Regional Airport (enclosed in Appendix A) provides for the potential development of this second parallel runway.

Also under consideration is the potential future expansion of the existing Runway 07-25 to 9,000 ft. (2,743m). If such an expansion is implemented, the extension would likely be constructed at the western (07) end of the existing runway.

1.2 TRANSPORT CANADA'S NOISE EXPOSURE FORECAST MODEL

The Canadian Noise Exposure Forecast (NEF) has been developed to encourage compatible land use planning in the vicinity of airports. NEFs are official contours and Transport Canada will support them to the level of accuracy of the input data. The NEF has the additional benefit of providing recommended acoustic design criteria to obtain acceptable indoor noise levels for residential construction.

Historical responses to noise, captured at numerous Canadian airports, are displayed in Table 1. Transport Canada has correlated the public's predicted response to noise with the respective NEF.

Table 1 Community Response Prediction and NEFs	
Response Area	**Response Prediction**
>40 NEF	Repeated and vigorous individual complaints are likely. Concerted group and legal action might be expected.
35 – 40	Individual complaints may be vigorous. Possible group action and appeals to authorities.
30 – 35	Sporadic to repeated individual complaints. Group action possible.
< 30	Sporadic complaints may occur. Noise may interfere occasionally with certain activities of the resident.
Source: Transport Canada TP1247E Land Use in the Vicinity of Airports	

A series of land use tables for 'aircraft noise considerations only' are produced by Transport Canada, as shown in the example illustrated below. This is provided only as a guide and is only for airport noise.

Transport Canada does not support or advocate incompatible land use (especially residential housing) in areas affected by aircraft noise. These may begin as low as NEF 25. At NEF 30, speech interference and annoyance caused by aircraft noise are, on average, established and growing. By NEF 35, their effects are very significant. New residential development is therefore not compatible with NEF 30 and above, and should not be undertaken.

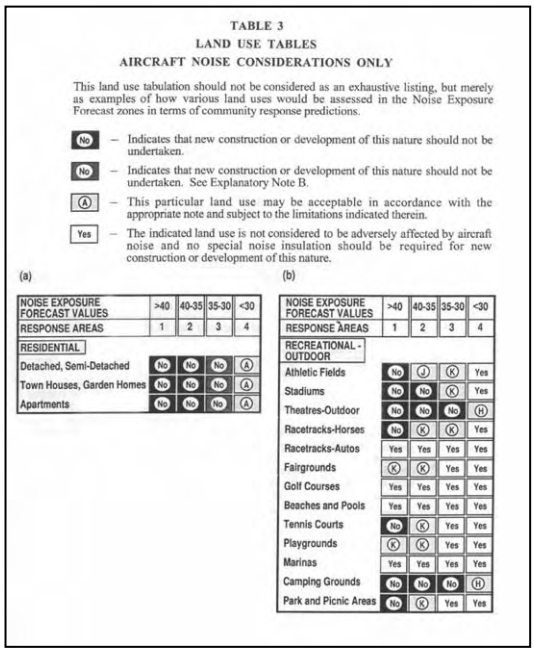


TABLE 3
LAND USE TABLES
AIRCRAFT NOISE CONSIDERATIONS ONLY

This land use tabulation should not be considered as an exhaustive listing, but merely as examples of how various land uses would be assessed in the Noise Exposure Forecast zones in terms of community response predictions.

No – Indicates that new construction or development of this nature should not be undertaken.

No – Indicates that new construction or development of this nature should not be undertaken. See Explanatory Note B.

(A) – This particular land use may be acceptable in accordance with the appropriate note and subject to the limitations indicated therein.

Yes – The indicated land use is not considered to be adversely affected by aircraft noise and no special noise insulation should be required for new construction or development of this nature.

(a)

NOISE EXPOSURE FORECAST VALUES	>40	40-35	35-30	<30
RESPONSE AREAS	1	2	3	4
RESIDENTIAL				
Detached, Semi-Detached	No	No	No	(A)
Town Houses, Garden Homes	No	No	No	(A)
Apartments	No	No	No	(A)

(b)

NOISE EXPOSURE FORECAST VALUES	>40	40-35	35-30	<30
RESPONSE AREAS	1	2	3	4
RECREATIONAL - OUTDOOR				
Athletic Fields	No	(J)	(K)	Yes
Stadiums	No	No	(K)	Yes
Theatres-Outdoor	No	No	No	(H)
Racetracks-Horses	No	(K)	(K)	Yes
Racetracks-Autos	Yes	Yes	Yes	Yes
Fairgrounds	(K)	(K)	Yes	Yes
Golf Courses	Yes	Yes	Yes	Yes
Beaches and Pools	Yes	Yes	Yes	Yes
Tennis Courts	No	(K)	Yes	Yes
Playgrounds	(K)	(K)	Yes	Yes
Marinas	Yes	Yes	Yes	Yes
Camping Grounds	No	No	No	(H)
Park and Picnic Areas	No	(K)	Yes	Yes

There are three (3) types of noise exposure contours depending on the time element involved, and are summarized as follows:

Noise Exposure Forecasts (NEFs)

Traffic volume and aircraft type and mix are used in calculating the noise contours which are normally forecast for a period of between five (5) to ten (10) years. Runway geometry must be the current layout, except that new and approved projects involving changes in the runways may be included, when the completion date of the project lies within the forecast period.

Noise Exposure Projections (NEPs)

It is recognized that much land use planning involves projections beyond five (5) years or ten (10) years into the future, when aircraft fleet mixes and runway configurations are most likely to be different from the known conditions of today. To provide Provincial and Municipal Authorities with long range guidance in land use planning, Transport Canada introduced the Noise Exposure Projection (NEP). The NEP is based on a projection of aircraft movements for up to 20 years into the future and includes aircraft types and runway configurations that may materialize within this period. The methodology to generate an NEP is the same as an NEF. The NEP recognizes that there is less certainty over the course of 20 years as opposed to 10 years and is therefore called a 'projection' rather than a 'forecast'.

Planning Contours

The third type of noise contour is the Planning Contour which is produced to investigate planning alternates and must be labelled as such.

The noise exposure contour types that were developed as part of this Airport Development Plan were:

- 2008 Existing Noise Contours (recent peak year and basis of Aviation Activity Forecast)
- 2016 Noise Exposure Forecast – Single Existing Runway (Extended to 9000 ft.) Scenario
- 2016 Noise Exposure Forecast – Single New Runway (6,930 ft.) Scenario
- 2016 Composite Noise Planning Contour – Combine both existing and proposed runways.

1.2.1 Recent Significant Changes in Federal and Provincial Regulations/Policies

The most significant recent changes in Federal/Provincial policies as related to noise and land use issues include:

- Transport Canada National Airport's Policy
- No New Residential Development Recommended above the 30 NEF
- More recently, Transport Canada has come out with a new recommendation for **new airports**; specifically, no residential development above the 25 NEF.

Transport Canada's National Airport's Policy

As part of Transport Canada's airport commercialization initiatives, the responsibility to develop, implement NEF's and NEP's for airports now belongs to the individual airport owner/operator. Transport Canada still retains ultimate authority on airport noise issues, and therefore, upon request by the airport owner/operator, it may provide input into the NEF/NEP process by means of a 3rd party technical verification of the NEF analysis. The responsibility to implement the contours at a Provincial and Municipal level remains with the airport owner/operator.

Land Use Guidelines - No New Residential Development Recommended above the 30 NEF

In 1996, Transport Canada amended their publication *TP1247E - Land Use in the Vicinity of Airports*, to reflect the recommendation that no new residential development be considered above the 30 NEF. Previously, the 35 NEF was used as the criteria.

Land Use Guidelines - No Residential Development Recommended above the 25 NEF at New Airports

In 2005, Transport Canada again amended *TP1247E - Land Use in the Vicinity of Airports*, to reflect a new recommendation that no new residential development be considered above the 25 NEF when planning a 'new' airport site. While, this does not impact existing airports such as Fort McMurray, it is worth bearing in mind since it does reflect changing policy attitudes regarding appropriate measures in which to mitigate aircraft noise impacts.

1.2.2 NEF Modeling Software

The NEF noise model is a means of quantifying the subjective nature of airport noise; which include noise intensity, tonal characteristics, event duration and number of occurrences during day and night periods, of the listeners. The NEF contours prepared for project were developed using Transport Canada's latest NEF modeling software computer program: NEFCalc.

1.3 EXISTING NEF CONTOURS

The existing noise contours for Fort McMurray Regional Airport, which are presented in the 2004 Fort McMurray Municipal Airport Area Structure Plan, were prepared by EBA Engineering Consultants Ltd. in 2003. Previous to that, noise contours were prepared in the 1970's by the Province of Alberta as part of the Airport Vicinity Protection Plan.

The noise contours prepared by EBA in 2003 represent the year 2020 and assume approximately 70,000 annual movements with a planning peak day of 289 movements. The mix of aircraft included in the analysis included B737-700, DHC6 Twin Otter, DHC7 Dash 7, and C130 Hercules. The contours assumed 75% of arrivals would be on Runway 25, and 25% on Runway 07, and that the day / night split in traffic is 66% / 34%. It should

be noted that this percentage of night traffic is considerably higher than what is currently experienced at the Airport, based on available NCAMS data.

2.0 Forecast Methodology

2.1 NOISE EXPOSURE SCENARIOS

The noise exposure modeling prepared by PSMI was based on the *Fort McMurray Airport Aviation Activity Forecast* prepared by Jacobs Consultancy in October, 2009. Table 2 describes the medium growth aircraft movement forecast as provided in the Jacobs report.

Table 2
Forecasted Aircraft Movements – Medium Growth

Year	Air Carrier		Other Comm.	Private	Gov. + Military	Total Itinerant	Local	Total
	Level I-III	Level IV+						
2008	34,885	15,776	4,623	6,453	570	62,307	8,138	70,445
2009	32,304	12,958	4,244	6,328	545	56,379	9,449	65,827
2010	33,057	13,722	4,880	6,410	540	58,609	9,638	68,247
2011	35,440	14,995	5,662	6,539	534	63,171	9,830	73,002
2012	39,001	16,934	6,853	6,735	529	70,052	10,027	80,078
2013	40,116	17,133	6,976	6,756	524	71,504	10,227	81,731
2014	41,936	18,323	7,706	6,876	518	75,360	10,330	85,690
2015	41,862	17,935	7,468	6,837	513	74,615	10,433	85,048
2016	43,385	18,356	7,727	6,880	508	76,856	10,537	87,393
2017	42,780	17,606	7,266	6,803	503	74,959	10,643	85,601
2018	41,321	16,384	6,515	6,680	498	71,397	10,749	82,146
2019	42,027	16,483	6,576	6,690	498	72,274	10,857	83,131
2020	42,639	16,334	6,484	6,675	498	72,630	10,965	83,596
2021	42,684	16,063	6,318	6,647	498	72,210	11,075	83,285
2022	41,884	15,251	5,819	6,565	498	70,017	11,186	81,203
2023	42,487	15,155	5,760	6,555	498	70,455	11,297	81,753
2024	42,565	14,722	5,494	6,511	498	69,791	11,410	81,201
2025	42,809	14,611	5,426	6,500	498	69,843	11,525	81,367
2026	42,733	14,248	5,203	6,463	498	69,145	11,640	80,785
2027	42,716	13,956	5,024	6,434	498	68,628	11,756	80,384
2028	42,064	13,489	4,737	6,386	498	67,175	11,874	79,048
2029	42,330	13,418	4,693	6,379	498	67,317	11,992	79,310
2030	42,937	13,489	4,737	6,386	498	68,047	12,112	80,159

Source: Fort McMurray Aviation Activity Forecast, Jacobs Consultancy, 2009

The Jacobs forecast predicts that aircraft movements at Fort McMurray Regional Airport will peak in the year 2016 as construction of Oil Sands projects will begin to fall off beyond that year. Based on this assumption, the following noise exposure scenarios were developed for Fort McMurray Regional Airport.

2008 Existing Noise Contours

This scenario was developed using actual 2008 airport aircraft movement statistics (NCAMS) and is meant to define existing noise exposure conditions at the Fort McMurray Regional Airport. 2008 was the base year for the Aviation Activity Forecast and also represents the most recent year in which aircraft activity peaked. Aircraft movements in 2009 declined slightly but relevant factors such as aircraft fleet mix, runway utilization and day/night utilization remained unchanged from 2008.

2016 Noise Exposure Forecast – Single Existing (Extended) Runway Scenario

This scenario was developed since, based on the Jacobs forecasts, it represents the forecast year for highest total annual aircraft traffic movements at the airport from now until 2030. This maximum scenario is a reasonable planning tool since it is forecast to occur within the next 5 years. As the timing for the development of the new parallel runway has not been identified, this scenario was considered using the existing single runway configuration.

This scenario assumes that the existing runway may be extended in the future to 9,000 ft. (2,743 m).

2016 Noise Exposure Forecast – Single New Runway (6,930') Scenario

As previously mentioned, the Airport Development Plan includes provision for a future parallel runway. As the second 6,930' (2,112m) runway is primarily intended to provide operational redundancy in the event the existing runway is closed, a contour with 100% of the traffic on the new runway was generated. This contour represents the peak noise contour for the forecast period and would be representative of periods when the existing runway was closed.

2016 Composite Noise Planning Contour – Combine both existing and proposed runways

It is possible that extended periods of time could pass where 100% of traffic is on one runway or the other. Since it is difficult to accurately distribute traffic between the existing and proposed runways, a decision was made to generate a composite contour of the two scenarios.

The composite contour consists of graphically combining both the 2016 Noise Exposure Forecast – Single Existing Runway Scenario and the 2016 Noise Exposure Forecast – Single New Runway Scenario into a single comprehensive contour. The resulting contour represents the worst case planning contour for the airport.

2.2 MODELING ASSUMPTIONS

To generate the contours presented, a detailed analysis of existing airport statistics was conducted. This included an assessment of the following important factors:

- Aircraft types
- Night time movements (defined as any flight between the hours of 10:00 p.m. and 7:00 a.m.). Night time movements are penalized by a factor of 16.7 times (12 dB)
- Runway distribution
- Departure configurations (Stage Lengths)

In order to define as accurately as possible the aircraft movement environment at Fort McMurray Regional Airport, official statistics were obtained from the Aviation Statistics Centre, Statistics Canada for 2008.

Data for both itinerant movements and local movements were included, both of which are required for the NEF analysis. Itinerant and Local movements are defined as follows:

- Itinerant

  An itinerant aircraft movement is one that enters or leaves the control zone of the air traffic control tower (approximately 5-7 nautical miles)

- Local

  A local movement is one that stays within the control zone of the air traffic control tower.

Based on the 2008 NCAMS data that was obtained for the airport, the following briefly outlines the existing traffic conditions used to model noise at the Fort McMurray Regional Airport.

1. Overall Runway Utilization:
   a. Runway 07 30%
   b. Runway 25 70%
2. Overall Day / Night Split:
   a. Day 95%
   b. Night 5%

3. Itinerant Engine Types:

    a. Jet 20.5%
    b. Turbine 57.4%
    c. Piston 22.2%

4. Departure Stage Lengths

    a. Stage Length of 500nm or less presents 98% of itinerant movements.

5. Local Movements modeled with same runway distribution as itinerant. Right hand circuits for Runway 07.

The 95th Percentile Day method was used to derive the NEF planning day in accordance with the procedure recommended by Transport Canada. By definition, the calculated planning day represents a busy 24 hour day at the Airport, where only 5% of the days in the year are busier. This method was applied to 2008 data using actual published airport statistics. Table 3 presents the NEF planning day values.

Table 3
NEF Peak Planning Day

Year	Itinerant	Local	Total
2008	318	118	436
2016	393	150	543

3.0 Findings

3.1 SUMMARY OF OBSERVATIONS

Table 4 summarizes the overall size of the NEF and NEP contours for each of the scenarios considered. In addition, the area of the 30 NEF contour of the 2020 NEF presented in the **2004 Fort McMurray Municipal Airport Area Structure Plan** is also presented for comparison purposes. The complete contours for each of the four scenarios developed as part of this **Airport Development Plan** are presented in Appendix B as Figures 2 – 5. Figure 6 is a comparison of all the 30 NEF contours.

Table 4
Summary of NEF/NEP Contour Areas

Contours	25 NEF	30 NEF	35 NEF
	Area under the NEF/NEP Contour (km^2)		
2008 Existing	10.65	4.56	1.90
2016 Existing (Extended) Runway	13.03	5.76	2.44
2016 New Runway	13.28	5.65	2.23
2016 Composite	25.13	11.05	4.68
2020 ASP Contour[1]	N/A	7.81	N/A

Notes: 1 Obtained from 2004 Fort McMurray Municipal Airport Area Structure Plan. NEF Contours prepared by EBA Consultants

Some general observations can be made with regards the comparison of the 30 NEF contours presented in Figure 6.

When one compares the 2008 Existing 30 NEF to the 2016 Existing Single Runway 30 NEF, it becomes clear that the increase in traffic has a proportionate impact on the contour size. This is logical since the increase in Peak Planning Day traffic is approximately 25%, which in turn resulted in an increase of approximately 26% in contour area. The lack of a significant change in the day / night split explains this consistency.

It is worth noting as well that the 2020 30 NEF contour presented in the 2004 Fort McMurray Municipal Airport Area Structure Plan encompasses nearly the entire 2016 Single Existing Runway 30 NEF Contour. Furthermore, areas where the 2016 Composite Contour falls outside of the 2020 Contour are primarily on existing airport property or on Crown lands which the Airport intents to own or control in the future.

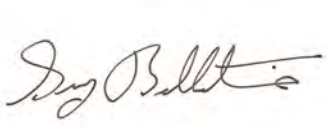
4.0 Recommendations

It is recommended that the Fort McMurray Regional Airport Authority work with planning authorities to ensure that compatible land use planning occurs in the vicinity of the Airport. For **existing airports**, Transport Canada recommends that no residential development occur within the 30 NEF Contour. As land use planning is a long term endeavour, selecting the correct contour to plan to, is important. The 2016 Composite Contour is an appropriate scenario to plan for in the context of land use planning as it represents the maximum noise exposure for the forecast period based on the most recent information available.

If the planning authorities want to maximize the protection to the airport as it relates to noise, it is recommended that residential development be limited to the 25 NEP as shown in the 2016 Composite Noise Planning Contour.

By planning for compatible land use in the vicinity of the airport, both the authority and neighbouring municipal governments can ensure that future impacts of residential development on the airport will be minimized and that new residential development will not be impacted by airport operations.

All of which is respectfully submitted,



Greg Ballentine, B.E.S, B.Arch.
Senior Aviation Planner / Architect

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APPENDIX A
AIRPORT DEVELOPMENT PLAN

NOVEMBER 25, 2010, REVISION NO. 8A

GENERAL LEGEND

EXISTING AIRPORT BOUNDARY
EXISTING EDGE OF PAVEMENT
PROPOSED EDGE OF PAVEMENT
EXISTING FENCE LINE
EXISTING DITCH LINE
EXISTING WATER COURSE
EXISTING TRAIL
EXISTING TREE LINE
EXISTING LEGAL BOUNDARY
EXISTING PRE-LOADING LIMITS
ELECTRONIC PROTECTION AREA
RUNWAY APPROACH SURFACE
RUNWAY STRIP
EXISTING AIRSIDE PAVEMENTS
PROPOSED OPENING DAY PAVEMENTS
PROPOSED 2019 PAVEMENTS
PROPOSED FUTURE PAVEMENTS
EXISTING STRUCTURES / BUILDINGS
FUTURE STRUCTURES / BUILDINGS

LAND USE INFORMATION

AIRPORT RESERVE
AIRSIDE RESERVE
AIRSIDE COMMERCIAL
LANDSIDE COMMERCIAL
AIRPORT SUPPORT
TRANSPORTATION RESERVE
TERMINAL RESERVE

SCALE 1:5000
ON 24"X36" (ARCH D)

75 0 75 150 225 375 METRES
300 150 0 300 750 1125 FEET

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Client/Project
FORT MCMURRAY REGIONAL AIRPORT
AIRPORT EXPANSION PROJECT

Revised By: CDZ

Figure No.
1

Title
AIRPORT DEVELOPMENT PLAN

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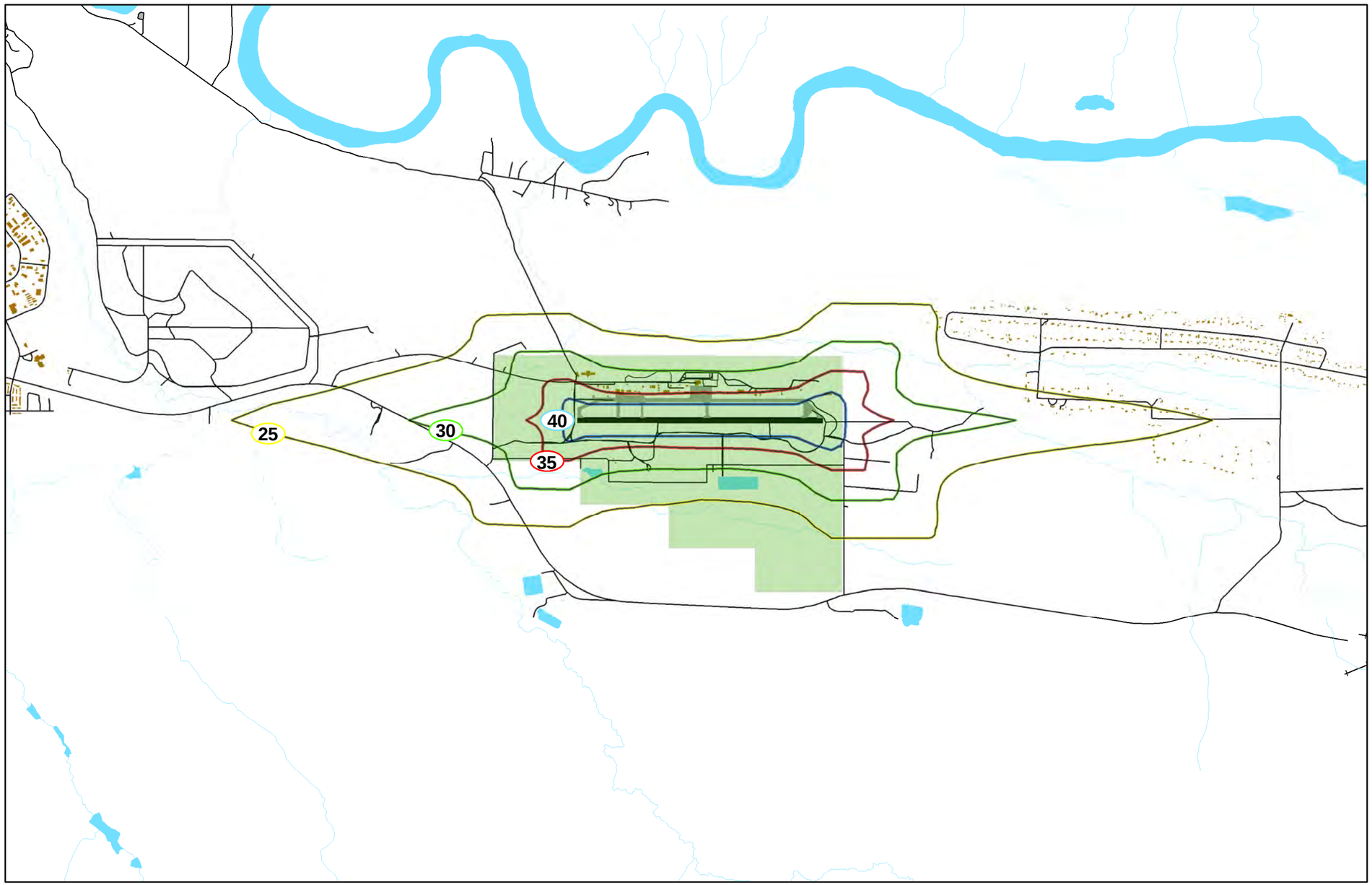
2010 October 01, 1:42 p.m.

GENIVAR
formerly PSMI

APPENDIX B
NOISE EXPOSURE CONTOURS

Figure 2 - 2008 Existing Noise Exposure Planning Contours

Fort McMurray Regional Airport - Noise Exposure Discussion Paper



N
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2008 Existing

- NEF25
- NEF30
- NEF35
- NEF40
- Airport Boundary

Note:

For Planning Purposes Only.

Base Map Source:

Regional Municipality of Woof Buffalo

Contour Source:

Contour modeled using exsiting NCAMS and forecast data and Transport Canada NefCalc 2.4.0.1.

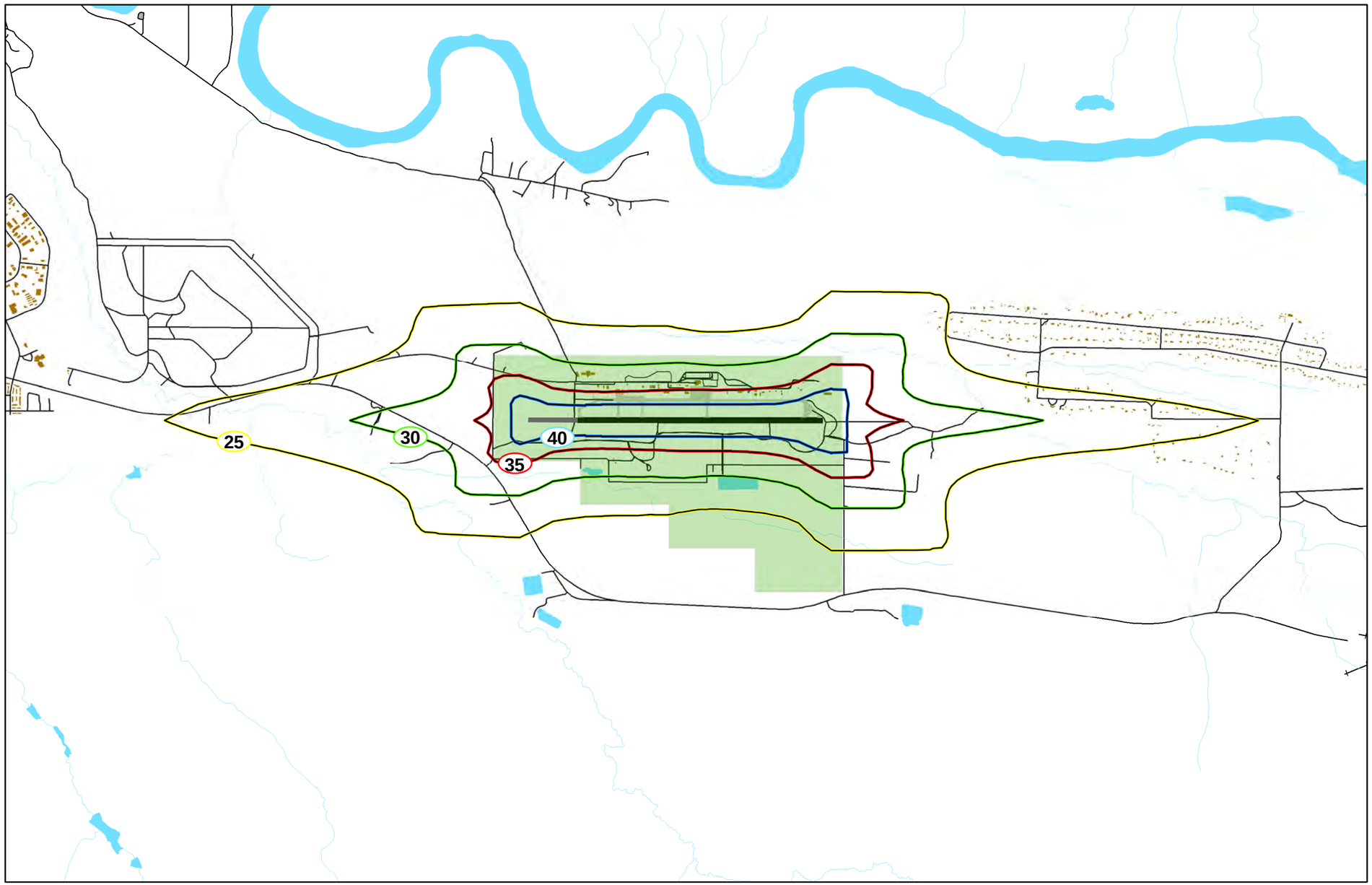
1 0.5 0 1 2 3 4 5

Kilometers

PSMI #10425 - August 11, 2010

Figure 3 - 2016 Existing Runway (Extended) Noise Exposure Forecast Contours

Fort McMurray Regional Airport - Noise Exposure Discussion Paper



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2016 Extended Runway

- NEF25
- NEF30
- NEF35
- NEF40
- Airport Boundary

Note:

For Planning Purposes Only.

Base Map Source:

Regional Municipality of Woof Buffalo

Contour Source:

Contour modeled using exsiting NCAMS and forecast data and Transport Canada NefCalc 2.4.0.1.

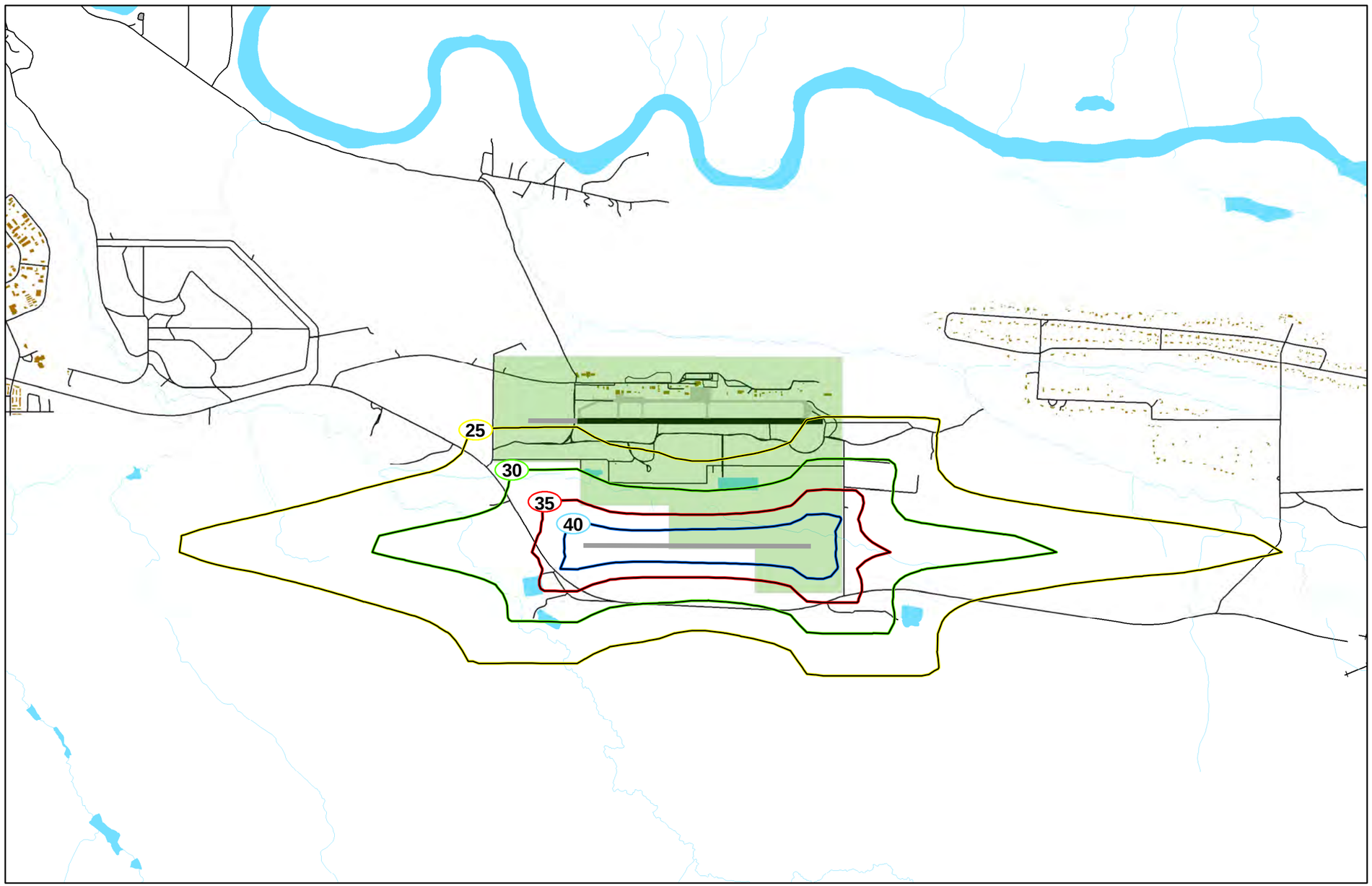
1 0.5 0 1 2 3 4 5

Kilometers

PSMI #10425 - August 11, 2010

Figure 4 - 2016 New Runway Noise Exposure Forecast Contours

Fort McMurray Regional Airport - Noise Exposure Discussion Paper



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2016 New Runway

- NEF25
- NEF30
- NEF35
- NEF40
- Airport Boundary

Note:

For Planning Purposes Only.

Base Map Source:

Regional Municipality of Woof Buffalo

Contour Source:

Contour modeled using exsiting NCAMS and forecast data and Transport Canada NefCalc 2.4.0.1.

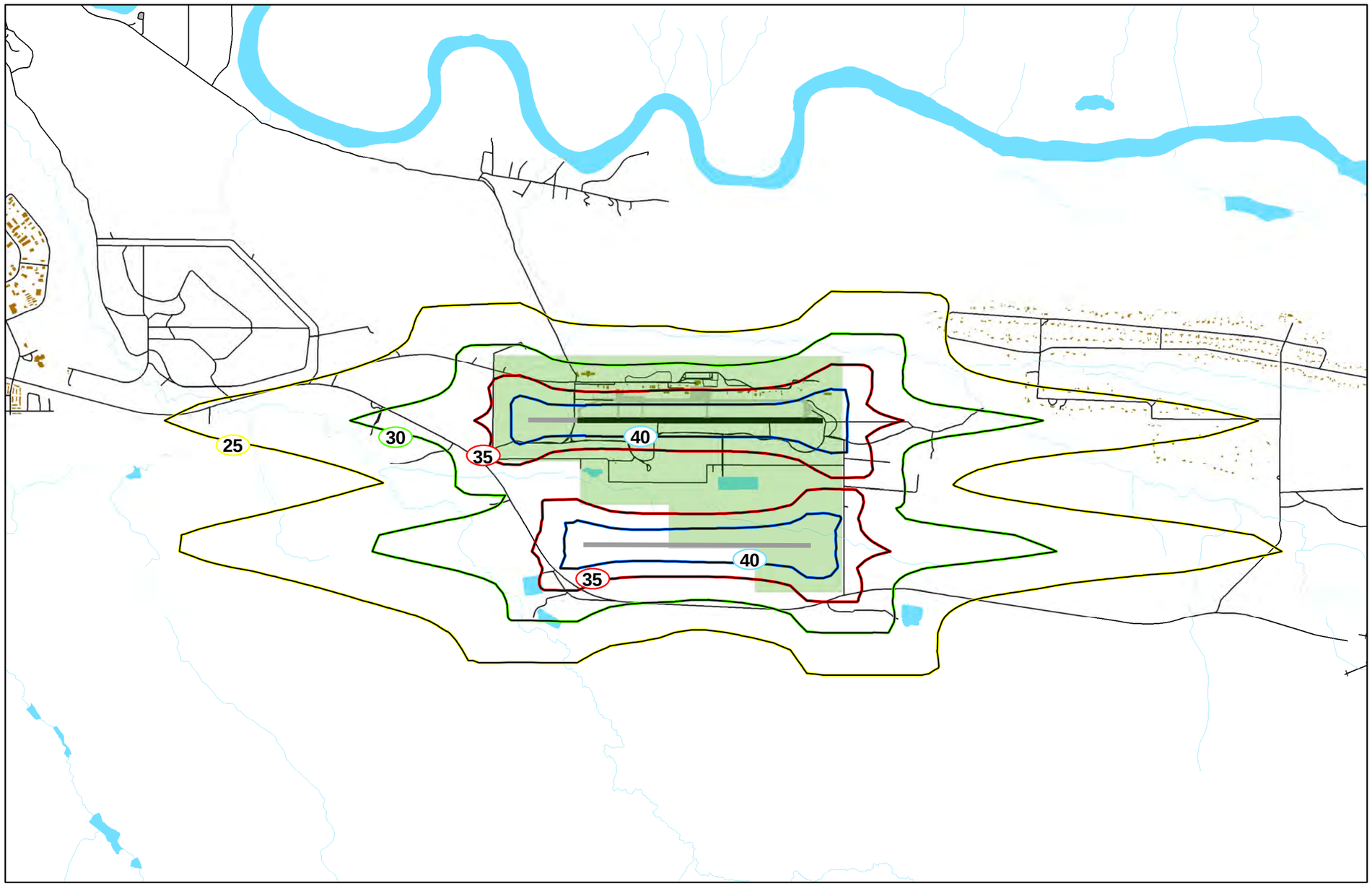
1 0.5 0 1 2 3 4 5

Kilometers

PSMI #10425 - August 11, 2010

Figure 5 - 2016 Composite Noise Exposure Planning Contours

Fort McMurray Regional Airport - Noise Exposure Discussion Paper



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2016 Composite Contours

- NEF25
- NEF30
- NEF35
- NEF40
- Airport Boundary

Note:

For Planning Purposes Only.

Base Map Source:

Regional Municipality of Woof Buffalo

Contour Source:

Contour modeled using exsiting NCAMS and forecast data and Transport Canada NefCalc 2.4.0.1.

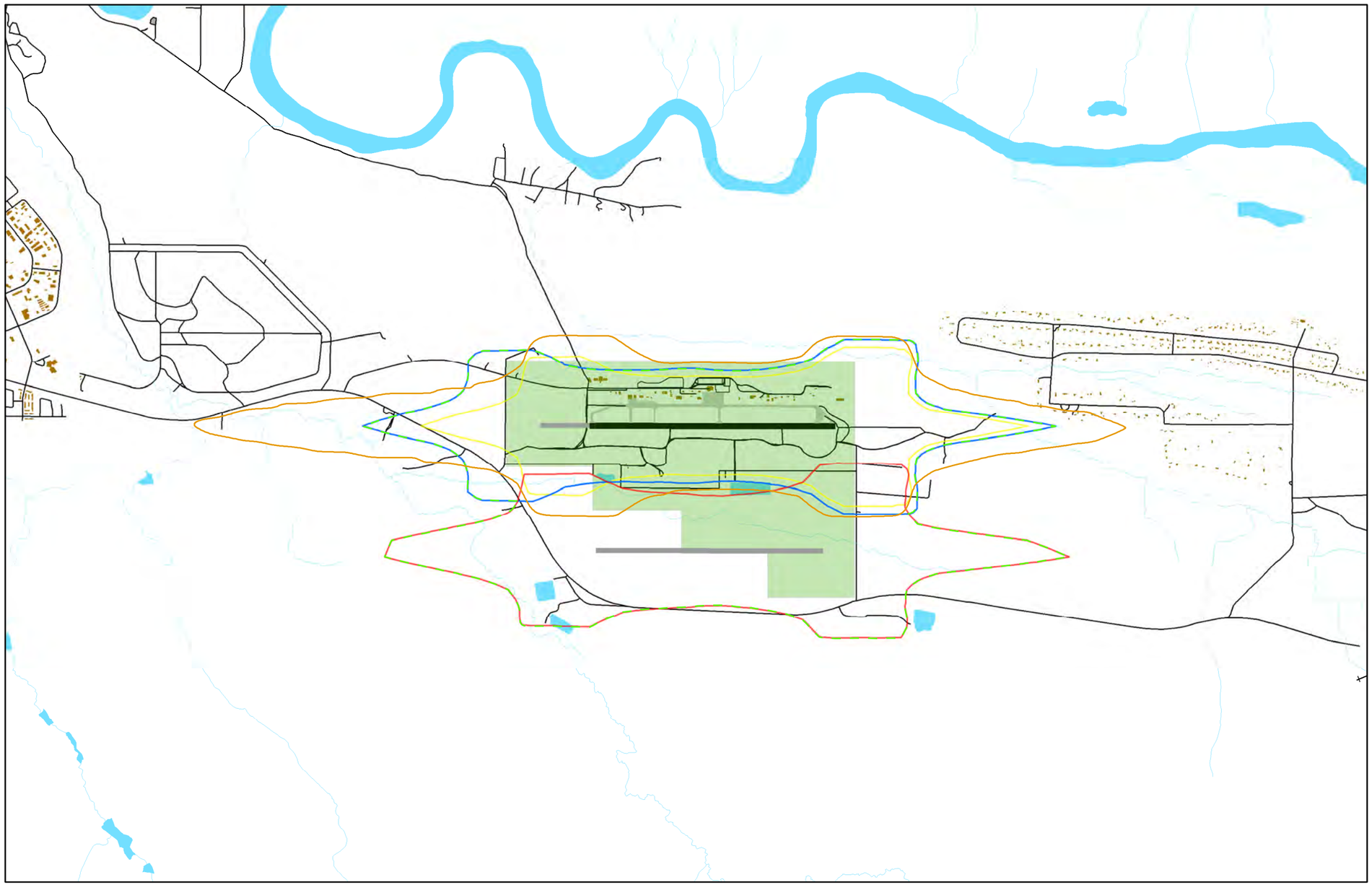
1 0.5 0 1 2 3 4 5

Kilometers

PSMI #10425 August 11, 2010

Figure 6 - 30 NEF Contour Comparison

Fort McMurray Regional Airport - Noise Exposure Discussion Paper



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30 NEF Contours

- 2020 ASP Contour
- 2016 Composite Contours
- 2016 New Runway
- 2016 Extended Runway
- 2008 Existing
- Airport Boundary

Note:

For Planning Purposes Only.

Base Map Source:

Regional Municipality of Woof Buffalo

Contour Source:

Contour modeled using exsiting NCAMS and forecast data and Transport Canada NefCalc 2.4.0.1.

30 NEF Contour from Area Structure Plan digitized by PSMI for comparison purposes only.

1 0.5 0 1 2 3 4 5

Kilometers

PSMI #10425 - August 11, 2010