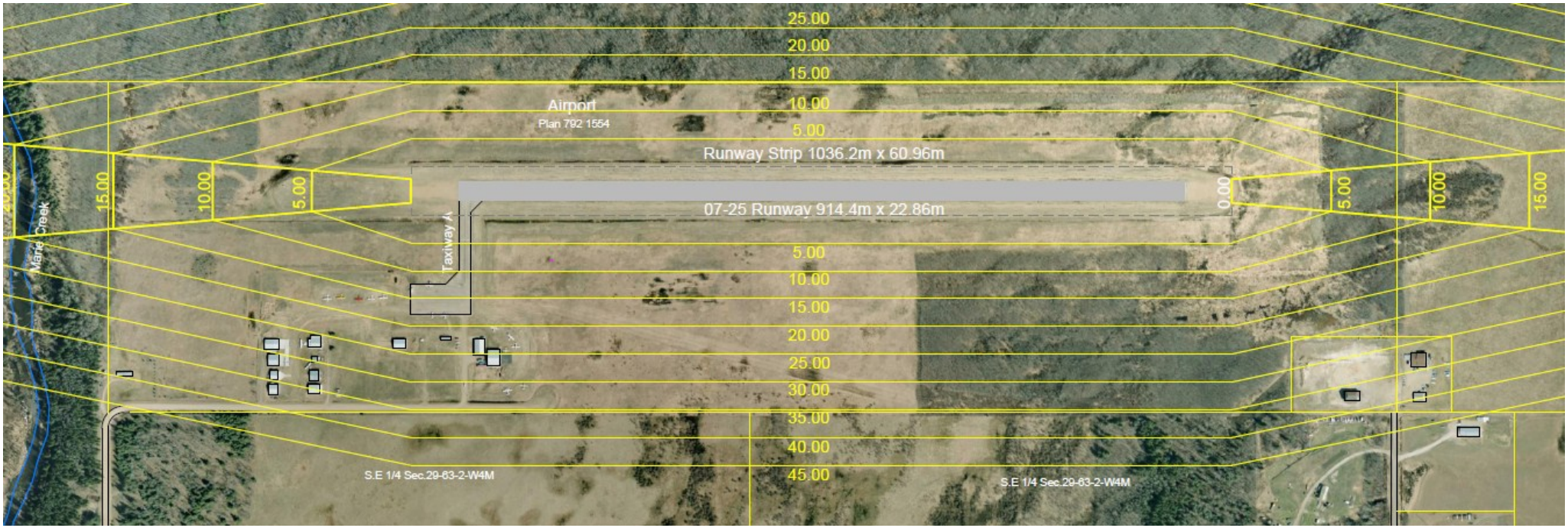
The City of Cold Lake

Cold Lake Regional Airport (CEN5) Business Plan

August 2011



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1 Background

1.1. Purpose of the CEN5 Business Plan

Airbiz Aviation Strategies Limited was contracted by the City of Cold Lake in April 2011 to prepare a Business Plan for the Cold Lake Regional Airport (CEN5). The primary purpose of the CEN5 Business Plan is to clearly articulate the role of the Airport, understand its relationship to other airports in the region - particularly 4 Wing Cold Lake (YOD) - and to establish a series of recommendations and action steps for the City which will allow the facility to fulfil its intended role.

1.2. Process

The process of preparing the CEN5 Business Plan was broken down into a five phase Methodology, as follows:

Phase 1: Project Initiation
During this initial phase of work, the consulting team travelled to Cold Lake to meet with key City personnel to attend a start-up meeting held on April 6, 2011. At the meeting, project requirement and timelines were confirmed. A list of key stakeholders was also identified, along with a range of potential dates for stakeholder meetings. Subsequent to the meeting, background material was assembled and reviewed.

Phase 2: Stakeholder Meetings
Stakeholder meetings were established by the City of Cold Lake personnel, with the consulting team travelling to Cold Lake on May 5 and 6, 2011 to meet with the stakeholders. Meetings were held with the following stakeholders:

- Cold Lake First Nations
- Cold Lake Chamber of Commerce and Cold Lake Economic Development Advisory Committee
- Town of Bonnyville
- MD of Bonnyville
- Cold Lake Regional Airport Association
- 4 Wing Cold Lake

In addition, the following stakeholders were contacted by telephone:

- Northwestern Air
- North Cariboo Air
- Alberta Infrastructure

- Transport Canada
- Province of Alberta Oils Sands Secretariat

Phase 3: Prepare Draft Business Plan
Following the stakeholder meetings, the consulting team commenced preparing a draft Business Plan for CEN5. A key element of the draft Business Plan was the formulation of a proposed role statement for airport. (see Section 9.1). The intent of the Role Statement is to help place a focus on the type of aviation activity that is intended to occur at the facility. It acts as an overall guide for future development by providing a focus on the planned types of aviation activity that will be accommodated at the aerodrome.

Phase 4: Follow-up presentations to City Administration and Council
The Interim Report was presented and discussed with the client as follows:
June 5, 2011: City of Cold Lake Planning Team (via teleconference)
June 20th: City of Cold Lake Senior Administration
July 12th, 2011: City of Cold Lake Council

Phase 5: Prepare and Submit Final Business Plan/Report
The final draft report was submitted to the City of Cold Lake on August 5th, 2011 and presented to City Council on August 23rd, 2011

1.3. Report Structure

Sections 1 through 8 of this document contain important background information that leads up to the recommended Business Plan. The Business Plan itself is contained in Section 9 of this report.

2 Airport Description

2.1. Cold Lake Regional Airport

The Cold Lake Regional Airport (CEN5) occupies a land area of approximately 99.5 ha. (245 ac.) and is located approximately 4km to the west of the City of Cold Lake and 7km north of 4 Wing Cold Lake (a Canadian Forces Base). While the airport was initially developed by the Province of Alberta in 1979, it was transferred to the City of Cold Lake in 1997. Since that time, the City has acted as the airport's owner and operator. The Cold Lake Regional Airport Association (CLRAA) – a volunteer organization with the mandate to promote general aviation in the Cold Lake Region - assists the City in the operation and maintenance of CEN5. While the airport is not staffed, it is operational 24 hours a day, and 7 days a week.

The asphalt runway at CEN 5 is designated 07-25 and is 914.4m (3,000 feet) in length and 22.86m (75 feet) wide. A public apron measuring 45.7m (150 feet) by 76.2m (250 feet) is located to the south of runway threshold 07 and is connected to the runway via paved taxiway "A". A small terminal building is located to the immediate south of the apron area.

The airport is at an elevation of 544.37m (1786 feet) above sea level (A.S.L.). At present, there are no electronic navigational aids. It is equipped with an illuminated wind sock, and an ARCAL (Aircraft Radio Control of Aerodrome Lighting) airfield lighting system.

An area immediately adjacent to the south of the apron has been developed for a variety of general aviation uses. The City holds a total of 14 leases in this area with a variety of airport users. There are currently 5 vacant lease holds in this area.

The airport is currently suited to VFR (Visual Flight Rules) operations. It falls within Cold Lake military airspace. Figure 2-1 illustrates the current airport boundary and existing conditions. Figure 2-2 illustrates the existing leaseholds at the airport.

FIGURE 2-1 - CEN5 EXISTING LAND BASE AND CONDITIONS

FIGURE 2-2 - CEN5 EXISTING BUILT UP AREA AND LEASEHOLDS

Planning Context

The City of Cold Lake has a current population of 13,924 (2009) and is expected to grow to just over 15,000 by 2019. The primary drivers of the local economy are the related to oil sands development as well as the military base – 4 Wing Cold Lake – which is the largest employer in the City. 4 Wing, which is the largest fighter base in Canada, is complimented by the Cold Lake Air Weapons Range – which is used for military aircraft training by the Canadian Armed Forces as well as other allied countries. Operation Maple Flag is one of the largest international military training exercises that makes use of both the base at 4 Wing Cold Lake along with the Air Weapons Range to host up to 8,000 personnel from around the world. The operation typically runs every spring and has an estimated regional economic impact of $18 million.

4 Wing is also home to the Aerospace Engineering Test Establishment (AETE) – a testing facility for both military and civilian aircraft. It, along with the presence of other aerospace companies such as Bombardier and CAE, are representative of the potential for a growing aerospace sector in the regional economy.

The City is located on the shores of Alberta's 7th largest lake, which provides excellent recreational opportunities in both the summer and winter. The Cold Lake Marina is known as the largest inland marina in Western Canada. The City's Economic Development Advisory Committee feels that tourism could play a key role with regard to future the community's future economic development.

The City of Cold Lake is considered to be somewhat remote. Figure 2-2 illustrates shows the location of Cold Lake relative to other major centres in Alberta. Table 2-1 provides indicative driving times and flying times to those centres.

Figure 2-3 shows the City of Cold Lake in context, including the Cold Lake Regional Airport in relation to the City as well as 4 Wing Cold Lake.

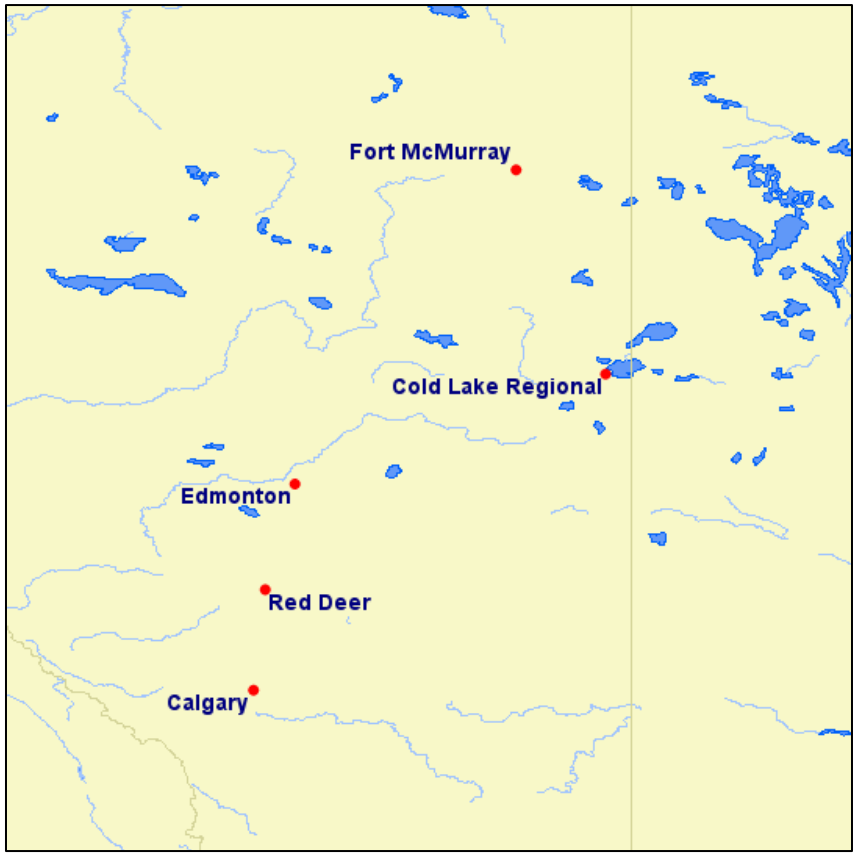


FIGURE 2-3 COLD LAKE AND OTHER ALBERTA CENTRES

From	To	Distance	Driving Time	Flying Time
Cold Lake	Edmonton	300 km	4 Hours	1 Hour
	Calgary	600 km	7 Hours	1.25 Hours
	Fort McMurray	440 km	5 Hours	1 Hour
	Red Deer	450 km	6 Hours	1 Hour

TABLE 2-1 DISTANCES FROM COLD LAKE TO OTHER CENTRES IN ALBERTA

FIGURE 2-4 – CONTEXT PLAN

3 The Realities of Small Airport Operations

3.1. Transport Canada Regional and Small Airports Study

In 2004, Transport Canada conducted a Regional and Small Airports Study. The following are a few highlights / key findings from that report relative to the reality of small airport operations:

- Most airports with significant passenger levels (30,000 passengers or greater) or revenue aircraft movements (13,000 or greater) have an operating surplus, however…
- Many of the divested Regional and Small Airports are unable to cover annual operating costs
- Small airports are unable to finance any form of capital improvements
- Airports that are in a favourable financial situation are generally located in a densely populated area (Airports located in a catchment area with less than 15,000 residents are usually in a deficit situation)
- Most airports that are within a 250km radius of a NAS (National Airport System) airport are in a negative financial situation

In summary, the Study found that the majority of Canada's Regional and Small Airports are not financially viable. The reality is that small airports are typically not financially self-sufficient. However, with regard to Cold Lake, and as identified in Section 2, it has a population approaching 15,000 and is beyond a 250km. radius of a NAS airport.

3.2. Airport Revenue Streams

Typical revenue streams for an Airport may include:

- Landing fees and associated aviation charges
- Terminal fees and charges
- Parking fees
- Car rentals and other concessions
- Fuel sales
- Land leases

Currently, the only significant revenue streams from Cold Lake Regional Airport are the land leases. Business and property tax revenue generated by the airport does not go to Cold Lake as the airport is located in the MD of Bonnyville.

In its current state, the land holding could be seen as a possible liability / cost to City of Cold Lake as long as the land is underutilized.

Though the airport may not directly provide a steady stream of revenue to the City of Cold Lake, it can become an economic generator for the community and can help promote tourism.

3.3. The COPA Guide to Public Airports

In 2009, The Canadian Owners and Pilots Association (COPA) published a document titled “The COPA Guide to Public Airports”. The organization prepared the Guide in order to provide general information about Canadian small airports – and what can make them successful. It suggests that a possible funding formula for small and regional airports could include maximizing the business use of the airport, such as:

- Looking to fuel fees as a key revenue source
- Looking at a tax model that sees all revenues / taxes that are “…earned within the airport fence stay within the airport fence”

In addition, land on or near the airport should considered for non noise sensitive / aviation compatible developments including:

- Cemeteries
- Golf Courses
- Race Tracks
- Amusement Parks
- Manufacturing / Light Industrial

The Guide suggests that a successful airport is not necessarily one which has scheduled services – but one which is simply active from an air traffic point of view.

4 Stakeholder Input

4.1. Introduction

As mentioned in Section 1, a key component of this study is the consultation of key stakeholders involved directly or indirectly in the existing and future operations at the Cold Lake Regional Airport.

Highlights of the stakeholder inputs are included in this section with comprehensive stakeholder inputs included in Appendix A.

4.2. Cold Lake First Nations

Cold Lake First Nations have an indirect stake in the Cold Lake Regional Airport primarily due to its location, adjacent to Reserve 149B, a 4,134 hectare reserve that has a very small population and is primarily used for traditional use (camping, hunting).

Despite its location, CEN5 has generally been “out of sight – out of mind”. Although there are some opportunities for the Band to explore activities in conjunction with the airport, they also advised that there is potential for oil and gas development on this reserve which could require coordination with future growth plans at CEN5.

Therefore, any major development at CEN5 would be subject to consultation with the Band.

4.3. Chamber of Commerce / EDAC

A combined meeting was held with the Cold Lake Chamber of Commerce and Cold Lake's Economic Development and Advisory Committee (EDAC).

Agreement was that CEN5 should remain small and focus on General Aviation and small corporate aircraft operations. The EDAC noted that they get weekly enquiries about scheduled air service to the region and this should therefore be a priority but likely at CFB Cold Lake.

Discussions of an Airpark concept should also be explored for CEN5. The Airpark concept involves residential development, with aircraft parking incorporated into each dwelling unit – usually in the form of an attached hangar. Each dwelling unit / hangar would have taxiway access to the airfield system.

4.4. MD of Bonnyville

The Municipal District (MD) of Bonnyville considers that it takes a "hands off approach" to anything aviation related especially considering that aviation is a Federal jurisdiction.

The MD therefore only gets involved at CEN5 through the approval of Development Permits (DP) and Building Permets (BP). It was however noted that although no formal off-site protection is in place in regards to compatible land-use planning at CEN5, the Bonnyville Airport does have these types of protection mechanisms in place and are enforced.

4.5. Town of Bonnyville

The Town of Bonnyville owns and operates the Bonnyville Airport. They noted a significant growth in traffic over the last 3-4 years primarily driven by oil and gas operations.

The airport is moving towards certification which would allow scheduled services to operate at the airport. An expansion program is in place and will hopefully allow the airport to become increasingly financially self-sufficient which is not the case currently. It was noted that it is the indirect economic impacts associated with the airport and the related benefits for the community that are a key driver behind the operation and expansion of the airport.

FIGURE 4-1 - BONNYVILLE AIRPORT

4.6. Cold Lake Regional Airport Association (CLRAA)

The CLRAA offered a detailed overview of activities at the airport which include General Aviation, Charters and Tourisms. It was felt that CEN5 could become home to additional aviation support activities such as additional hangar development, avionics, MRO (Maintenance, Repair and Overhaul) operations and paint shops. All could be compatible with a long term development strategy at the Cold Lake Regional Airport. The CLRAA felt that there is an opportunity to tap into the skills of trained aviation personnel who may be retiring from 4 Wing Cold Lake.

In general terms, the CLRAA could see the focus of CEN5 being based on supporting General Aviation, charter and tourism operations. They could see the Bonnyville Airport remaining a hub for oil and gas related activities.

The CLRAA currently functions as the fuel provider at CEN5, with fuel sales acting as the Association's main source of revenue. The City of Cold Lake gets a portion of the fuel sales (5 cents per litre of fuel sold).

A key aspect of existing operations at CEN5 is that movements are tracked voluntarily and statistics are therefore unreliable.

4.7. 4 Wing Cold Lake

The consultations with 4 Wing Cold Lake were a highlight of this process as the vision for the development of CEN5 has to ensure compatibility with operations at the Base.

The Base agreed that the planning for CEN5 should be performed as a sub-system to the region's aviation infrastructure which includes the CFB Cold Lake and the Bonnyville Airport as well.

Key principles currently sought by the Base include the need to avoid competition with civilian airports, to allow scheduled service on the base as long as it does not impact day to day operations of the Base and to redirect any small single engine traffic to CEN5.

The Base made it clear that it will support the community in ways that are compatible with military activities and this includes making the Medley Terminal, a facility built by the Province for civilian purposes, available for civilian operations but with the understanding that military operations take priority as need be. This also includes welcoming mid to large size civilian charter traffic (including Oil and Gas).

Overall, the Base feels that the current operations at CEN5 are compatible especially in regards to the training area ("the box") which meshes nicely with 4 Wing operations.

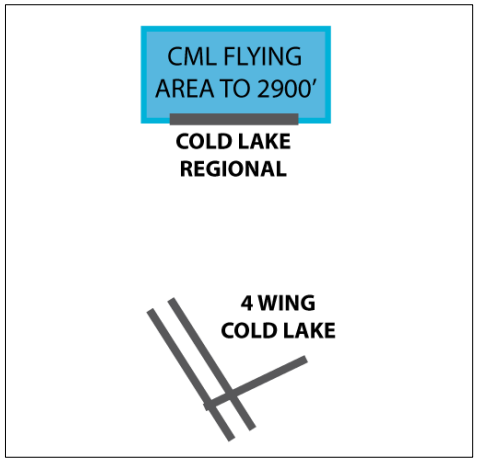


FIGURE 4-2 - CEN5 TRAINING CIRCUIT (THE BOX)

FIGURE 4-3 - MEDLEY TERMINAL AT 4 WING COLD LAKE

4.9. Northwestern Air

Northwestern Air was the sole scheduled air service operator in the region, operating twice a week from CFB Cold Lake's Medley Terminal. It pulled the service out during the course of this study after noticing a significant drop in load factors over their 2 year period (12/13 down to 2/3).

The main issue identified by Northwestern Air for the failure of this route was a typical requirement in Oil and Gas safety audits which requires staff to fly in younger fleet. At 20 year old, the BAE Jetstream J32 used by Northwestern Air was deemed inappropriate to allow staff to fly using this airline.

4.10. North Cariboo

North Cariboo currently operates charter services to the Bonnyville Airport. They appreciate the quality of the infrastructure at the CFB Cold Lake but had the impression that the base was closed to charter aircraft especially since previous request for access were being forward to Ottawa for review. The only approved PPR (Prior Permission Required) approved over the years were for base business only.

Cariboo knows that there is a market in Cold Lake but would not consider flying at the Cold Lake Regional Airport which it feels has a runway that is too short with poorly maintained infrastructure, especially in winter. It sees the role of CEN5 as a local aerodrome for small General Aviation and private aviation.

North Cariboo has expressed interest in getting engaged into discussions about providing scheduled service at the CFB Cold Lake.

4.11. Alberta Infrastructure

Alberta Infrastructure is responsible for the two Provincial sites immediately adjacent to CEN5. The most westerly site was formerly used as a highway maintenance yard, however it is no longer active. The former use of the site has no relationship to the airport and was likely developed when the airport was Provincially owned and operated. The site is contaminated as a result of previous salt storage, but is under remediation.

Alberta Sustainable Resources (Fish and Wildlife) operate out of the Provincial site to the east. There is an office building on site along with accessory buildings and outdoor storage.

FIGURE 4-4 - INFRASTRUCTURE SITES ADJACENT TO CEN5

4.12. Transport Canada

Transport Canada was contacted with regard to the current operation of CEN5. (note: during the course of this Study, the status of CEN5 changed from a Certified Aerodrome to a Registered Aerodrome. Further discussion on this aspect of airport operations is included in Section 6 of this report.)

In general terms, airport certification is associated with airports that receive scheduled service, and is intended to ensure a high level of safety and compliance with regulatory requirements. Some of the typical certification requirements include the following:

- A regularly updated Airport Operations Manual (AOM);
- Annual inspections by Transport Canada
- Wildlife Management Control Plan;
- Emergency Response Plan;
- SMS Compliance (Safety Management System)

SMS compliance can be particularly onerous for a small airport. The need to comply with this requirement was one of the major reasons the City of Cold Lake made the decision to change the status of CEN5 to a Registered Aerodrome.

In contrast, Registered Aerodromes, while still required to comply with appropriate aviation regulations, do not have to meet the above requirements. They are typically only inspected by Transport Canada when a safety concern is identified.

4.13. Province of Alberta Oil Sands Secretariat

In the latter stages of this Study, The City of Cold Lake recommended that contact be made the with the Oil Sands Secretariat relative to the Comprehensive Regional Infrastructure Sustainability Plan (CRISP) that is being prepared for the Cold Lake Oil Sands region. This year long initiative is just commencing. One of the many areas that the Study will address will be all modes of transportation for the region, including aviation infrastructure.

With regard to the provision of infrastructure, the general approach that CRISP will undertake will be to review where people live in the region, and where the employment is located. This will help determine where facilities should be. One of the key objectives of CRISP will be to avoid an overlap in services / facilities.

The Oil Sands Secretariat indicated that they are interested in seeing the results of the CEN5 Business Plan.

5 Benchmarking of other CFB's

5.1. 3 Wing CFB Bagotville

CFB Bagotville is a military airport located in Saguenay, Quebec. It is a smaller equivalent to CFB Cold Lake on the East Coast as it is home of the 425 Tactical Fighter Squadron, a CF-18 operator. Bagotville is also identified as a future base for the new F-35 fighter jet.

The airport is operated by the Department of National Defense whilst the civilian terminal is operated by the City of Saguenay (highlighted in red on the figure below). Civilian operations on the base include Air Canada Jazz (Montreal), Pascan (St-Hubert) and sun charters (Sunwing, Canjet).

There are limited international flights allowed into CFB Bagotville with a maximum of 15 seats per aircraft. Therefore, Sunwing currently lands in Quebec City to clear customs and immigration for passengers going onwards to Bagotville.

FIGURE 5-1 3 WING CFB BAGOTVILLE AIRPORT LAYOUT

5.2. 9 Wing CFB Gander

CFB Gander is located in Gander, Newfoundland. Unlike other airports benchmarked, this airport is operated by the Gander Airport Authority on crown land. The Department of National Defense leases land for military purposes. As such, the airport operates as a typical civilian airport and preserves an important role in offering services to aircraft operating technical stops.

Although passenger services are currently limited to Air Canada, Air Canada Jazz and some charter services, there are no restrictions on inbound international immigration and customs.

FIGURE 5-2 - 9 WING CFB GANDER AIRPORT LAYOUT

5.3. 19 Wing CFB Comox

CFB Comox is located near Comox on Vancouver Island, British-Columbia. The airport is operated by the Department of National Defense but a civilian terminal is operated by the Comox Valley Airport Corporation (highlighted in red). Civilian air service operators on the base include Central Mountain Air, Westjet, Pacific Coastal, Island Express and Canjet.

There are limited international flights allowed into CFB Comox with a maximum of 15 seats per aircraft. Therefore, international flights currently land in Calgary, Vancouver or Edmonton to clear customs and immigration for passengers going onwards to Comox.

FIGURE 5-3 - 19 WING CFB COMOX AIRPORT LAYOUT

5.4. 5 Wing CFB Goose Bay

CFB Goose Bay is located in the town of Happy Valley-Goose Bay, Newfoundland and Labrador. The airport is operated by the Department of National Defense with a civilian terminal operated by the Goose Bay Airport Corporation (highlighted in red)

There are limited international flights allowed into CFB Goose Bay with a maximum of 15 seats per aircraft.

FIGURE 5-4 - 5 WING CFB GOOSE BAY AIRPORT LAYOUT

5.5. Williamtown RAAF

Williamtown RAAF is an airport located north of Sydney, Australia and is operated by the Australian Department of Defense. It is currently a F/A-18 Base with upgrade to F-35 foreseen from 2013 onwards.

A civilian terminal is operated by Newcastle Airport Limited (highlighted in red), a not-for-profit corporation owned by nearby shires. In addition to the terminal it also leases a significant portion of the south-western edge of the airfield for commercial purposes. Extensive commercial and aviation compatible developments are undertaken in this civilian precinct, including heavy maintenance of military equipment by contractors such as BAE Systems. Canadian F/A-18 are actually maintained at this site.

Civilian air services have surged over the last 5 years thanks in large part to the growing trend towards low-cost carriers and despite a cap of 6 departures per hour imposed by the Department of Defense. Furthermore, the base does close to civilian operations periodically and operators must carry additional fuel when bound for Newcastle Airport to allow for significant delays due to military exercises or operations.

There are limited international services in place with plans for growth in that sector assuming that this is accepted by the Department of Defense.

FIGURE 5-5 - WILLIAMTOWN RAAF AIRPORT LAYOUT

5.6. Benchmarking Conclusions

This benchmarking review has highlighted several similarities between CFB Cold Lake and other Canadian Forces Bases as well as International military bases.

It shows that civilian aviation operations can exist harmoniously on military bases. Some sporadic disruptions to scheduled service appear to be generally accepted by the public, with the understanding that the main role of the military base is to ensure the sustainability and prioritization of military operations.

The City of Cold Lake is blessed with two airports, one of which can handle the largest civilian aircraft operating today. The experience elsewhere has been that it is not worth duplicating expensive infrastructure for the purpose of segregating military and civilian operations, especially where civilian operations – such as scheduled or chartered air service - are performed at a relatively low frequency.

6 Certified vs. Registered Airport

6.1. Certified Airports

Transport Canada has the responsibility for the development and operation of a safe national air transportation system. Therefore, airports supporting passenger-carrying commercial operations must meet accepted safety standards. An airport certificate testifies that an aerodrome meets such safety standards. Where exemptions from airport certification safety standards are required, studies will be undertaken to devise offsetting procedures, which will provide equivalent levels of safety.[1]

Airports must be certified when:

- It is located within the built-up area of a city or town;
- It is used by an air operator for the purpose of a scheduled service for the transport of passengers; and
- The Minister is of the opinion that it is in the public interest for that aerodrome to meet the requirements necessary for the issuance of an airport certificate.

An airport can be certified even if it does not need to. This will usually be performed to maintain higher diligence in ensuring safety and to attract scheduled air services.

Currently in Alberta, 24 out of 175 airports are certified. The majority of these airports are certified because they have scheduled services or recently had such as service that they may be attempting to attract again.

Airlines	Airports
Air Canada	Medicine Hat, Lethbridge, Fort McMurray, Grande Prairie, Edmonton, Calgary
Central Mountain Air	Lloydminster, High Level, Rainbow Lake
Northwestern Air	Fort Chipewyan, Edmonton, Calgary, Fort McMurray
Swanberg Air	Red Deer, Edmonton, Calgary, Fort McMurray
Nor-Alta	Vermilion, High Level, Fort McMurray
NorthernAir	Peace River

TABLE 6-1- CERTIFIED AIRPORTS – AIR SERVICES

[1] TP 14371 - Transport Canada Aeronautical Information Manual

6.2. Registered Airports

Registered airports are the vast majority of community and small airports in Alberta. They require the operator to provide the necessary information respecting location, markings, lighting, use and operation of the aerodrome.

In addition to the initial application inspection, there are only periodic inspections from Transport Canada and there is no need to maintain an Airport Operations Manual or comply with SMS (Safety Management System) requirements – which as mentioned in Section 4-12 - can be onerous for a smaller airport. The registration requirements are therefore better suited, more administratively palatable and thus far less expensive compared to the requirements associated with certification.

6.3. Recommendations

We suggest that there is no real benefit behind having CEN5 certified, especially considering that there are no scheduled services operating out of the facility, and the fact that some potential corporate users' safety audits have identified the airport as being unreliable and not safe enough despite having the airport certified.

(Note: during the course of this Study, The City of Cold Lake made the decision to change the classification of CEN5 to being a Registered Aerodrome.)

7 Development Options

7.1. Introduction

As part of the planning process, a number of development options were considered for CEN5. They can be broadly grouped into the following categories and associated options:

Downgrade Options

- Airport closure and divestment
- Grass Strip

Status Quo

- No Scheduled Service
- Scheduled Service

Upgrade Options

- New Central Mountain Air/North Cariboo Service (B1900 compatible)
- New Air Canada Jazz Turboprop Air Service (Dash8 compatible)
- New Jet Air Service (CRJ200/B738 compatible)

7.2. Downgrade; Airport Closure and Divestment

This option would see CEN5 closed and sold.

Pros

- No longer a liability to the City of Cold Lake
- Release of operations and maintenance responsibilities
- Potential land sale, and one time revenue injection for the City

Cons

- Extensive demolition and site remediation work required; associated costs may be as much as – or could exceed - restoration costs
- Termination of leases required; and associated costs
- Termination of any direct involvement with aviation, loss of training facility in the Cold Lake Region

7.3. Downgrade; Grass Strip

This option would see the paved runway decommissioned and replaced with a grass strip for VFR operations.

Pros

- Maintenance requirements are cheaper

Cons

- Lowers the potential to attract new tenants / users who may require a paved operating surface
- Lower level of service provided to both existing and future tenants and users
- Significant construction work required for the new grass strip
- Potential demolition of the existing runway required
- Lose ability to handle scheduled services in the future

7.4. Status Quo; No Scheduled Service

This option would see the Airport retain its current status as a registered 2B aerodrome with a paved 914.4m (3,000 foot) runway.

Pros

- Maintains the existing level of service for current tenants and users
- Protects ability to attract certain charter services, albeit by a limited range of aircraft
- Protects ability to attract a scheduled air service or accommodate scheduled service albeit by a limited range of aircraft, should 4 Wing no longer be an option

Cons

- Existing runway requires restoration; funding required
- Additional funding may be required to improve other facilities (airfield lighting, terminal building, car parking, etc.)

7.5. Status Quo; Scheduled Air Service

As per section 7.4, this option sees the Airport retain its Code 2B status with it existing 914.4m (3,000 foot) runway. However, in this option the Airport would receive a new scheduled Air Service capable of operating off the existing runway (i.e. using a Code 1B aircraft (PC-12, C208B, Beechcraft King Air, etc.)

Pros:

- Maintains the existing level of service for current tenants and users
- Secures a scheduled service for the City of Cold Lake which make use of the existing runway
- Additional development opportunities

Cons:

- Existing runway requires restoration; funding required
- Additional funding may be required to improve other facilities (airfield lighting, terminal building, car parking, etc.)
- Non-precision instrument approach may be required for instrument operations and to increase usability of airport
- Runway strip must be widened for Non-precision approach
- Scheduled service has no guarantee of succeeding
- Scheduled service would require airport to re-certify; associated costs related to maintaining an AOM and complying with SMS requirements

7.6. Upgrade; New Central Mountain / North Cariboo Air Service

In this option, the runway would be lengthened to 1,350m (4,430 feet) in order to attract new scheduled air service through the use of the Beechcraft 1900 aircraft. Both Central Mountain Air and North Cariboo currently have this aircraft in their fleet. This runway extension option is shown in Figure 7.1 below.

Pros:

- Allows for a scheduled service for the City of Cold Lake with 19 seat aircraft
- Opens the airport to a wider range of additional development opportunities

Cons:

- Runway extension required to secure service and to maximize range under all conditions (up to 1,350m). Significant capital costs.
- Additional funding will be required to improve other facilities (airfield lighting, terminal building, car parking, etc.)
- Non-precision instrument approach may be required for instrument operations and to increase usability of airport
- Runway strip must be widened for Non-precision approach
- Scheduled service has no guarantee of succeeding
- Scheduled service would require airport to re-certify; associated costs related to maintaining an AOM and complying with SMS requirements

FIGURE 7-1 - 1350M RUNWAY UPGRADE OPTION

7.7. New Air Canada Jazz Turboprop Air Service

Similar to section 7.6, this option would see the runway lengthened to 1,350m (4,430 feet) in order to attract new scheduled air service through the use of the Dash 8 aircraft currently in use by Air Canada Jazz. Due to the classification of these aircraft, however, the runway would also have to be widened to 30m (100 feet). This runway extension and widening option is shown in Figure 7.2 below.

Pros:

- Allows for a scheduled turbo prop service for the City of Cold Lake with 50-70 seat aircraft
- Opens the airport to a wider range of additional development opportunities

Cons:

- Runway extension required to secure service and to maximize range under all conditions (up to 1,350m). Runway would also have to be widened – and strengthened to accommodate heavier aircraft. Significant capital costs.
- Additional funding will be required to improve other facilities. A new terminal building would likely be a requirement, as would upgraded airfield lighting, car parking, etc.
- Non-precision instrument approach may be required for instrument operations and to increase usability of airport
- Runway strip must be widened for Non-precision approach
- Scheduled service has no guarantee of succeeding
- Scheduled service would require airport to re-certify; associated costs related to maintaining an AOM and complying with SMS requirements

FIGURE 7-2 - 1350M X 30M RUNWAY UPGRADE OPTION

7.8. New Air Canada / WestJet Jet Air Service

This option would see the runway lengthened to 2,000m (6,561 feet) in order to attract new scheduled jet air service through the use of the CRJ-200 or B737 aircraft in use by Air Canada and WestJet. In order to accommodate the B737, the runway would have to be widened to 45m. This runway extension and widening option is shown in Figure 7.3 below.

Pros:

- Allows for scheduled jet service for the City of Cold Lake with 70 to 150 seat aircraft
- Opens the airport to a wider range of additional development opportunities

Cons:

- Significant runway extension required to secure service and to maximize range under all conditions (up to 1,350m). Runway would also have to be widened – and strengthened to accommodate heavier aircraft. Significant capital costs (previous studies prepared in 2006 estimated costs to be in the range of $18.9 million for the CRJ-200 and $36.5 million for the B737)
- Runway extension is at limit of airport property boundary
- Additional funding will be required to improve other facilities. A new terminal building would be a requirement, along with a larger apron. Significant upgrades to other systems such as airfield lighting, car parking, ERS would also be required.
- Non-precision instrument approach would be required for instrument operations and to increase usability of airport
- Runway strip must be widened for Non-precision approach
- Scheduled service has no guarantee of succeeding
- Scheduled service would require airport to re-certify; associated costs related to maintaining an AOM and complying with SMS requirements

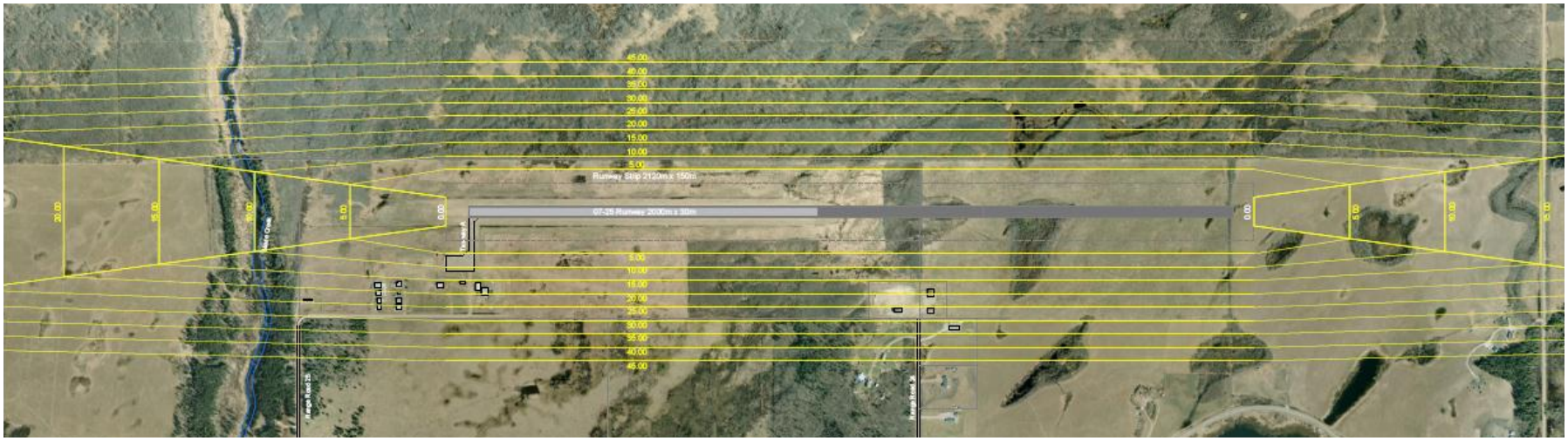


FIGURE 7-3 - 2000M X 45M RUNWAY EXPANSION OPTION

8 Aircraft Performance Assessment

8.1. Introduction

This section is aimed at presenting the specifications and performance of a range of typical aircraft likely to operate in Alberta and the Cold Lake region. In addition to some basic information, the aerodrome reference field length and corrected field length under local prevailing conditions is included in order to assess the compatibility of each aircraft with the existing and proposed airside facilities at the Cold Lake Regional Airport.

8.2. Aerodrome Reference Field Length (ARFL)

The ARFL is the minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope.

The determination of the aeroplane reference field length is solely for the selection of a Code number and must not be confused with runway length requirements, which are influenced by other factors.

The corrected field length provides a more accurate assessment of the runway length requirements of aircraft based on critical local conditions such as temperature, elevation and runway gradient. The assumptions used in correcting runway length at the Cold Lake Regional Airport are as follows.

Temperature

The airport reference temperature is defined as the average of the maximum daily temperatures achieved during the hottest month of the year. For Cold Lake Regional Airport, the data used is from the CFB Cold Lake and is 22.9°C

The standard day temperature has been defined as 15°C at sea level. Based on Standard Atmosphere values, that temperature is correct to 11.5°C to account for altitude (544m).

Based on differential of 11.4 °C, the aerodrome reference field length will be increased by 11.4% (1% for each °C) as recommended by ICAO.

Elevation

Elevation will affect aircraft performance as the air gets thinner hence requiring additional runway length in order to get the appropriate lift.

ICAO recommends an increase of 7% per 300m elevation above sea level to account for this effect. At Cold Lake Regional Airport (544m elevation) this equates to a 12.7% runway length increase.

Slope

Although slope was not considered in the present assessment, it should be considered as the airfield goes through further design.

Corrections

Overall, this indicates that although Cold Lake Regional Airport is equipped with a 914m long runway, it would equate to an Aerodrome Reference Field Length of approximately 728m.

8.3. Aircraft Specifications

The following tables describe the specifications and performance for a range of aircraft types likely to operate in Canada and in the Cold Lake region.

Specifically, these tables assess the runway length required based on operations at Maximum Take-Off Weight, assuming calm winds and assuming the previous correction factors based on critical environmental conditions. In practice, this suggests that aircraft will be able to operate on a shorter runway assuming that restrictions on the aircraft load are introduced (passengers, cargo and/or fuel).

The compatibility of each aircraft with each runway scenario is presented using the following convention:

8.4. Observations

These tables confirm the fact that the existing runway is suitable primarily for Code 1 aircraft types. An extension of the existing 914m long runway to roughly 1,350m would generally provide unrestricted operations for most Code 2 aircraft with some payload penalties for specific types. An extension to 2,000m would generally provide unrestricted operations for most Code 3 aircraft but would require significant payload penalties for Code 4 aircraft. This is not to say that a 2,000m long runway would not be compatible with a A320/B737 type aircraft but it would limit operations to short haul trips (e.g. Edmonton, Fort McMurray and Calgary).

All information contained in this section is not aimed at replacing formal assessments to be performed by the operator based on the exact individual aircraft specifications.

Legend	
65%	If the corrected aeroplane field length exceeds the proposed runway length option by over 50%, it is assumed to be incompatible even under payload restricted scenarios.
11%	If the corrected aeroplane field length exceeds the proposed runway length option by up to 50%, it is assumed to be potentially compatible under payload restricted scenarios that will vary based on the extent of the runway length excess.
OK	If the corrected aeroplane field length is less than the proposed runway length option, it is assumed to be fully compatible

AEROPLANE TYPE (CODE 1)	REF CODE	AEROPLANE CHARACTERISTICS							
		MTOW (kg)	Seats	Engine Type	ARFL (m)	Corrected Runway Length (m)	Option 1 Status Quo 914m	Option 2 1350m	Option 3 2000m
DHC2 Beaver	1A	2490	6	Single-Piston	381	480	OK	OK	OK
Beechcraft 58 (Baron)	1A	2449	5	Twin-Piston	701	890	OK	OK	OK
Beechcraft KingAir 100	1A	5352	13	Twin-Prop	628	790	OK	OK	OK
Britten Norman Islander	1A	2850	9	Single-Piston	353	450	OK	OK	OK
Cessna 172	1A	1066	3	Single-Piston	272	350	OK	OK	OK
Cessna 206	1A	1639	5	Single-Piston	274	350	OK	OK	OK
Cessna 310	1A	2359	4	Twin-Piston	518	660	OK	OK	OK
Cessna 404	1A	3810	10	Twin-Piston	721	910	OK	OK	OK
Piper PA 31 (Navajo)	1A	2950	7	Twin-Piston	639	810	OK	OK	OK
Piper PA 34 (Seneca)	1A	1814	5	Twin-Piston	378	480	OK	OK	OK
Piper PA-31T Cheyenne II	1A	4082	6	Twin-Prop			OK	OK	OK
Piper PA-31-350 Chieftain	1A	3200	8	Twin-Piston			OK	OK	OK
Piper PA-39 Twin Comanche	1A	1690	6	Twin-Piston			OK	OK	OK
Cessna 208B	1B	3970	9	Single-Prop			OK	OK	OK
Pilatus PC-12	1B	4740	9	Single-Prop	701	890	OK	OK	OK
Beechcraft KingAir 200	1B	5670	13	Twin-Prop	592	750	OK	OK	OK
Cessna 208A (Caravan)	1B	3310	10	Single-Prop	296	380	OK	OK	OK
Cessna 402C	1B	3107	9	Twin-Piston	669	840	OK	OK	OK
Cessna 441	1B	4468	10	Twin-Prop	544	690	OK	OK	OK
DHC 6 Twin Otter	1B	5670	19	Twin-Piston	695	880	OK	OK	OK
Dornier 228-200	1B	5700	19	Twin-Prop	525	660	OK	OK	OK
DHC-7	1C	19505	50	Quad-Prop	689	870	OK	OK	OK

TABLE 8-1 AIRCRAFT SPECIFICATIONS (CODE 1)

AEROPLANE TYPE (CODE 2)	REF CODE	AEROPLANE CHARACTERISTICS							
		MTOW (kg)	Seats	Engine Type	ARFL (m)	Corrected Runway Length (m)	Option 1 Status Quo 914m	Option 2 1350m	Option 3 2000m
Lear Jet 28/29	2A	6804	4/8	Twin-Jet	912	1150	26%	OK	OK
Beechcraft 1900	2B	7530	19	Twin-Prop	1098	1380	51%	2%	OK
Embraer EMB110	2B	5670	19	Twin-Prop	1199	1510	65%	12%	OK
Metro II	2B	5670	19	Twin-Prop	800	1010	11%	OK	OK
Metro III	2B	6577	19	Twin-Prop	991	1250	37%	OK	OK
ATR 42-200	2C	16150	50	Twin-Prop	1010	1270	39%	OK	OK
Cessna 550 (II / Bravo)	2C	6033	8	Twin-Jet	912	1150	26%	OK	OK
Dash8-100	2C	15650	37	Twin-Prop	948	1200	31%	OK	OK
Dash8-300	2C	18642	50	Twin-Prop	1122	1410	54%	4%	OK

TABLE 8-2 AIRCRAFT SPECIFICATIONS (CODE 2)

FIGURE 8-1 BEECHCRAFT 1900

FIGURE 8-2 METRO 23

FIGURE 8-3 DASH-8

AEROPLANE TYPES (CODES 3 & 4)	REF CODE	AEROPLANE CHARACTERISTICS							
		MTOW (kg)	Seats	Engine Type	ARFL (m)	Corrected Runway Length (m)	Option 1 Status Quo 914m	Option 2 1350m	Option 3 2000m
Lear Jet 55	3A	9298	10	Twin-Jet	1292	1630	78%	21%	OK
Canadair CL600	3B	18642	19	Twin-Jet	1737	2190	140%	62%	10%
Canadair CRJ-200	3B	21523	50	Twin-Jet	1527	1920	110%	42%	OK
Cessna 650 (Citation III)	3B	9979	11	Twin-Jet	1581	1990	118%	47%	OK
Dassault-Breguet Falcon 900	3B	20640	19	Twin-Jet	1515	1910	109%	41%	OK
Embraer EMB 145	3B	19200	50	Twin-Jet	1500	1890	107%	40%	OK
Metro 23	3B	7484	19	Twin-Prop	1341	1690	85%	25%	OK
BAE Jetstream 31	3C	6950	19	Twin-Prop	1440	1810	98%	34%	OK
BAE Jetstream 41	3C	10433	29	Twin-Prop	1500	1890	107%	40%	OK
Bombardier Global Express	3C	42410	19	Twin-Jet	1774	2230	144%	65%	12%
Embraer EMB 120	3C	11500	30	Twin-Prop	1420	1790	96%	33%	OK
Embraer EMB 170	3C	37200	70	Twin-Jet	1600	2010	120%	49%	1%
SAAB SF-340	3C	12371	34	Twin-Prop	1220	1540	68%	14%	OK
Bombardier Dash 8 - Q400	3D*	29000	72	Twin-Prop	1354	1700	86%	26%	OK
Airbus A320-200	4C	72000	177	Twin-Jet	2058	2590	183%	92%	30%
Boeing B737-300	4C	61230	149	Twin-Jet	2749	3460	279%	156%	73%
Boeing B737-800	4C	70535	177	Twin-Jet	2256	2840	211%	110%	42%
Embraer EMB 190	4C	51800	90	Twin-Jet	2110	2650	190%	96%	33%

TABLE 8-3 AIRCRAFT SPECIFICATIONS (CODE 3/4)

As a cross reference to Table 8-1, and the aircraft that can currently operate out of CEN5's 914.4 m (3,000 foot) runway, a cursory review of the fleets of regionally based charter operators was undertaken. The following listings include the names of charter companies, and the aircraft they have in their respective fleets which could operate out of CEN5 – based on the current runway length available.
The listing is provided for illustrative purposes only.

North Cariboo Air

- Beechcraft King Air 100
- Beechcraft King Air 200

Sunwest Charters

- Beechcraft King Air 200

Integra Air

- Piper Cheyenne II

Swanberg Air Inc.

- Piper Navajo

Bar XH Air Inc.

- Piper Chieftain
- Beechcraft King Air 200

Airco

- Piper Chieftain
- Beechcraft King Air 100

Wetaskiwin Air Services

- Piper Twin Commanche

Central Aviation Inc.

- Piper Seneca
- Piper Navajo
- Piper Chieftain

McMurray Aviation

- Cessna Grand Caravan
- Cessna 206
- Cessan 172

Transwest Air

- Beechcraft King Air 100
- Beechcraft King Air 200
- DHC-6 Twin Otter
- Piper Navajo
-

In addition, the Province of Alberta operates a fleet which includes the Beechcraft King Air.

9 Business Plan

9.1. CEN5 Role Statement

The purpose of a Role Statement for an airport is to help place a focus on the type of aviation activity that is intended to occur at the facility. It acts as an overall guide for future development by providing a focus on the planned types of aviation activity that will be accommodated at the aerodrome. The Role Statement for CEN5 (below) has been developed based on the stakeholder feedback received through the course of this study.

The Role of CEN5 is to act as a base for private and recreational flying in the Cold Lake region, and to support general and corporate aviation users whose fleet of aircraft can safely operate off of the existing 3,000 foot runway. In addition, CEN5 will act as a home for flight training and other aviation related uses appropriate for an airport of its category. Such uses could include Aircraft MRO (Maintenance, Repair and Overhaul) and Avionics Repair.
The role of CEN5 is also linked to YOD, in that CEN5 acts as a reliever to 4 Wing Cold Lake by providing a home base for the local aviation community, for small general aviation aircraft and for other aviation activity that typically would not be allowed to operate at a military base.

9.2. CEN5's Relationship to 4 Wing Cold Lake (YOD)

YOD's primary purpose is – first and foremost - to act as a military base for Canada's largest jet fighter wing and associated military activity. In regard to civilian aviation activity, with three runways having lengths ranging from 8,300' to 12,600', it is capable of handling any of the larger civilian aircraft that will need access the region. This attribute, combined with the base's immediate proximity to the City of Cold Lake and the fact that the Medley Terminal can be made available for civilian use, makes YOD the logical choice for larger civilian aircraft; be they charters, scheduled services or medi-vacs.

CEN5's land base has been established to facilitate significant runway extensions. With the facilities at YOD, such extensions are not necessary or advisable at CEN5 for the foreseeable future. However, options for expansion of the airfield should be kept open – but only as a fall-back position for the City of Cold Lake should civilian service at YOD not be permissible. (Based on the input provided from 4 Wing

Cold Lake as part of this study, such an event would appear to have a very low probability).

9.3. Guiding Principles

Moving forward with the business plan for the Cold Lake Regional Airport, it must be assumed that the operation is likely to represent an ongoing cost to the City of Cold Lake, at least in the short term. With that in mind the business plan is based on three "pillars" representing guiding principles or strategic directions.

First, it is important that the airport be maintained and operated as efficiently and effectively as possible, and that the facility provide the infrastructure which is appropriate for the role of the airport within the region.

Second, every reasonable opportunity to generate revenue should be considered with a view to minimizing the net cost to the community.

Finally, the community needs to utilize the airport system in the region to attempt to attract more air service to the City of Cold Lake, including scheduled service, charter operations, private and corporate traffic, as well as recreational, training, and other "General Aviation" activity. There is an opportunity to market the system of airports such that the community benefits from the additional service, and the secondary economic activity - all contributing to the economy of the City, and to the economics of operating CEN5

Building on the Role Statement, the following key Guiding Principles have been prepared for CEN5. These guiding principles provide a high level framework for the airport, its operations and future development.

- Safety and reliability are recognized as being paramount in all aspects of the operation and development of CEN5;
- The focus of the future development of CEN5 will be to support general aviation activities associated with smaller aircraft capable of operating out of a category 2B aerodrome;
- In cooperation with 4 Wing Cold Lake, any future scheduled air service and mid to large size charter operations that wish to operate into Cold Lake will be directed to YOD and the Medley Terminal;
- The City of Cold Lake will continue to reserve the land to the east of the existing airfield for future runway extension, but will entertain interim uses on the land as may be deemed appropriate;
- While CEN5 has reverted to Registered status as an airport, the facility will be maintained at a level which will allow for it to be easily re-certified in the future, should it ever be necessary.

9.4. Business Plan Overview

The Business Plan for CEN5 is based on 3 pillars, as follows:

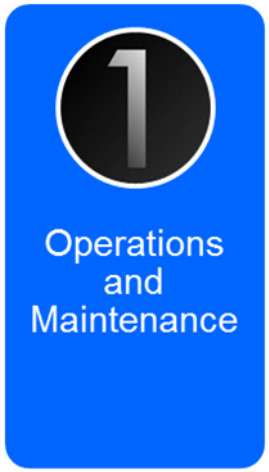
- Operations and Maintenance
- Drive Revenue Opportunities
- Marketing and Branding

Together, the 3 pillars are intended to support the role of the airport within the community. Their underlying purpose is to assist the City of Cold Lake focus their efforts as they relate to the future of CEN5.

Furthermore, the Business Plan is based on maintaining the "Status Quo – No Scheduled Service" option discussed in Section 7.4 of the report. This implies that the existing airport category (2B) is maintained, and that the existing runway length and width are also maintained for the foreseeable future (i.e. no runway extensions are anticipated as part of the Business Plan.).

FIGURE 9-1 - THE 3 PILLARS OF THE CEN5 BUSINESS PLAN

9.5. Pillar 1: Operations and Maintenance



The first pillar of the Business Plan is focused on ensuring that CEN5 will be recognized as a safe and reliable airport by both existing and potential future users. Very little maintenance on the facility has occurred since the airport was developed by the Province of Alberta in the late 1970's. Moving into the future, it will be imperative that the airport pavements be properly maintained, along with other key subsystems such as airfield lighting, snow removal and wildlife control. Thus, one of the key components of the Business Plan is a reinvestment plan for the facility, with an emphasis on the airport's operations and maintenance.

The first component of the business plan involves the nature of the facility and its operation and function. In recognition of the airport's role in the system, it is not reasonable to expect that large aircraft or scheduled service would utilize the facility. It is clear that the Canadian Forces Base is the airport of choice for any significant commercial aviation activity, as long as the volume of such traffic doesn't unreasonably burden that facility. It is very unlikely that will occur in the foreseeable future. Accordingly, the regional airport should not be concerned about catering to that traffic. Logically, that implies that CEN5 should

- Move forward on the basis of "Status Quo" rather than significantly expanding its capacity and facilities, and specifically it should maintain the existing runway length and existing category (2B) for the foreseeable future;
- Protect for a future non-precision instrument approach. There are "off-site" implications to dealing with this long-term objective, particularly the maintaining of obstacle limitation and approach surfaces on adjoining lands as well as on the airport itself;
- Maintain the option of extending runway, although again this would represent a very long term consideration;
- Drop the Certification status (as has already been undertaken) but be prepared to re-certify the facility if it becomes appropriate in the future;
- In the meantime, focus financial resources on maintenance and restoration projects;
- Develop a 5 Year Capital Program for CEN5 with an initial focus on
    - Runway Rehabilitation
    - Lighting System
    - Snow Removal Program
    - Wildlife Control Program

The focus of these operational and investment considerations is to enhance the attractiveness of the airport to its target users. It is important that the airport be seen as reliable, safe, and convenient.

Airport Pavement Restoration Program

Not unlike other infrastructure assets, airport pavements require routine maintenance and rehabilitation on an on-going basis. Unfortunately, in the case of CEN5, and based on the information provided, it appears that the airport's pavements have not been maintained since the airport was developed by the Province of Alberta in the 1970's. This has resulted in the need to undertake a significant restoration project.

The pavement life cycle curve shown below has been developed by the Federal Aviation Administration (FAA) in the United States. In simple terms, it illustrates the importance of maintaining airport pavements – and suggests an optimum time to invest in the rehabilitation. As stated by the FAA:
"The intent of the maintenance program is to keep the condition of the pavement high with the least amount of expenditures. Timely maintenance can renew the pavement condition and prolong the life of the pavement. The benefit of the maintenance program is determining the optimum time to effectively apply funds. As seen in Figure 1, it is cheaper to apply limited funds to a pavement when the condition is relatively good rather than applying additional funds to improve the condition from a lower value."

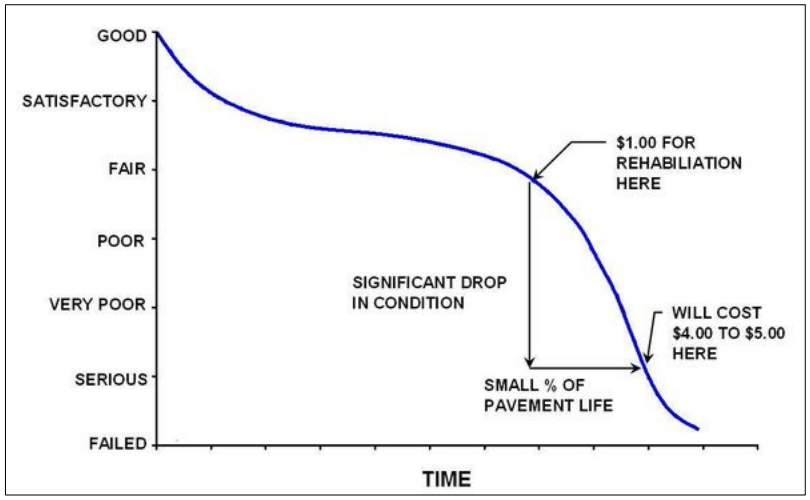


FIGURE 9-2 PAVEMENT LIFE CYCLE

The first collection of action items under the Operations and Maintenance Pillar relates to the airside pavements, as follows:

- Undertake pavement rehabilitation project – with funding provided through the Province of Alberta's Community Airport Program, (CAP). Note: a concerted lobby effort on behalf of the City may be required in order to enhance the visibility of the project on the Province's funding priority list. Based on estimates prepared by the City of Cold Lake's Engineering Department, it is estimated that the total cost of the restoration project – including contingency – is approximately $1.55 million.
- Create an airport pavement maintenance management program for the airport, or integrate the airport pavements into an existing pavement management program that may exist in the City. This action item will include the following sub-tasks:
  - Create of an inventory of the airport pavements;
  - Maintain accurate records of maintenance and restoration of the pavement;
  - Develop a regular maintenance schedule for airport pavements
  - Integrate an annual restoration program, tied to a City-wide pavement restoration program (note: the City should strive to apply preventative measures and make necessary repairs to the pavements at CEN5 on an annual basis.)

In addition to the creation of a pavement inventory, it is also recommended that the City develop a comprehensive set of record drawings for the airport. This would include not only the pavements at CEN5, but also other surface and sub-surface infrastructure including the airfield lighting system and cabling, drainage and topography, roads, buildings and other structures. Such a record drawing set will act as a key resource for the future operations and maintenance of the airport. In addition, the record drawing set could include plans which would illustrate the Obstacle Limitation Surfaces for CEN5.

Airfield Lighting Restoration Program

CEN5 is currently equipped with an ARCAL (Aircraft Radio Control of Aerodrome Lighting) lighting system. These systems are designed to be activated by the pilot by clicking their microphone a specified number of times on a given radio frequency. The lighting system will then stay on for a specified amount of time (usually 15 minutes), allowing the pilot to land with the aerodrome lighting system activated.

The airfield lighting system at CEN5 consists of Runway End Identifier Lights (REIL) and Runway Edge Lights (Shown below), along with a Field Electric Centre. The lighting system was installed by the Province of Alberta as part of the original construction program for the airport. Like the airfield pavements, it is important to maintain this system.

Since airfield lighting systems and navigational aids are not eligible for funding under the Province of Alberta's Community Airport Program (CAP), it is recommended that the City of Cold Lake look for opportunities to partner with the Cold Lake Regional Airport Association, 4 Wing Cold Lake and other airports in the region with regard to airfield lighting upgrades. A 'purchasing alliance" with other airports may result in more competitive pricing for all airports involved.

In the future, the airfield lighting system could be supplemented with the addition of a

- Visual Approach Slope Indicator (VASI) - or
- Precision Approach Path Indicator (PAPI)

FIGURE 9-3: RUNWAY END IDENTIFICATION LIGHTS AT COLD LAKE

Winter Operations Program

Part III of the CEN5 Airport Operations Manual included a section on winter maintenance. Given that one of the comments received through the stakeholder engagement program was related to the unreliability of the airport – especially in the winter – it is important for the City to enhance its level of service relative to snow removal.

In order to increase the reliability of CEN5, it is recommended that the Winter Maintenance program be continued. The major element of this Program is the snow removal plan that ensures that the runways and taxiways at CEN5 are cleared shortly after any snow event.

While it will be important for the City to work with the Cold Lake Regional Airport Association to determine the acceptable level of service required in this regard, it is recommended that the City incorporate snow removal at CEN5 as part of their overall snow clearing program for the City. When snow removal equipment is active in the northern portions of the City, they should be dispatched to CEN5 for snow clearing at the airport.

The current level of service outlined in the existing AOM calls for the runways, taxiways, and ramp to be cleared within 48 hours following a snowfall in excess of two (2) cm. It is recommended that the City of Cold Lake review this level of service, with an eye toward reducing this to 24 hours.

Snow removal priorities at CEN5 are proposed as follows:

- Priority 1: Runway 07/25 and the itinerant apron;
- Priority 2: Ramp and Taxiway system providing access to hangars.

Stockpile areas for snow (Shown in the image below) should be identified through discussions with the Cold Lake Regional Airport Association; however they should be located well outside of the runway strip.

FIGURE 9-4 SNOW STOCKPILING AREAS

Summer Maintenance Program

The summer maintenance program which has been on-going at CEN5 should be continued in the future. Grass cutting and annual crack sealing and pavement repairs should form part of the on-going program.

Wildlife Control Program

Appendix I of the CEN5 AOM included a Wildlife Management Plan. On a go forward basis, it will be important to keep this Plan up to date.

Any type of wildlife on an airport is typically considered to be a potential safety hazard for aviation activity. Transport Canada encourages airport operators to maintain their facilities in a manner that minimizes this hazard. A starting point for achieving such an objective is the preparation of a wildlife control management plan. Transport Canada's Wildlife Control Procedures Manual (ref) provides the following in this regard:

"A successful wildlife control management plan reduces hazards to aircraft and minimizes maintenance problems by rendering airport

property less attractive to animals. The safety benefits are real for all concerned: airports, airlines, the public – and wildlife.

Airport wildlife can be controlled by:

- Managing habitat so that airports do not attract wildlife,
- Excluding wildlife from airports through the use of fences or other means,
- Dispersing wildlife from the premises, and
- Removing wildlife, either dead or alive." (ref p. A1)

There are a wide variety of practices and methods that can be applied to an effective wildlife control management program. One of the main practices that airports such as CEN5 can undertake is to employ what Transport Canada refers to as "Exclusion Methods". In simple terms, exclusion methods are comprised of man-made barriers – such as fences or netting – that are designed to keep wildlife away from the operational areas of the airport. A properly designed and installed wildlife control fence around the perimeter of the airport would serve to restrict mammal movement on the airport.

Land Use in the Vicinity of the Airport

Another key element of a wildlife control management plan relates to adjacent land use activities. Transport Canada suggests the following:
"Airport operators should communicate with regional and municipal governments as active participants in land-use planning decisions. Where incompatible land uses exist or are being considered, airport operators should work to minimize the adverse effects. Creating education and awareness programs and establishing co-operative working relationships with governments, interest groups, and stakeholders, usually lead to compromises that accommodate all parties."

Minimizing the risk of bird strikes is a key component of any airport wildlife control management program. While there are no water bodies directly on the airport site, they do exist in close proximity to the airport. Areas of standing water on the airport property should be mitigated through the provision of a property designed drainage system. With regard to water bodies in proximity to CEN5, passive wildlife management along with an awareness program for area land owners is recommended. It will be important to develop good working relationships with key stakeholders and land owners in the vicinity of the airport in this regard.

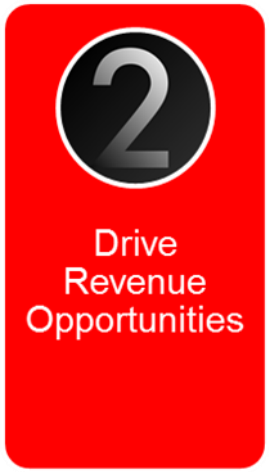
The airport is currently zoned Agricultural District A, under the MD of Bonnyville's Land Use By-law. Permitted Uses in this district include Extensive Agriculture. Discretionary uses include industrial uses, intensive agricultural and livestock operations along with other uses. It will be important that the City of Cold Lake – as the airport operator - to work with the MD of Bonnyville to ensure that incompatible land uses do not occur in the vicinity of CEN5. In particular, land uses which may act as attractants to birds – such as landfills, certain agricultural uses such as livestock feedlots, or storm water retention ponds.

In keeping with policy 3.9.9 of the MD of Bonnyville's Municipal Development Plan (MDP), it is recommended that the City of Cold Lake work with the MD of Bonnyville to create either a land use district or a land use overlay for the Cold Lake Airport. Such a district or overlay would use as guidance Section 42 of the MD of Bonnyville's Land Use Bylaw (Development Surrounding Airports). Another guiding document that could be referenced is Transport Canada's publication entitled TP1247E – Land Use in the Vicinity of Airports.

Emergency Response Plan

The existing Emergency Response Plan – which formed part of the Airport Operations Manual as Appendix E – should be kept up to date and active.

9.6. Pillar 2: Drive Revenue Opportunities



The second pillar of the business plan involves the realization of additional revenue from the airport. Historically the only revenue has come from a small percentage of fuel sales, from land rents, and from aircraft parking fees.

Other revenue opportunities should be explored in the short and long term, in an effort to minimize the cost of operating and maintaining the facility. Specifically

- Look ahead to establishing a series of fees and charges including aviation charges: focused on itinerant traffic (i.e. small charters, etc.)
- Establish landing fees and aircraft parking and tie-down fees;
- Review fuelling arrangements with the Cold Lake Regional Airport Association;
- Partner with DND to track movements in and out of CEN5
    - Tower logs will provide the base information for aircraft billing
    - Establish a basic aircraft billing system.

Given that movements are tracked voluntarily, the establishment of landing fees and parking fees would require that some form of aircraft billing system be established in order to track aircraft that arrive and depart out of CEN5. It is recommended that the City explore opportunities to partner with 4 Wing Cold Lake in this regard. Since CEN5 falls with the control zone for the Base, tower logs from 4 Wing should identify any aircraft which arrive / depart CEN5. The tower logs would form the basis of a basic aircraft billing system for CEN5.

Perhaps the greatest asset that the airport enjoys is its land base. There appears to be a pent-up demand for land and hangar space at the airport, although the current tenants are somewhat uncomfortable with the existing leasing arrangements. There is an opportunity to develop additional sites for compatible uses on both a long term and interim basis. It is important to retain the ability to extend the runway in the long term, and to protect for the obstacle limitation surfaces required to permit the installation of a non-precision instrument landing system. With those limitations in mind, there are still significant developable areas which can be built out on a phased basis as demand materializes. In addition, the lands set aside for the runway extension could be developed on an interim basis. In that case any leases should be either short term, or subject to termination by the airport, and any improvements would need to be such that they could be removed if it became appropriate to extend the runway.

Development Phasing

Figure 9-5 on the following page illustrates a long-term development plan which respects the ultimate obstacle limitation surfaces, the runway extension, and the need to develop on a phased basis. Each “pod” or development cell can be developed in whole or in part as demand dictates, and relatively little investment needs to be made before demand arises.

It is recommended that the developments on the land be limited to aviation-related uses. While this policy may not maximize revenue, it would maintain the integrity of the airport, and would minimize any regulatory land use issues with the Municipal District of Bonnyville. Examples of desirable uses include hangars, avionics shops, maintenance shops, parts warehouses, and similar uses requiring airport proximity or airside access.

The development concept for CEN5 is shown in Figure 9-5 below. Key features of the development plan are as follows:

- Provision for a future parallel taxiway, offset from the runway at Code C non-precision standards;
- A straightforward airside / groundside access strategy for future lots / development cells, with future taxiway access from the north, and groundside access provided from the south;
- Ability to bring on land in an incremental fashion, with minimal infrastructure requirements, only as demand materializes

The areas shown in blue represent the first phase of development, and have a combined net developable area of 272,337 square feet. The green and mauve areas represent later phases each with an area of 405,276 square feet. Clearly these areas can be developed in stages, and each phase does not need to be fully-developed at once.

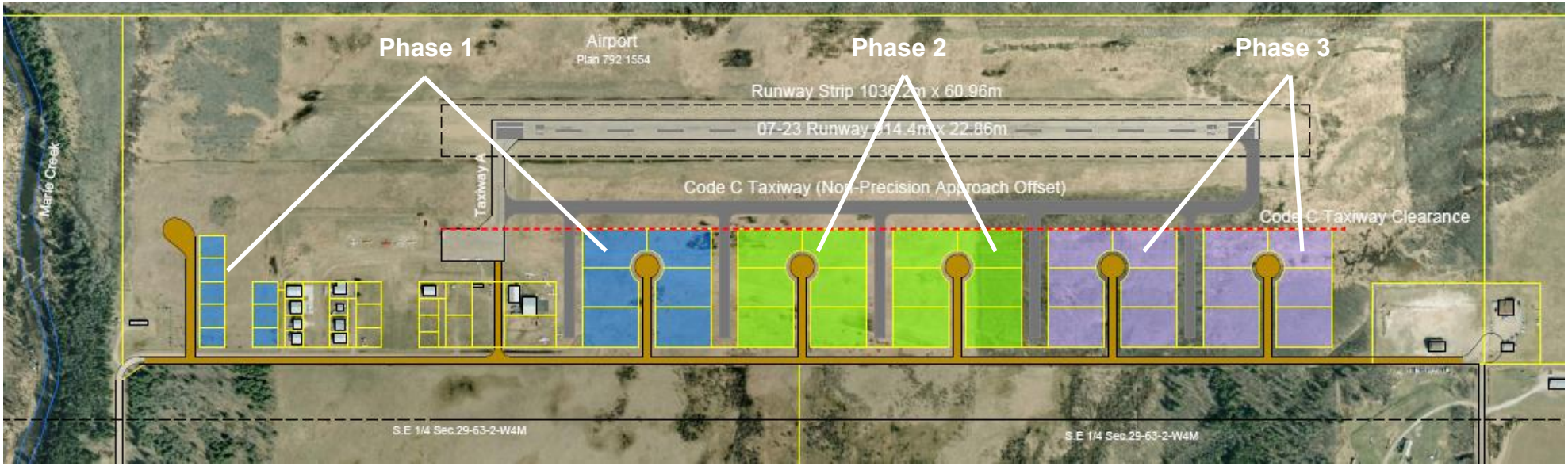


FIGURE 9-5 - CEN5 DEVELOPMENT CONCEPT

Marketing Considerations

Feedback from the tenants at the airport suggests that there is a strong preference for purchasing rather than leasing land. Owning the land provides the user with the ability to obtain debt financing more easily, and eliminates the uncertainty of rent increases. Those factors encourage the development of better quality buildings, since they are viewed by the owner as a long-term investment. There is little incentive to invest in quality buildings, or in long-term maintenance, if the improvements might revert to the landlord after a few years.

While selling lots would make marketing of the land much easier, there are a number of compelling reasons why the sale of land on the airport is inappropriate. Probably the most compelling is that the sale of land would require that the land be subdivided. Subdividing the land into lots of fixed sizes and configurations greatly reduces the ability of the airport to adapt parcel sizes to user needs. It also invites much greater control by the Municipality, adding to the cost, time, and uncertainty of developments. Leasing the land rather than selling it provides the airport, as landlord, with much better control over the use of each parcel. Use clauses can be specifically designed for each user, and enforcement is much easier than it would be through the use of restrictive covenants or title declarations.

Leasing the land provides the airport operator with long-term flexibility, and allows greater assurance of the integrity of the airport as a unit. It must also be recognized that the airport is subject to regulations which might not be enforceable against a freehold user. The leasing of land also provides a source of long-term cash flow. Rents can usually be adjusted over time, providing an escalation in revenue as time passes.

Mitigating Lease Policies

While leasing of land is not as accepted in North America as in other parts of the world, it is very common in an airport context. The negative aspects of leasing can be mitigated through the implementation of a number of leasing policies and practices which reduce risk to the tenant and its financing source. Those practices include

- The granting of long lease terms, ideally 10 to 15 years longer than the amortization period of the tenant's mortgage;
- A defined long-term rent schedule, which may include escalations, but at a predefined rate;
- Provision of a non-disturbance agreement to the tenant's lender, providing for the lender's right to remedy a default by the tenant under the lease, and to take over the lease if the tenant defaults under its loan agreement;
- Provision of a non-disturbance agreement to sub-tenants, which provides that the landlord will respect the sublease if the original lease is terminated for default;
- Inclusion of a renewal right with rent based on land value only (provided that the airport doesn't require the land for operational purposes);

Ideally the typical ground lease would include a term of thirty to forty years, would provide for a rent which begins at current market value, and escalates throughout the term at a constant rate (e.g. 2% per year), would permit the tenant to assign or sublet subject to reasonable constraints and would provide for non-disturbance agreements for sub-tenants and lenders. The lease might also include a loose right of renewal, and provide that the tenant can remove its leasehold improvements at the end of the term.

From the airport's standpoint, the lease should contain rigid use constraints, and should provide for a process which would control the design of leasehold improvements such that aviation-related zoning constraints are respected, even if not legislated.

Residential Uses

Typically, residential uses at or near airports is discouraged, generally for reasons of noise and safety. The exception is the concept known as the "Air Park" where homes are built on airside parcels and aircraft can be parked on the premises. There are a number of such developments across North America. The success of such developments has been mixed. In the context of the Cold Lake Regional Airport, it is considered that the market for such a development would be very thin, made all the more marginal by virtue of leasehold rather than freehold tenure. Further, the current zoning of the airport would not permit residential uses without subdividing the parcels. However, should the market be favourable for such a development, the most westerly development cell shown in Phase 3 could be a candidate for such a development.

Financial Example

It is useful to review a financial model showing the potential revenue effects of developing the airport's lands. The phasing plan shown earlier is the basis of the following analysis. It is assumed that each phase of the development will be developed over a five-year period. It is also assumed that the rents charged for the first phase will begin at the rates currently being charged. Rents will be increased by 2% in each year, both for current leases and new leases.

Utilizing those assumptions the following table provides an indication of the potential additional revenue which might arise at the end of each five-year period as the land is developed.

These figures represent the potential revenues which would arise from the leasing of the lands adjoining the existing runway, and do not consider any interim development on the eastern land parcels.

Again, the business plan should also include the implementation of a number of fees and charges for use of the facility including landing and parking fees for itinerant aircraft, license fees for local users, and an improved arrangement with regard to the provision of fuel.

	Year 5	Year 10	Year 15
Existing Lots	15,800	17,400	19,200
Phase 1	16,200	17,900	19,800
Phase 2		26,600	29,400
Phase 3			29,400
Total	32,000	61,900	97,800

TABLE 9-1 - POTENTIAL REVENUE STREAM ASSOCIATED WITH DEVELOPMENT CONCEPT

Interim Uses on Eastern Lands

As mentioned earlier, it should also be possible to consider interim development of the lands to the east of the runway, pending a need to extend the runway. The criteria for the leasing of those lands should recognize that the use may be temporary, and that it does lie under the existing approach surface. Accordingly any development would need to respect height limitations, and would need to be on a lease which could be terminated after the expiration of a relatively short term. With those constraints such development would likely involve a relatively low capital investment. Among the uses which might be considered for that area are the following:

- Agriculture
- Athletic Fields
- Golf Activities
- Camp Ground
- RV Storage
- Mini Storage
- Paint Ball Range

As a conceptual test of the eastern airport lands and their possible use for alternative uses, a review of a specific golf development located within the City of Calgary was undertaken. The Golf Canada Centre, a family oriented facility, was reviewed as a potential model that could be applied to the eastern land holding of CEN5. Facilities at the Golf Canada Centre include the following:

- Hole par 3 course (approximate land area = 5.6 ha)
- Driving range (approximate land area = 6.3 ha.)
- 18 hole putting course (approximate area = 2.5 ha)

FIGURE 9-6 GOLF CANADA CENTRE CANADA

Figure 9-7 below is included for illustrative purposes only. It shows how the same collection of golf uses could be arranged on the approximate 32 ha. (80 ac.) parcel while taking into account both existing airport operations. As shown, the land area could easily accommodate a concept similar to Golf Canada Centre.

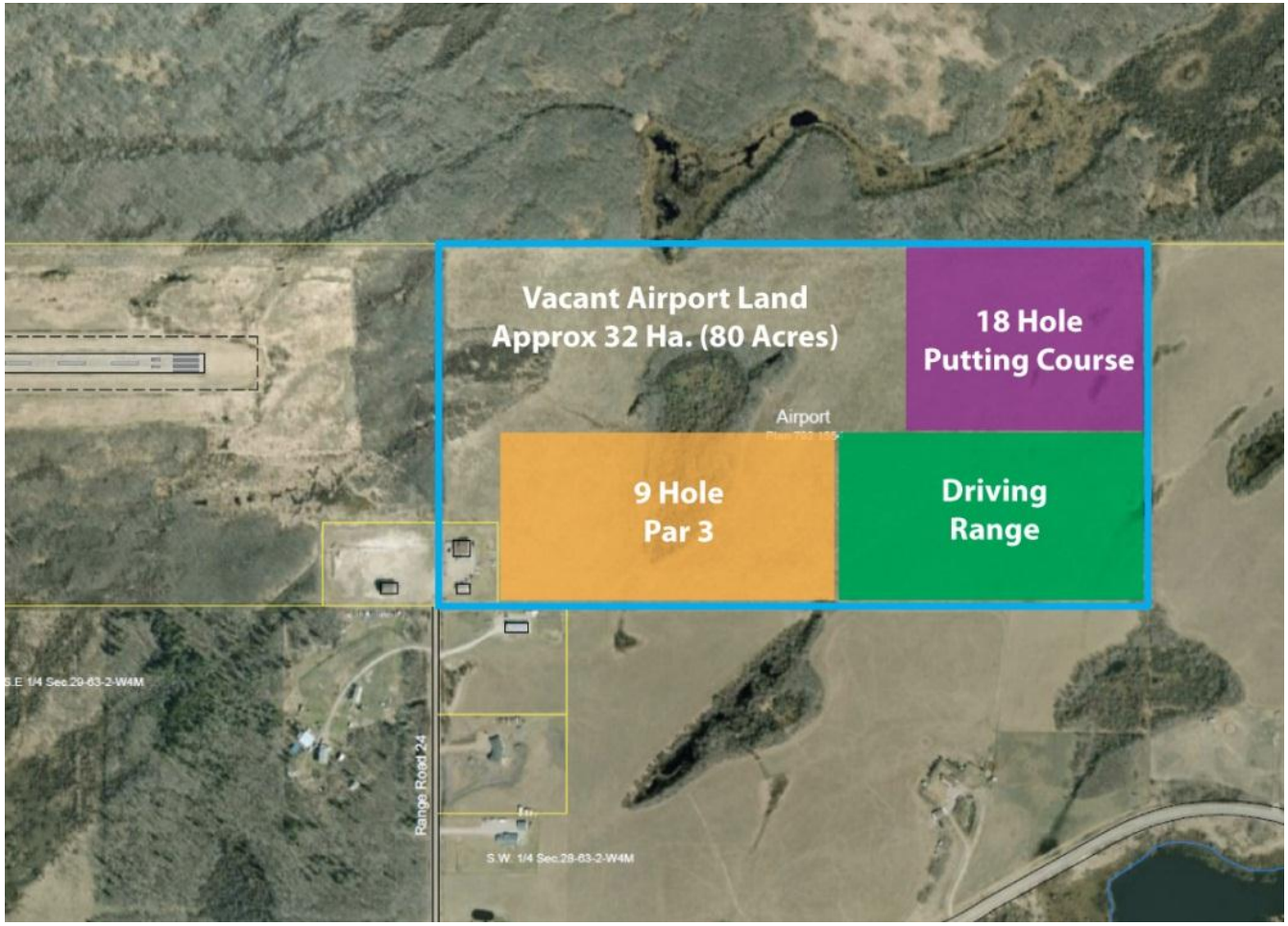


FIGURE 9-7 - GOLF CENTRE CONCEPT FOR AIRPORT EASTERN LANDS

9.7. Pillar 3: Marketing and Branding

It is recommended that a strategic partnership be formed to jointly market the air transportation resources that are available within the community. Such a partnership could include the following:

- The City of Cold Lake
- Chamber of Commerce & EDAC
- 4 Wing Cold Lake
- Cold Lake Regional Airport Association

As part of such a partnership, an Aviation Task Force could be created, with objectives which could include the following:

- Act as a lobby group which would operate at both the Provincial and Federal level, on matters related to funding, etc.
- Engage with other related industry groups, including Aviation Alberta, Tourism Alberta, COPA and CAC
- Promote and actively market the development concept that has been prepared for CEN5 as part of this report

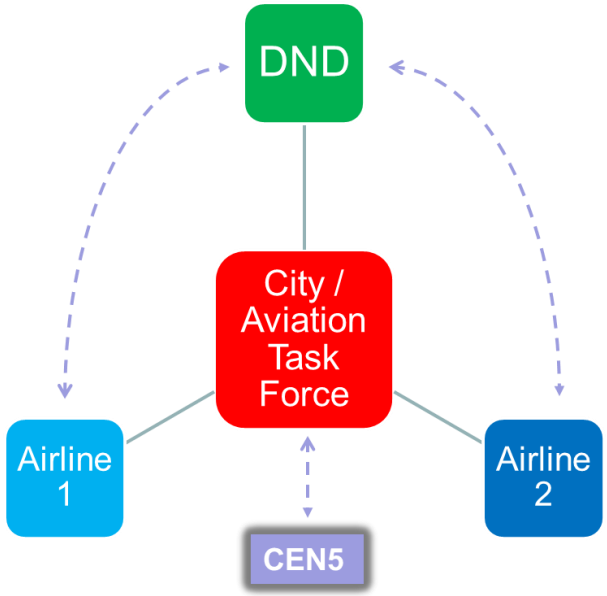


FIGURE 9-8 - AVIATION TASK FORCE

With regard to acting as a lobby group, the Task Force could take a lead role in pursuing the funding for the restoration of the airfield pavements through the Province of Alberta's Community Airport Program (CAP). The group could also lobby the Federal Government for funding through the Airport Capital Assistance Program. To be eligible for funding through this program, airports must:

- Not be owned or operated by the federal government;
- Meet Certification Requirements, and
- Offer year-round regularly schedule commercial passenger service (at least 1,000 year-round scheduled commercial passengers over the last three most recent calendar years).

CEN5 obviously does not meet the above requirements; however previous studies have suggested that the previous scheduled services out of YOD could be recognized as meeting the above requirements. This is a cause that the Task Force could take on board to pursue with the Federal agencies.

MOU with DND

In addition to the above objectives, the Task Force could negotiate an overarching agreement with DND regarding air service into Wing Cold Lake, be it charter or scheduled service. A Memorandum of Understanding (MOU) or Master Agreement could establish the rules of engagement regarding both scheduled and charter service into YOD for service into the City of Cold Lake. The general intent would be to have the agreement create an even playing field of all operators wishing to provide service into the community. (note: the current MOU between 4 Wing Cold Lake and the City only appears to deal with matters related to the provision of Air Traffic Control – and does not touch on matters such as the use of the Medley Terminal for civilian purposes.)

As part of such an agreement, a defined process by which airline operators would initially apply for access would be established. The intent would be to have the Aviation Task Force acting as the point for such a process, and function as a single window of contract for interested airlines. The Task Force would act as the bridge between DND and air service providers. It would also be able to determine if a specific service may be better suited for operations out of CEN5 vs YOD.

For any service deemed to be appropriate for YOD, the process would recognize the fact that each air service provider would ultimately require an agreement with 4 Wing Cold Lake. However, such a structure would assist the City in taking control of its own destiny with regard to the provision of air service into the community.

Summary

The Task Force would act as a platform which could promote the fact that the City is blessed with an abundance of aviation resources, and from which to market a "system of airports" comprised of:

- 4 Wing Cold Lake, which has an airfield system that can handle the largest civil aircraft operating today, is also equipped with an existing terminal building, adequate parking and excellent access and proximity to the City of Cold Lake and is thus completely capable of accommodating scheduled or charter service today.
- CEN5, which is Cold Lake's general aviation reliever airport, could provide a home for small general aviation aircraft – including small charter service, private and recreational flying and flight training.

9.8. Summary of Business Plan Action Items:

Pillar 1: Operations and Maintenance

- Undertake airport pavement restoration project for existing runway, taxiway and apron
- Create airport pavement maintenance management program
- Create comprehensive record drawings for Cold Lake Airport
- Upgrade airfield lighting system; pursue partnering opportunities with other airports for procurement purposes
- Improve response time for airport snow removal (target 24 hours) in order to enhance the airport's reliability during winter months
- Maintain summer maintenance program
- Maintain wildlife control program
- Maintain emergency response plan
- Work with MD to develop a compatible land use framework in the vicinity of CEN5

Pillar 2: Drive Revenue Opportunities

- Adopt the conceptual development plan contained in this report for marketing purposes
- Actively promote CEN5 as a G.A. airport
- Explore and market alternative uses for the airport eastern lands
- Develop airport lands on an incremental fashion - as demand materializes
- Continue to lease land at airport versus land sale
- Adopt the mitigating lease policies and ideal lease provisions outlined in this report
- Create a basic aircraft billing system for CEN5, explore the option of utilizing tower logs from 4 Wing Cold Lake
- Establish a series of landing fees and parking fees for CEN5 for non-resident commercial aircraft

Pillar 3: Marketing and Branding

- Form Aviation Task Force
- Develop an overarching agreement with DND regarding the use of Medley Terminal and establish a clear process for the provision of air service into the community
- *Lobby Provincial Government for funding of airport pavement restoration project through CAP*
- *Lobby the Federal Government for funding*
- *Promote and actively market the development concept for CEN5*
    - *Promote the system of airports that exists within the community*

9.9. Concluding Comments – A Vision for CEN5

The year is 2026; and CEN5 has grown into a popular general aviation airport that acts as a home base for many private pilots in the region. Over the past 14 years, additional hangars have been developed following a well thought out development pattern for the airport. In addition, a number of aviation businesses have come to call CEN5 home, including an avionics shop and a paint shop – both of which were established by former military personnel who now apply their training in the private / civilian sector. Both businesses attract pilots from across Alberta and Saskatchewan – who fly their aircraft to CEN5 for service.



Additional revenue streams from land leases, including the recreational development on the eastern lands, have helped the City to refurbish the 3,000 foot runway along with its lighting system. A non-precision approach has also been implemented – along with key safety measures including a Wildlife Control Program and Snow Removal Program – making the airport a popular – and reliable choice - for smaller charter aircraft. Flights related to tourism have increased – thanks in part to the efforts of an Aviation Task Force that was struck in 2012.



The family oriented recreational development on the eastern lands of the airport has made CEN5 a destination in itself – both for private pilots as well as the residents of Cold Lake. A number of annual fly-in events – one associated with the Air Show at 4 Wing Cold Lake - have gained in popularity over the years. The existence of a “fly-in” bed and breakfast – complete with tie-down facilities - is a testament to the airport’s popularity.



While scheduled service into the City of Cold Lake is appropriately facilitated at the Medley Terminal at 4 Wing Cold Lake (as it is in communities such as Comox and Bagotville) CEN5 fits comfortably within the City’s “system of airports” and acts as the City’s gateway and home for a thriving general aviation community, one which is anchored – and inspired - by the region’s strong aviation heritage.