Chapter 16

Effects on Other Airports

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16. Effects on Other Airports

16.1 Introduction

The Calgary International Airport (YYC) is a major airport in the Province of Alberta. It serves as a gateway to domestic, transborder, and international destinations for people from all over Alberta, the eastern parts of British Columbia, and the western parts of Saskatchewan.

The aim of this Chapter is to discuss the operational effects of the PRP on surrounding airports, namely:

- Springbank Airport (YBW)
- Olds/Didsbury
- Beiseker
- Airdrie
- High River
- Okotoks Air Ranch
- Strathmore (Murray Airfield)

The Chapter also discusses the potential socio-economic effects of the PRP on regional airports, namely:

- Springbank Airport (YBW)
- Cranbrook (YXC)
- Lethbridge (YQL)
- Medicine Hat (YXH)
- Red Deer (YQF)
-
- Five scenarios were compared in the assessment:

- Pre-construction conditions
- Conditions in 2015 with the new runway in place
- Conditions in 2015 without the new runway
- Conditions in 2025 with the new runway in place
- Conditions in 2025 without the new runway

16.2 Operational Effects of the New Parallel Runway on Surrounding Airports

Major airports have their own airspace sector called “Terminal Area” in which arrivals and departures are staged in order to maintain a controlled inflow and outflow of air traffic. NAV CANADA is the Air Navigation Service Provider (ANSP) and controls the airspace across the country. Its role is to monitor, control, maintain, and enhance Canadian airspace in a safe manner. NAV CANADA is a private sector, non-share capital organization that is regulated by Transport Canada (TC).

NAV CANADA’s area control in Edmonton manages the Calgary Terminal Area, which forms a 35 nautical mile radius around the airport and extends to an altitude of 25,000 feet (7,620 m) above sea level (ASL). The next level of control is conducted by NAV CANADA in the Calgary Tower located on-site at YYC. The “Tower” controls the airspace directly in the vicinity of the airport (approximately 5 nautical miles radius around YYC and up to 6,600 feet ASL) – often referred to as the Tower “control zone”. The Calgary Terminal Area covers a large area and volume of airspace, and it directly affects many airports in its vicinity due to the operational requirements for controlling aircraft operations within its area.

The most affected airports are those located within the Calgary Terminal Area; aircraft operating from these smaller airports must interact with the Terminal Area every day. These airports include Springbank, Airdrie, Okotoks, Strathmore, and many smaller airfields.

16.2.1 Regional Context

In 2000, the Calgary Area Airport Systems Study (Calgary Economic Development Authority 2000) was undertaken to assess all airports in the Calgary Region. The main objective of the study was to establish an inventory of aerodromes in the region and to further define Springbank Airport's role within a larger regional context. In an update (RP Erickson & Associates Aviation Consultants 2006), the Tiered Airport System was maintained as a way of categorizing airports within the study region.

An overview of the Tiered System is provided below, along with a list of the airports that fall within each of the top three tiers.

16.2.1.1 Tier 1: Calgary International Airport

The role of the Tier 1 airport is to serve as a hub for regional, domestic, transborder, and international air carriers. YYC has been designed to accommodate airline and air cargo operators, as well as other high-performance commercial and private aircraft that are equipped to operate under Instrument Flight Rules (IFR).

16.2.1.2 Tier 2: Springbank Airport

The Tier 2 airport classification revolves around the length of runway, as compared with Tier 1 airports. These airports are certified airports that service more pilot training facilities and certification, as well as advanced recreational flying.

Although the first study only classified Springbank within this category, as the Calgary Terminal Area was its focus, other regional airports outside the Terminal Area that have similar characteristics to the Tier 2 definition were included in the 2006 study. They include Cranbrook, Medicine Hat, Lethbridge, and Red Deer airports.

16.2.1.3 Tier 3: Olds/Didsbury, Beiseker, Airdrie, High River, Okotoks Air Ranch, Strathmore (Murray Airfield)

These facilities are Registered Aerodromes that provide a base for a variety of general aviation activities within the Calgary Region, including entry-level flight training and recreational and private flying.

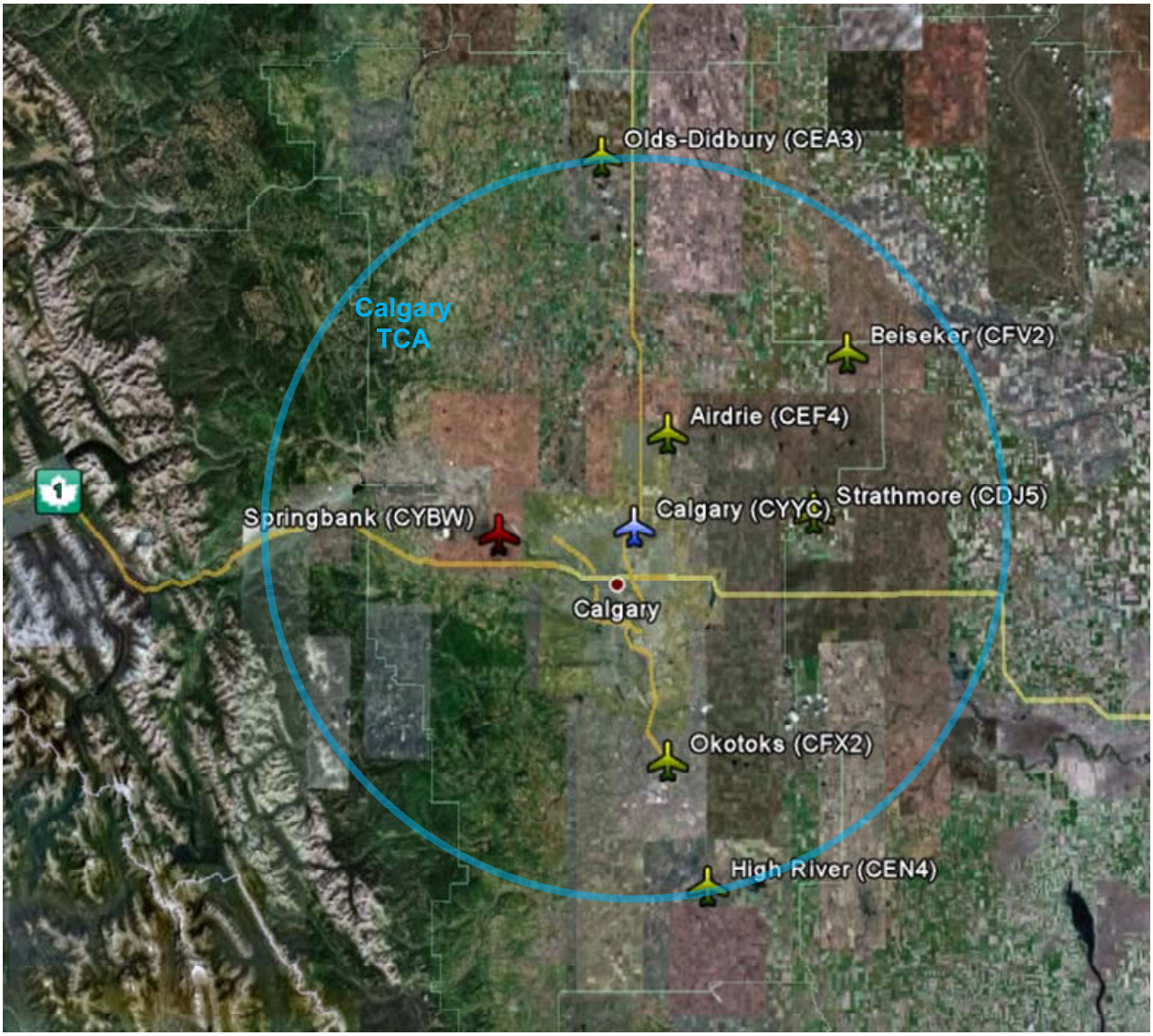
16.2.1.4 Tier 4: Registered, Non-paved Airfields

These airports are also Registered Aerodromes, and typically have one non-paved runway with restricted hours of operation.

16.2.1.5 Tier 5: Non-Paved Airfields

These airports are Non-Categorized Aerodromes with non-paved runways and minimal services. Activities operating out of these airports are typically small private aircraft including ultra-lights and gliders (Springbank Master Plan 2009).

Figure 16-1 Calgary Terminal Area Airfields (Google Earth)



16.2.2 Smaller Airfields within the Calgary Terminal Area

The Calgary Terminal Area is classified as Class C airspace, which has certain requirements for IFR and Visual Flight Rules (VFR) aircraft. Most airfields in the Calgary Terminal Area (Tier 2-5) are predominantly VFR airfields, so aircraft from those airfields will remain below Calgary terminal IFR routes. However, all airfields within the Terminal Area are directly affected by the Calgary Terminal Area, as they must adhere to the operational requirements for Class C airspace, be it IFR or VFR requirements.

VFR aircraft fly predominantly by visual reference to ground, and pilots will follow VFR navigation charts when flying from point to point. Procedures require VFR routes to be separated from IFR routes. This is achieved by restricting VFR aircraft to a certain operating ceiling. In a terminal area like Calgary's, this "ceiling" increases in altitude the further away from the control zone(s). With the introduction of the proposed new runway and the potential changes to the terminal area, these basic rules of operation will

not change significantly. VFR aircraft will still be restricted to an operating ceiling within the terminal area in order to maintain separation from IFR traffic.

Exceptions to these general rules of operation for VFR traffic exist within three defined Special Use Airspace zones. They include a training area (CYA 226) to the northwest of Springbank Airport, a parachuting area (CYA 264) to the northeast of Airdrie airfield, and a gliding area (CYA 263) to the west of Okotoks airfield. Each area is outlined in both IFR and VFR charts and has specific altitude limits.

The limited amount of IFR aircraft originating from or heading to these smaller airports will interact with Calgary Air Traffic Control (ATC) in Edmonton while navigating through the Terminal Area. Aircraft will need to request entry to IFR routes in the terminal area like all IFR aircraft, and ATC will radar vector them to their intended destination.

16.2.3 Springbank Airport

16.2.3.1 Role

Springbank Airport is the most significant general aviation airport in the Calgary Region. It offers a wide range of services to its users and acts as a base for private and commercial aircraft operations in both the fixed wing and rotary wing categories. Alongside YYC, Springbank Airport is the only other certified aerodrome within the Calgary Region. Consequently, Springbank Airport plays an important role within the area's system of airports, which is defined in the Springbank Airport Master Plan 2009.

The operations and development of Springbank Airport will be directed to supporting light aircraft flight activity, including flight training, recreational flying, corporate and air charter activity, and compatible aircraft maintenance, manufacturing, and support operations.

To effectively support the role statement, a series of development parameters have been developed. They will help to direct development and manage development requests in line with the role statement intent.

The overall principle behind the development parameters is to support those aircraft types and sizes that are compatible with the design standards of the airfield, that are consistent with the different roles of YYC and Springbank Airports, and that do not compromise current businesses operating at Springbank Airport.

Specifically, the business strategies include the following principles:

- Aircraft type limited to Code B wingspans
- Aircraft Load Rating 4 (ALR) weight limit
- Maximum Gross Take Off Weight (MGTOW) of the aircraft being 30,000 lbs
- No unit toll passenger (scheduled passenger service) activity

The combination of these principles will allow Springbank Airport to continue to operate, retain, and attract business and activity in keeping with the defined role (Springbank Master Plan 2009).

16.2.3.2 Airspace and Navigational Aids

Springbank Airport is outfitted with a certified Instrument Landing System (ILS) and certified Distance Measuring Equipment (DME) on Runway 34. For VFR aircraft, Very High Frequency Omni-Range (VOR) equipment is available. Springbank also has Standard Terminal Arrival Routes (STARs) and Standard

Instrument Departures (SIDs) like YYC. Required Navigation (RNAV) STARs are available on runways 34 and 16, while RNAV SIDs are available on runways 34, 16, and 25. Runways 34 and 16 also have RNAV Global Navigation Satellite System (GNSS) approaches.

Due to the volume of traffic experienced at Springbank, it has its own control zone (Class D), which is controlled by Springbank tower air traffic controllers (NAV CANADA). There is also a controlled corridor between the Calgary Tower control zone and the Springbank control zones, which exists due to high traffic levels between the two airfields.

Due to the role that Springbank Airport plays in the region, traffic that flows in and out of the airfield is predominantly VFR traffic. In 2008, only 4% of all movements were IFR. It is these IFR aircraft that will interact with the Calgary Terminal Area the most and will be most affected by the changes to the airspace design due to the new parallel runway.

Within the Springbank control zone, aircraft must adhere to Springbank procedures, but once aircraft leave that zone they must follow Calgary Terminal Area procedures. For VFR aircraft, this means that aircraft will need to operate below a certain “ceiling” to maintain separation from IFR routes for other smaller airfields within the terminal area, as detailed in Section 16.2.2. For IFR traffic, STARs and SIDs are available in the “Canadian Air Pilot – Instrument Procedures” manual (NAV CANADA 2009).

STARs and SIDs at Springbank Airport interact with those at YYC STARs because they share a common Terminal Area. Aircraft operating at Springbank Airport enter and exit at the same waypoints as aircraft operating at YYC. This means that any change to the IFR routes in the Calgary Terminal Area will directly affect the routes to and from Springbank Airport.

16.2.4 Airports Outside the Calgary Terminal Area

The Calgary Terminal Area is a significant part of the airspace for the western part of Canada. Its design affects the routing of aircraft that are flying to and from Alberta airspace. The proposed new runway will cause a reconfiguration of the Calgary terminal airspace due to the requirements of air traffic operations with parallel runways. NAV CANADA has yet to undertake the studies related to the airspace reconfiguration. This may require the changing of entry and exit waypoints to the Terminal Area, which will be determined by NAV CANADA. This change can potentially affect aircraft operations at other airports as it will require aircraft to fly routes different to those currently defined.

These changes and those for airports within the Terminal Area will be in effect as of the day of opening of the new runway; hence these changes will remain the same for the scenarios with a new parallel runway in 2015 and 2025. For the conditions with no new runway in 2015 and 2025, there would be no foreseeable changes to the Terminal Area airspace.

16.2.5 Class C and D Airspace Definition

Class C airspace is a controlled airspace within which both IFR and VFR flights are permitted, but VFR flights require a clearance from ATC to enter. ATC separation is provided between all aircraft operating under IFR, as necessary, to resolve possible conflicts between VFR and IFR aircraft. Aircraft will be provided with traffic information. Conflict resolution will be provided, upon request, after a VFR aircraft is provided with traffic information.

Traffic information is issued to advise pilots of known or observed air traffic that may be in proximity to their aircraft's position or intended route of flight warranting their attention. Conflict resolution is defined as the resolution of potential conflicts between IFR/VFR and VFR/VFR aircraft that are radar identified and in communication with ATC.

Airspace classified as Class C becomes Class E airspace when the appropriate ATC unit is not in operation.

Terminal control areas and associated control zones may be classified as Class C airspace.

A person operating an aircraft in VFR flight in Class C airspace shall ensure that:

a) the aircraft is equipped with
   i. radio communication equipment capable of two-way communication with the appropriate ATC unit, and
   ii. a transponder and automatic pressure altitude reporting equipment; and
b) a continuous listening watch is maintained by a flight crew member on a radio frequency assigned by ATC.

A person wishing to operate an aircraft that is not equipped with functioning communication and transponder equipment for VFR flight in Class C airspace may, during daylight hours and in visual meteorological conditions (VMC), enter Class C airspace provided that permission to enter and to operate within the airspace is obtained from ATC prior to the operation being conducted.

Class D airspace is a controlled airspace within which both IFR and VFR flights are permitted, but VFR flights must establish two-way communication with the appropriate ATC agency prior to entering the airspace. ATC separation is provided only to IFR aircraft. Aircraft will be provided with traffic information. Equipment and workload permitting, conflict resolution will be provided between VFR and IFR aircraft, and upon request between VFR aircraft.

Airspace classified as Class D becomes Class E airspace when the appropriate ATC unit is not in operation.

A terminal control area and associated control zone could be classified as Class D airspace.

A person operating an aircraft in VFR flight in Class D airspace shall ensure that:

a) the aircraft is equipped with
   i. radio communication equipment capable of two-way communication with the appropriate ATC unit, and
   ii. where the Class D airspace is specified as Transponder Airspace (see RAC 1.9.2), a transponder and automatic pressure altitude reporting equipment; and
b) a continuous listening watch is maintained by a flight crew member on a radio frequency assigned by ATC.

A person operating an aircraft in VFR flight that is not equipped with the required radio communication equipment may, during daylight hours in VMC, enter Class D airspace provided that permission to enter is obtained from the appropriate ATC unit prior to operating within the airspace (Transport Canada 2009).

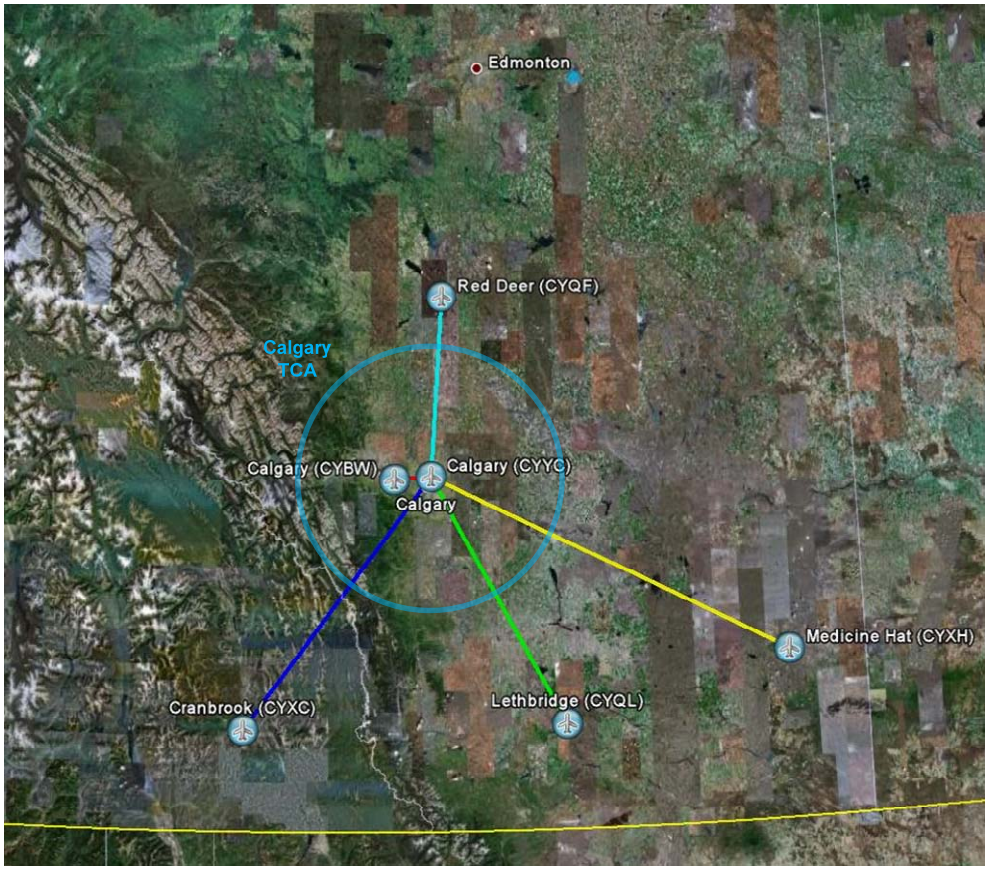
16.3 Socio-Economic Effects of the New Parallel Runway on Regional Airports

This section will outline the benefits that the defined Tier 2 regional airports offer to their respective catchment areas and also explore potential socio-economic impacts of the proposed new parallel runway at YYC.

Since YYC is reaching its capacity at peak times due to existing runway constraints, the impact of a parallel runway (planned for construction by 2015) will create the opportunity for the airport to grow. This opportunity for growth can have cumulative effects on surrounding airports. The impact outside Calgary will be the most visible at the Tier 2 regional airports, which include:

- Springbank (YBW)
- Cranbrook (YXC)
- Lethbridge (YQL)
- Medicine Hat (YXH)
- Red Deer (YQF)

Figure 16-2 Calgary Regional Airports (Google Earth)



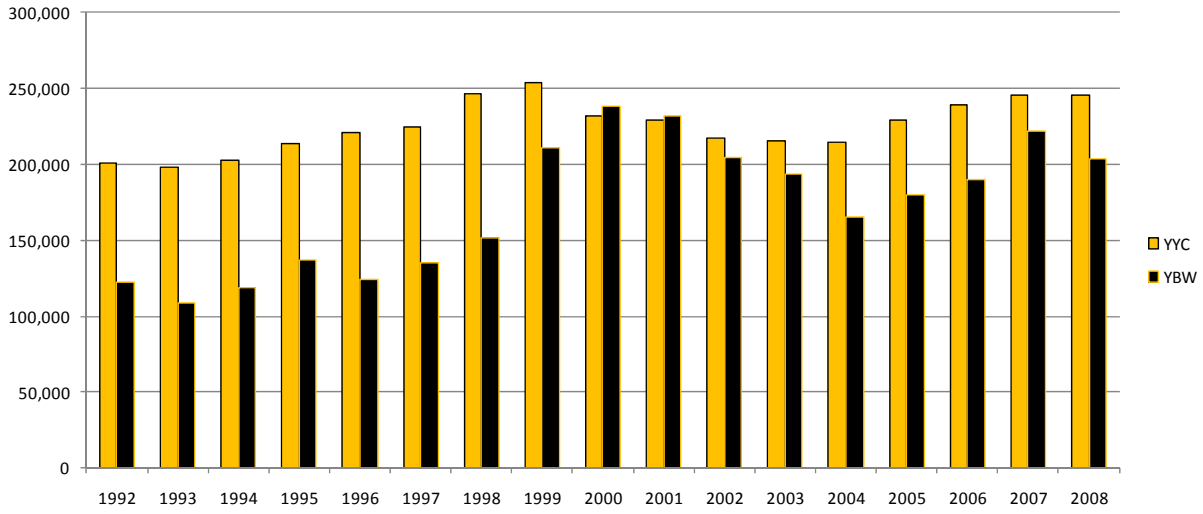
As well as forming an important part of an EA such as this, socio-economic analyses are important as they serve to heighten business, community, and political awareness of the importance of an airport to a local economy. This can be in terms of employment, labour income, value-added gross domestic product (GDP) activity, and other non-monetary social benefits. These analyses are based on the fact that industries within an economy are closely related. The relationship between industries causes a rippling

effect, which means that increased activity in one industry causes positive effects in other industries. The economic effects are most commonly seen and are measured by employment and value-added GDP, which can also lead to non-monetary social benefits (RP Erickson & Associates 2005).

16.3.1 Springbank Airport

As defined previously, Springbank Airport plays a certain role as the reliever airport for YYC. Due to this role, which is defined in the 2009 Master Plan, the movements at Springbank Airport and YYC have followed a similar pattern of growth and decline in the past, with very strong growth at YYC over the past 10 years (some years exceeding 10% per year).

Figure 16-3 Aircraft Movements



Springbank Airport does not rely on the benefits that scheduled services bring because it is purely a general aviation airport. However, as it is tied to the growth of YYC, Springbank Airport will still receive potential benefits from the growth in capacity at YYC. The 2004 Economic Impact Assessment of the Springbank Airport (RP Erickson & Associates 2005) affirms that there are significant economic benefits to the airport catchment in terms of labour income and total value added GDP. The report also outlines various non-monetary benefits of Springbank Airport to the area; one example is the accessibility of flying clubs to residents. Clubs like the Calgary Flying Club offer people not just accessibility to flight training, but also a forum for social interaction.

16.3.2 Cranbrook, Lethbridge, Medicine Hat, and Red Deer Airports

Cranbrook, Lethbridge, Medicine Hat, and Red Deer Airports are regional airports within 200 miles of Calgary that lie outside of the Calgary Terminal Area. All four airports have scheduled flights to YYC and significant general aviation movements (see Table 16-1).

Table 16-1 Aircraft Movements

Airport	Movements (2008)	Flights to YYC*
Cranbrook (YXC)	12,229	Max of 2 daily flights
Lethbridge (YQL)	31,525	2 daily flights
Medicine Hat (YXH)	19,186	4 daily flights
Red Deer (YQF)	49,953	Max of 2 daily flights

* Scheduled flights to and from regional airports such as YXC, YQL, YXH, and YQF are normally during peak periods (06:00-09:00 and 17:00-20:00). Airlines prefer these times so they can capture business, tourist and other passengers simultaneously.

In 2006, an economic impact study was conducted at Lethbridge County Airport (RP Erickson & Associates 2007). Like the Springbank study, it identified the economic and social impact of the airport on the catchment area. The study stated that the airport has a significant impact on the surrounding communities in terms of employment, economic wealth, and social benefits. The airport generates $1 out of every $17 of economic wealth created in Lethbridge and is the 7th largest employer in the Lethbridge area. These economic benefits can be caused by many different sources, which include aviation and non-aviation related employment at the airport and non-resident visitor spending. A socio-economic assessment can be found in Volume III, Chapter 14.

Social benefits of regional airports can also be significant for surrounding communities in the catchment area. The Lethbridge County Airport Study identifies various social benefits that apply to the identified regional airports. These include:

- Access to a regional hub (YYC)
- Availability of air-related environmental and emergency response services
- Availability of flight schools
- Yearly air show

The socio-economic effects of YYC on regional airports are significant. Calgary is the regional “hub” for Tier 2 airports in the region and it offers residents of these areas access to domestic and international destinations that are not available at their local airport. As Calgary is also the financial centre for Alberta, scheduled services provide regional destinations with a direct financial link which, in turn, encourages investment.

The growth in capacity caused by the proposed parallel runway at YYC also increases the opportunity for the regional airports to grow. A constrained airport restricts the potential for growth, especially in peak hours, which tend to be when airlines prefer to operate to regional destinations such as Cranbrook, Lethbridge, Medicine Hat, and Red Deer airports. Such constraints could be detrimental to the regional airports that rely heavily on YYC.

Changes in service at YYC could affect other airports with connecting flights to YYC such as Lethbridge, Red Deer, Medicine Hat, Cranbrook, Grande Prairie, Regina, Saskatoon, and Edmonton. The new runway will provide for direct long haul flights and new larger aircraft that would not otherwise land in the region. Passengers wishing to connect to such flights will constitute additional business for the airports from which they embark. The additional business will be an economic benefit to those airports. The ability to take advantage of the new long direct haul flights will be a social benefit to the passengers.

The direct long haul flights mentioned in the previous paragraph cannot be accommodated at other regional airports so they would not occasion any losses of flights at other regional airports. Transferring existing flights in and out of other regional airports to YYC would add a leg to passengers' itineraries at some cost and inconvenience. If this were desirable and cost effective, it could and presumably would have already happened. Therefore, it seems unlikely that adding the new runway at YYC will decrease service at other regional airports.

16.4 Summary of Effects

16.4.1 Operational Effects on Surrounding Airports

As it covers such a vast area and amount of airspace and has certain operational requirements, YYC operations directly affect many airports in its vicinity. Operationally, the most affected airports are those located within the Calgary Terminal Area, and aircraft operating from these smaller airports must interact with the Terminal Area every day. These airports include Springbank, Airdrie, Okotoks, Strathmore, and many smaller airfields.

At Springbank Airport, it is the IFR aircraft that will interact with the Calgary Terminal Area the most and will be more affected by the changes to the airspace due to the proposed new parallel runway. However, in 2008, only 4% of all movements at Springbank Airport were IFR aircraft.

As the proposed new runway at YYC will cause a reconfiguration of the Calgary terminal airspace due to the requirements of air traffic operations with parallel runways, this may require the changing of entry and exit waypoints to the Terminal Area. This may affect aircraft operations at other airports outside of the terminal area as it will require aircraft to fly routes different to those currently defined.

NAV CANADA will make changes to the way it manages the Calgary Terminal Area airspace when the new runway comes into service. The changes may include changes in flight paths into and out of nearby airports. The changes may or may not be advantageous to operators, but they are unlikely to be sufficient to cause changes in airport use. Therefore, it is concluded that they will not be significant in 2015 or 2025.

16.4.2 Socio-Economic Effects on Regional Airports

Since YYC is reaching its capacity at peak times due to existing runway constraints, the impact of a parallel runway will create the opportunity for the airport to grow. This opportunity for growth can have beneficial effects on surrounding airports. The impact outside Calgary will be the most visible at the Tier 2/regional airports.

Springbank Airport does not rely on the benefits that scheduled services from YYC bring because it is purely a general aviation airport. However, as it is tied to the growth of YYC, Springbank Airport will still receive potential benefits from the growth in capacity at YYC. The socio-economic effects of YYC on other regional airports outside of the terminal area are significant. YYC offers residents of these regional areas access to domestic and international destinations that are not available at their local airport. Scheduled services also provide regional destinations with a direct link to the financial centre of Alberta. This leads to increased accessibility to regional areas which, in turn, encourages investment.

The growth in capacity caused by the proposed parallel runway at YYC also increases the opportunity for the regional airports to grow. A constrained airport restricts the potential for growth especially in peak hours, which tend to be when airlines prefer to operate to regional destinations such as Cranbrook, Lethbridge, Medicine Hat, and Red Deer airports. Such constraints could be detrimental to those regional airports that rely heavily on YYC.

As the socio-economic effects of the PRP are beneficial, there are no significant adverse effects. Without the new runway, air traffic will increase only in off-peak times because demand already reaches capacity during peak times. This will restrict the potential benefit that a higher capacity airport will offer to surrounding regional communities.

16.5 Issues Discussed During Consultation

Issue: What will be the effect of the PRP on the Airdrie Airport and when will they be involved through the consultation process?

Response: Flight operations at the Airdrie Airport will continue to be managed by NAV CANADA in the context of the Calgary Terminal Area airspace. There may be changes to flight paths as a result of the new runway at YYC. The conclusion of the assessment is that the changes may or may not be advantageous to operators, but they are unlikely to be sufficient to cause changes in airport use.