



LPS AVIA
CONSULTING

Prince Albert Municipal Airport Master Plan

March, 2009



08-26





Prince Albert Municipal Airport

Master Plan

Prepared for:

Mr. Robert Cotterill
City Manager
City of Prince Albert
1084 Central Ave
Prince Albert, SK
S6V 7P3

Date

March 19, 2009

Submitted by:

LPS Aviation Inc.
One Antares Drive, Suite 250
Ottawa, Ontario
CANADA K2E 8C4

Tel: (613) 226-6050 Fax: (613) 226-5236
e-mail: info@lpsaviation.ca
Web site: www.lpsaviation.ca

Executive Summary

Active expansion of energy resource and commodity markets has resulted in rapid economic growth in the Province of Saskatchewan. Significant numbers of passengers have been utilizing the Prince Albert Municipal Airport in recent years, primarily destined for northern mining operations and communities in Saskatchewan's north and near north.

The Master Plan provides guidance for airport development. The Plan's objective is to ensure adequate infrastructure and services are available to support current and future commercial air services and private aviation activities at the Airport and within the community. The Plan considers short term (2-5 year), medium term (5-10 year), long term (10-20 year) and ultimate (20+ year) planning horizons for development. The Master Plan assesses the capacity of the airport's facilities, including but not limited to runways, taxiways, aprons, air terminal buildings, vehicle parking, access, and municipal services. A land use plan is provided which addresses operational, environmental and other constraints and provides clear guidance for future development based on highest and best use airport lands.

The City of Prince Albert's strategic position on the edge of Saskatchewan's near north provides many important opportunities, and focuses on promoting several roles for the Airport, including but not limited to:

- ✎ providing a transportation gateway to Saskatchewan's north and near north, supporting northern communities and the medical and resource sectors;
- ✎ acting as a point of entry to the national air transportation system through links with major hub airports;
- ✎ promoting Prince Albert as a tourism gateway to Saskatchewan's north and near north;
- ✎ providing facilities to support expanded forest fire activities, including pilot training; and,
- ✎ acting as a base for private and commercial aircraft owners and operators.

Traffic at the Prince Albert Airport will depend largely on the health of commodity markets, specifically oil, uranium and potash.

Commodity prices tend to be strongly correlated, so a boom in one sector will likely be accompanied by strong conditions in another. The Prince Albert Airport should experience continuing traffic increases. However, the strong prospects of alternating booms and busts will challenge its long term planning. It must neither postpone improvements resulting from temporary traffic declines, nor over-build on the expectation of sustained booms. A long term perspective that sees past temporary economic cycles will ensure that the Airport remains competitive, cost-effective, and fiscally sound.

Historical airport activity is described in the Master Plan in terms of charter and scheduled commercial passengers, aircraft movements by class, and air cargo uplift volumes. Scheduled and charter passenger activity surpassed 72,000 passengers annually in 2007 and commercial air carrier activity accounted for the highest proportion of aircraft movements at over 70% in the same year. The scheduled passenger service market is expected to grow from 0.5% to 2.7% to the planning horizons. Charter passenger markets are forecast to grow at 1% per annum and air cargo activities are expected to grow steadily at a rate of 2.0%.

Additional scheduled air services by large national carriers such as Air Canada and Westjet should not be expected in the short or medium term. Charter passenger services could be developed to various destinations, perhaps to southern destinations in the winter months, depending on local interest levels.

The Prince Albert Municipal Airport's runway system serves all current charter, scheduled, government and general aviation traffic. Based on the recommended future design aircraft (Embraer 190) we recommended that Runway 08-26 be increased to a total length of 1,982m in the medium term and 2,440m ultimately. It is strongly recommended that Taxiway 'C' be extended to a full parallel taxiway system in the short-term to increase runway capacity during operations conducted under visual flight rules.

A navigational aid known as a VHF Omni-Directional Range (VOR) is currently placed in the path of the extended taxiway, and will require re-location in the short-term.

Taxiway 'C' will require additional expansion along with the recommended runway extensions in the medium and ultimate-terms. The current turf runway (16-34) will likely require relocation and realignment in the long-term to make way for additional airside commercial development. Other infrastructure improvements are also identified within the study, including but not limited to small taxiway and apron improvements, pavement rehabilitations, and access road extensions.

The Master Plan includes an air terminal assessment to compare space and functionality requirements with current areas provided for various building functions. Based on traffic in 2007, passengers are experiencing unstable flows and capacity limitations during peak periods. The study team recommends that the airport's air terminal building be expanded in the short-term.

Analysis suggests that a 1,950 sq. m. facility is needed to accommodate the current and forecast passenger traffic through the short and into the medium term, with modular expansion in the long-term. A new ATB has been recommended to optimize arriving and departing passenger flows, while maximizing non-aeronautical revenue opportunities such as concessions, vehicle parking, and advertising space. A comprehensive space requirements program for the new building is provided; however, a detailed building feasibility study should be undertaken prior to commencing a development program.

The Airport's commercial land development area, concentrated in the southwest quadrant of the site, supports a total of 6 commercial facilities ranging from small aircraft maintenance providers, to a large airline operation supporting scheduled, charter, and cargo services. In order to increase overall activities and revenue at the Airport, several aeronautical and non-aeronautical commercial opportunities are identified and should be explored further.

Five separate development areas have been identified within the Master Plan and should be made available to support different types of commercial

facilities including: a Fixed Base Operator (FBO) with publicly available fuel, aircraft hangars, aircraft maintenance and overhaul facilities, flight training establishments, outdoor and air terminal advertising, freight distribution, rental car facilities, restaurants, and agricultural uses. All future commercial facilities should be located based on highest and best use airport planning principles as shown in the Development Plan, and the Land Use Plan.

A phased land uptake rate of 1 to 2 commercial lots per year is adopted for future commercial facilities. These rates depend on the specific use for the lands and are primarily based on historical land absorption values and the regional economic outlook. It is recommended that the airport operator continue to lease property to tenants, as opposed to selling lands for revenue. Potential investors may be more willing to develop facilities at the airport if long-term leasing agreements are made available by the airport, preferably over a 25 year period.

The Airport's financial position was examined in order to identify current revenue streams, and means of improving overall income collected as a result of airport activities. The airport is currently operated with a financial subsidy from The City of Prince Albert. Analysis suggests that the airport could have serious difficulty balancing operational and capital costs in the future if financial changes are not implemented in the immediate-term. It is strongly recommended that various types of user fees be immediately levied by the airport operator, including but not limited to airport improvement fees, fuel concessions, increased vehicle parking charges, and an air cargo surcharge.

The financial forecasts developed as a part of the Master Plan indicate that if the airport operator explores additional revenue opportunities, the operations of the Prince Albert Municipal Airport could be financially self-sufficient, aside from requiring outside funding to support large capital projects such as runway and taxiway extensions, and development of a new air terminal building.

The Airport is expected to remain a strong economic driver for the city and the surrounding region. If actively promoted, it is capable of attracting increased business activities allowing the airport to remain economically self-sustainable.

Prince Albert Airport Development Strategy

Year	Development Period	Airside	Groundside	ATB and Other
2009 - 2014	Immediate-Term (Up to 2 yrs)	<ul style="list-style-type: none"> ✎ Upgrade Field Electrical Centre ✎ Taxi 'B' extension ✎ Rehabilitate Runway 16-34 (turf) ✎ Rehabilitate Taxi 'E' (turf) 	<ul style="list-style-type: none"> ✎ Establish new location for Environment Canada MET site ✎ Dialogue with Ceres Industries to discuss the highest and best use of the airside property and initiate environmental cleanup ✎ Service groundside commercial lots (Site 5) 	<ul style="list-style-type: none"> ✎ Initiate ATB design program ✎ Identify need for separate cargo facility aligned with cargo forecasts
	Short-Term (2-5 yrs)	<ul style="list-style-type: none"> ✎ Taxi 'C' parallel taxiway extension ✎ VOR/DME relocation ✎ Runway 08-26 pavement rehabilitation ✎ Aprons II and III pavement rehabilitation 	<ul style="list-style-type: none"> ✎ Construct new bulk fuel storage facility and purchase fuel bowser ✎ Maintenance garage expansion (Bay #5) ✎ Construct new access road to Site 1 ✎ Develop airside commercial lots (Site #1) 	<ul style="list-style-type: none"> ✎ Re-align ATB frontage road and re-locate short-term parking ✎ Commission new ATB
2015 - 2020	Medium-Term (5-10 yrs)	<ul style="list-style-type: none"> ✎ Extend Runway 08-26 to east (458 m) ✎ ILS Localizer relocation ✎ Taxi 'C' parallel taxiway extension ✎ Taxi 'A' extension ✎ Apron I expansion ✎ Acquire additional property to west to accommodate future runway extension 	<ul style="list-style-type: none"> ✎ Construct new access road to Site 2 ✎ Service small hangar lots (Site 2) ✎ Service condo and t-hangar lots – electrical only (Site 3) ✎ Promote use of adjacent land to develop an intermodal hub within community 	<ul style="list-style-type: none"> ✎ Expand if necessary ✎ Revisit forecast ✎ Revisit airport strategic marketing study ✎ Update airport Master Plan
2021 - 2030+	Long-Term (10-20 yrs)	<ul style="list-style-type: none"> ✎ Runway 16-34 relocation ✎ Develop Taxi 'F' to service condo and t-hangar development area 	<ul style="list-style-type: none"> ✎ Service airside commercial lots (Site 4) ✎ Develop general aviation aircraft tie-down area ✎ Extend groundside access road 	<ul style="list-style-type: none"> ✎ Expand if necessary, upgrade as required and make necessary building improvements ✎ Update airport Master Plan ✎ Update airport Strategic Marketing Study
	Ultimate Term	<ul style="list-style-type: none"> ✎ Extend Runway 08-26 to west (458 m) ✎ Glide path antenna relocation ✎ Widen and extend parallel Taxi 'B' (Code C). 	<ul style="list-style-type: none"> ✎ Relocate airport access road 	

Table of Contents

1.0	<i>Introduction</i>	1-1
1.1	Current Situation	1-1
1.2	Plan Objectives	1-1
1.3	Stakeholder Consultations	1-1
2.0	<i>Catchment Area Profile</i>	2-1
2.1	Geographic Context	2-1
2.2	Transportation Systems	2-1
2.2.1	Road.....	2-1
2.2.2	Air.....	2-1
2.2.3	Rail & Marine	2-1
2.3	Government Jurisdictions.....	2-2
2.3.1	Federal Government.....	2-2
2.3.2	Government of Saskatchewan	2-2
2.3.3	Regional District of Prince Albert.....	2-3
2.3.4	The City of Prince Albert.....	2-3
2.4	Community Concerns	2-3
3.0	<i>Airport Profile</i>	3-1
3.1	Current Role.....	3-1
3.2	Designation	3-1
3.3	Current Infrastructure	3-1
3.3.1	Runways.....	3-3
3.3.2	Taxiways	3-3
3.3.3	Aprons	3-3
3.3.4	Air Navigation Facilities	3-5
3.3.5	Air Terminal Building	3-5
3.3.6	Access Roads and Parking	3-5
3.3.7	Utilities and Services	3-6
3.3.8	Electrical and Communications	3-6
3.3.9	Aircraft Fuel Facilities	3-6
3.3.10	Access Control and Security	3-7

3.3.11	Emergency Response Services	3-7
3.3.12	Airport Maintenance	3-7
3.4	Land Use Issues	3-7
3.4.1	Airport Site Constraints.....	3-7
3.4.2	Surrounding Land Uses.....	3-8
3.5	Airport Standards & Zoning.....	3-8
3.5.1	Airport Physical Standards	3-8
3.5.2	Physical Zoning	3-8
3.5.3	Electronic Zoning.....	3-10
3.5.4	Off-Airport Land Use Zoning.....	3-10
3.5.5	Noise	3-10
3.6	Meteorological Conditions.....	3-10
4.0	<i>Aviation Activity and Forecasts</i>	<i>4-1</i>
4.1	Planning Horizons.....	4-1
4.2	Forecasting Approach.....	4-1
4.3	Economic Outlook.....	4-1
4.4	Passengers – Charter	4-2
4.4.1	Current Passenger Volumes	4-2
4.4.2	Projected Passenger Volumes	4-2
4.5	Passengers – Scheduled	4-2
4.5.1	Current Passenger Volumes	4-2
4.5.2	Projected Passenger Volumes	4-2
4.6	Cargo	4-5
4.7	Aircraft Movements	4-6
4.7.1	Current Movement Levels	4-6
4.7.2	Projected Movement Levels	4-6
4.7.3	Traffic Mix Analysis.....	4-6
4.5.4	Airfield Capacity.....	4-11
4.6	Design Aircraft	4-11
4.6.1	Background	4-11
4.6.2	Current Design Aircraft	4-11
4.6.3	Recommended Design Aircraft.....	4-12

5.0	<i>Airport Facilities, Deficiencies and Requirements</i>	5-1
5.1	Airfield System	5-1
5.1.1	Runways.....	5-1
5.1.2	Taxiways	5-2
5.1.3	Aprons	5-2
5.1.4	Airside Pavements.....	5-3
5.2	Air Navigation Facilities.....	5-4
5.2.1	Aerodrome Lighting	5-4
5.2.2	Airside Signage	5-4
5.2.3	Navigation Aids.....	5-4
5.2.4	Aviation Weather	5-4
5.2.5	Flight Service Station.....	5-5
5.3	Air Terminal Building.....	5-5
5.3.1	Assessment Methodology	5-5
5.3.2	Existing Air Terminal Building.....	5-6
5.3.4	ATB Design Considerations	5-9
5.4	Access Roads & Parking	5-9
5.5	Utilities & Services	5-10
5.5.1	Existing Services	5-10
5.5.2	Existing Drainage	5-11
5.6	Electrical & Communications	5-11
5.7	Aircraft Fuel Facilities.....	5-11
5.8	Access Control & Security.....	5-12
5.9	Emergency Response.....	5-12
5.10	Airport Maintenance.....	5-12
5.11	Airport Environment	5-13
5.11.1	Environmental Concerns	5-13
5.11.2	Wildlife Control	5-13
5.11.3	Environmental Development Constraints	5-14

6.0	<i>Commercial Facilities & Requirements</i>	6-1
6.1	Current Activities & Inventory	6-1
6.2	Air Cargo	6-1
6.3	Aircraft Maintenance	6-1
6.4	General Aviation	6-2
6.5	Commercial Opportunities	6-4
6.5.1	Aeronautical	6-5
6.5.2	Non-aeronautical	6-5
6.6	Aviation Commercial Land	6-5
6.6.1	Demand	6-5
6.6.2	Supply	6-6
6.7	Non-Aviation Commercial Land	6-6
6.7.1	Demand	6-6
6.7.2	Supply	6-6
6.8	Hangar Refurbishment	6-7
6.9	Development Strategy	6-8
7.0	<i>Development Concepts</i>	7-1
7.1	Strategy	7-1
7.1.1	Land Tenure and Ownership	7-1
7.2	Utilities & Services	7-3
7.2.1	Servicing of Future Expansion	7-3
7.2.2	Flow Projections	7-3
7.2.3	Future Drainage	7-4
8.0	<i>Recommended Land Use Plan</i>	8-1
8.1	Systematic Land Assignment	8-1
8.2	Recommended Plan	8-1
9.0	<i>Financial Overview</i>	9-1
9.1	Airport Revenue Streams	9-1
9.1.1	Airport User Charges	9-1
9.2	Aeronautical Revenue	9-2
9.2.1	Recent Aeronautical Revenue Activity	9-2
9.2.2	Aircraft Landing Fees	9-2

9.2.3	Aircraft Parking Fees	9-2
9.2.4	Airport Improvement Fees	9-3
9.2.5	Air Cargo Surcharge	9-3
9.2.6	Fuel Concessions	9-3
9.3	Non-Aeronautical Revenue	9-4
9.3.1	Vehicle Parking Charges	9-4
9.3.2	Retail & Advertising Concessions	9-4
9.3.3	Air Terminal Leases	9-4
9.3.4	Airport Land Leases	9-4
9.4	Revenue and Expenditures Forecast	9-5
9.4.1	Model Assumptions	9-5
<i>Appendix A – Financial Forecast Tables</i>		<i>A-1</i>

List of Figures

Figure 1-1	– Real GDP Growth (%) by Province	1-1
Figure 3-1	– Site Plan	3-2
Figure 3-2	– Apron Management Plan	3-4
Figure 3-3	– Physical Zoning	3-9
Figure 3-4	– Electronic Zoning	3-11
Figure 4-1	– Passenger Forecasts	4-3
Figure 4-2	– Prince Albert Forecast Aircraft Movements	4-10
Figure 5-1	– Recommended Air Terminal Building Configuration	5-7
Figure 7-1	– Airport Development Concept	7-2
Figure 7-2	– Airport Servicing Plan	7-5
Figure 8-1	– Recommended Land Use Plan	8-2

List of Tables

Table 1-1 – Stakeholder Consultations	1-2
Table 2-1 – Prince Albert Regional Population	2-3
Table 3-1 – Aerodrome Data.....	3-1
Table 3-2 – Runway 08-26 Declared Distances.....	3-3
Table 3-3 – Airport Parking Facilities	3-6
Table 4-1 – Passenger Forecast Growth Rates	4-4
Table 4-2 – Total Passenger Forecasts	4-4
Table 4-3 – Cargo Forecast	4-5
Table 4-4 – Annual Movements	4-6
Table 4-5 – Aircraft Movement Classifications	4-7
Table 4-6 – Prince Albert Historical Aircraft Movements.....	4-8
Table 4-7 – Air Traffic Movement Forecast.....	4-9
Table 4-8 – Aircraft Performance Overview	4-12
Table 5-1 – IATA LOS Criteria	5-5
Table 5-2 – STEP Air Terminal Capacities.....	5-6
Table 5-3 – Current ATB Space Program	5-8
Table 6-1 – Aeronautical Commercial Opportunities.....	6-3
Table 6-2 – Non-Aeronautical Commercial Opportunities.....	6-3
Table 6-3 – Land Development Strategy	6-9
Table 7-1 – Sanitary Flows	7-4
Table 7-3 – Water Demand.....	7-4
Table 9-1 Aircraft Landing Fees.....	9-2
Table 9-2 Proposed Aircraft Parking Rates.....	9-3

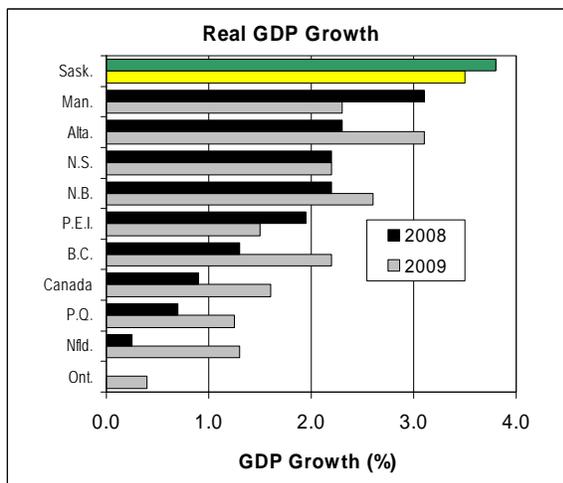
1.1 Current Situation

The Province of Saskatchewan has been experiencing rapid economic growth, outpacing other provinces, primarily due to the active expansion of the energy resource sector and other commodities. This is illustrated in Figure 1-1 below. This growth is placing new demands on The City of Prince Albert's infrastructure and transportation system and throughout the Regional Municipality and surrounding catchment areas.

Recently, the uranium firms have announced plans to delay or defer investment at the mine sites and to regularly review investment decisions as market conditions dictate. The demand for construction labour will remain status quo with growth rates for construction workers likely to moderate in the short-term.

Significant volumes of passenger traffic are still being experienced at the Prince Albert Municipal Airport. The City has expressed interest in further developing the site to better serve existing activities and to meet future development needs over its short, medium and long-term planning horizons.

Figure 1-1 – Real GDP Growth (%) by Province



Source: Statistics Canada and RBC

1.2 Plan Objectives

Key objectives of the Airport Master Plan are:

- 1) to provide guidance to the airport owner regarding the progressive development of the airport in support of current and future air services;
- 2) to identify airside development options in the short, medium and long-term supported by forecast airport activities;
- 3) to assess the existing capacity and efficiency of the current air terminal building against future expansion requirements;
- 4) to prepare a land use plan utilizing highest and best use principles in order to assist the City to rationalize future airport development; and
- 5) to identify current sources of aeronautical and non-aeronautical revenues for the airport and suggest options to enhance these revenues, in addition to determining areas where additional streams can be captured;

A systematically planned airport expansion will permit further growth of air services to the region, allowing for efficient and frequent air services for local industry, government, and the general public.

1.3 Stakeholder Consultations

Initial discussions with officials at the City of Prince Albert identified stakeholders with current and potential future interest in the airport's development.

Stakeholder consultations included, but were not limited to airport tenants, current and potential air carriers serving the airport, members of the Prince Albert Grand Council, the Prince Albert & District Chamber of Commerce, the Government of Saskatchewan, NAV CANADA, and the City of Prince Albert.

A complete listing of all stakeholder consultations can be found in Table 1-1.

Table 1-1 – Stakeholder Consultations

Name	Title	Organization
Gayle Sommerfelt	Airport Manager	City of Prince Albert
Lyn Brown	Chief Executive Officer	Prince Albert & District Chamber of Commerce
Jonathon Theaker	Economic Development Officer	Prince Albert Regional Economic Development Authority
Joanna McKay	E-Marketing & Promotion	Prince Albert Regional Economic Development Authority
Robert Cotterill	City Manager	City of Prince Albert
Elaine McCloy	Economic Development & Planning Property Coordinator	City of Prince Albert
Brent Zlukosky	Economic Development Coordinator	City of Prince Albert
Joan Corneil	Director of Economic Development & Planning	City of Prince Albert
Yves Richard	Planning Manager – Economic Development & Planning	City of Prince Albert
Jim Scarrow	Mayor	City of Prince Albert
Jerry Paskiw	Publisher	Prince Albert Shopper
Janet Keim	President	Saskatchewan Aviation Council
Dennis Renaud	Director of Northern Air Operations	Government of Saskatchewan
Ken Wooden	Flight Service Specialist	NAV CANADA
Dr. Kobus Steyn	President	Dr. Steyn Medical Corporation
Ron Cochrane	President	Elite Aero
Dennis Baraneski	Vice President, Business Development	Pronto Airways
Jim Glass	President	Transwest Air
Candace Czemerer	Director of Passenger & Ramp Services	Transwest Air
Grant Skomoroski	President	G L Mobile Communications
Wayne Thiessen	President	Ceres Industries
Sam Hunsaker	Aircraft Maintenance Engineer	RCMP Air Division
Lloyd Epp	Director of Flight Operations	Westwind Aviation
Johnny Walker	Corporate Executive Officer	Prince Albert Grand Council
Andrew Douglas	Director, Economic Development	Prince Albert Grand Council
Eric Cline	Vice President, Corporate Affairs	Shore Gold
Brian Parschauer	Finance Manager	City of Prince Albert
Janet O'Brien	Flight Coordinator	Cameco
Wade Petryshian	Flight Coordinator	Areva
Phil Bohay	Senior Director, Customer Service & Operations	Saskatchewan Transportation Company
Peter Heal	Director of Infrastructure	Saskatchewan Ministry of Highways and Infrastructure

2.1 Geographic Context

The Airport (CYPA) is located at 53° 12' 51" North latitude, 105° 40' 22" West longitude at an elevation of 428 m Above Sea Level (ASL). The airport is located 5 km to the northeast of the City of Prince Albert, within the Regional District of Prince Albert, approximately 134 air km north-northeast of Saskatoon.

Situated along the valley of the North Saskatchewan River, the City of Prince Albert is the 3rd largest city in the province with a reported population of 34,138 in 2006. The city functions as a retail, service and distribution centre for northern Saskatchewan's resource sector supporting agriculture, forestry and mining.

2.2 Transportation Systems

2.2.1 Road

The City of Prince Albert and its catchment area is served by a network of roads connecting to all parts of Saskatchewan, Alberta, and beyond.

Highway 2 connects the region to La Ronge to the north, and Moose Jaw to the south with approximate driving times of 2.5 hrs, and 3.5 hrs respectively. Provincial Highway 55 connects Prince Albert to the community of Nipawin (1.5 hrs) to the east, and to Meadow Lake (2.5 hrs) to the west, with further connections to Lloydminster and the Province of Alberta.

Highway 11 connects the region to Saskatchewan's largest city, Saskatoon, with an approximate driving time of 1.5 hrs.

The majority of public long distance travel in Prince Albert utilizes the above mentioned road network.

2.2.2 Air

The Airport is served by both scheduled and charter air services. Scheduled air services are offered to the general public, while charter air services are focussed primarily on serving industrial markets.

Pronto Airways offers direct scheduled services to Saskatoon on a daily basis using Beech 1900C (19 seat capacity) aircraft. Pronto also provides direct services to La Ronge three times per week and Points North on a daily basis. Passengers have the option of connecting to the communities of Stony Rapids, Uranium City and Wollaston Lake through Points North.

Transwest Air also offers scheduled air services from the Airport with direct flights to Regina, Saskatoon, La Ronge, Stony Rapids, and Fort McMurray. Flights to Saskatoon, La Ronge and Stony Rapids operate during each weekday, while flights to Regina operate Monday thru Thursday. Services to Fort McMurray operate Mondays, Wednesdays, and Thursdays. Transwest also provides indirect flights from Prince Albert to the communities of Fond Du Lac, Wollaston Lake, Points North and Uranium City.

Westwind Aviation provides charter services to and from Prince Albert, primarily to serve the transportation needs of the mining and resource sector in northern Saskatchewan. Westwind operates ATR 42 aircraft with a capacity of 44-50 seats to various mine sites, primarily on weekdays. Aircraft are sometimes dispatched from Saskatoon and stop in Prince Albert to collect additional workers.

Current destinations served by Westwind include, but are not limited to Cigar Lake, Rabbit Lake, McArthur River, Key Lake and McClean Lake. Most of these services are operated during weekdays, with limited services on the weekend.

2.2.3 Rail & Marine

The City of Prince Albert and surrounding area does not have scheduled passenger rail or marine passenger transportation services. However, the City of Prince Albert is the focal point for Northern Saskatchewan's railway network with rail services provided by the Carlton Trail Railroad.

2.3 Government Jurisdictions

2.3.1 Federal Government

Transport Canada currently owns, operates or subsidizes 150 of the 726 certified airports in Canada. These airports generally include those within the National Airport System and smaller Remote Airports where air services are essential for communities. The Airport does not fall under either of these two classifications.

Limited funding is provided to airports not owned by Transport Canada through the Airports Capital Assistance Program. This program has a limited budget and provides funding to smaller certified airports offering scheduled air services that require funds to facilitate airport safety improvements and infrastructure renewal, among other specialized criteria.

Consultations with the Airport Manager and a review of operational documents revealed that the Airport has received funding from the Federal Government under the ACAP program in recent years, primarily for fencing upgrades and pavement rehabilitations. Consultations also indicated that ACAP has approved funding for an FEC upgrade to occur in 2009.

Future funding under ACAP may be available for the Airport to support some of the development initiatives identified within this Plan, providing they can be related to safety issues, preservation of infrastructure, and/or improvements.

Other funding programs may be available for infrastructure improvements and renewal through the Federal Government. One example is the Building Canada Fund (BCF) – Canada’s new flagship infrastructure program aimed at advancing national priorities that are important to all Canadians, such as a stronger economy, a cleaner environment and better communities.

The BCF will total \$8.8 billion over a seven year period and will focus on projects that deliver economic, environmental, and social benefits to all Canadians. Although the program gives priorities to projects related to the national highway system, drinking and wastewater, and public transit, regional and local airports have been highlighted as potential economic growth drivers eligible for funding under the program.

Under this initiative, most municipal infrastructure projects will be cost-shared on a one-third basis between the Municipality, the Province and the Federal Government.

Although an attractive program for funding airport infrastructure projects, the BCF is sometimes shared with other infrastructure projects, depending on the applications submitted within the municipalities. Projects are assigned priorities under the BCF and in many cases airports fall to the bottom end of the priority list when compared to projects related to the health and well-being of a community (i.e. a water treatment plant, or hospital expansion). This can make it difficult for airports to capture their share of funding under the program.

2.3.2 Government of Saskatchewan

The Government of Saskatchewan operates 17 airports in the north that provide essential passenger services to northern residents, in addition to supporting tourism and economic development. Outside of these 17 airports, the Provincial Government’s role in funding airport operations and infrastructure improvements is limited.

The Saskatchewan Government’s Community Airport Partnership (CAP) program provides contributions to airport infrastructure improvements with an annual budget of \$500,000 per annum and is generally aimed at the network of community airports in southern Saskatchewan. Like the Federal Government programs, funding under the CAP program gives priority to safety related improvements. Approved projects can receive up to 50 per cent of the eligible cost, up to a maximum of \$200,000. Buildings, access roads, equipment, and administration expenses are not eligible for funding under the CAP.

Since funding under this program is limited, the Airport may have difficulty in securing financing in the immediate to short-term, primarily due to the large number of applications currently on file, and the limited amount of funding available. However; consultations have revealed that the CAP program is currently under review, suggesting that additional funds could be available for airport infrastructure projects.

Consultations also suggested that interest has been expressed by the Provincial Government in improving the Airport, particularly in terms of extending Runway 08-26.

Official discussions with the Saskatchewan Government are required to discuss the true viability of contributing any funds towards any infrastructure projects.

2.3.3 Regional District of Prince Albert

The Regional District of Prince Albert is bordered by the North Saskatchewan River to the north, and the South Saskatchewan River to the south. It encompasses the southern portion of the City of Prince Albert and the western portion of the Muskoday First Nations Reservation and is comprised of 12 jurisdictions.

The Regional District of Prince Albert Area Council governs in accordance with the Public Service Alliance of Canada and was established for the exchange of information on matters of common interest. Population figures are shown in Table 2-1.

Table 2-1 – Prince Albert Regional Population

Area	2001*	2011*
City of Prince Albert	34,250	38,086
RM of Prince Albert	3,380	3,603
RM of Buckland	3,525	3,758
RM of Birch Hills	785	837
Town of Birch Hills	960	1,050
Muskoday First Nation	514	643
James Smith First Nation	624	781
RM of Garden River	730	778
RM of Shellbrook	1,730	1,844
Town of Shellbrook	1,275	1,406
RM of Kinistrino	810	863
Town of Kinistrino	705	778
Total	49,288	54,427

** projected population from Statistics Canada*

2.3.4 The City of Prince Albert

The City of Prince Albert is the third largest City in Saskatchewan with a population of 34,138 (Statistics Canada-2006). The City is situated near the geographical center of the province in the broad valley of the North Saskatchewan River.



The City of Prince Albert's predominant function is providing service, retail and distribution support for northern Saskatchewan's resource industries of mining, forestry and agriculture. This role is likely to be enhanced because of the continual resource development in Saskatchewan's north.

The City of Prince Albert owns and operates the airport, which was transferred from the Federal government to the municipality in 1996.

2.4 Community Concerns

Stakeholder consultations revealed some concerns regarding the airport, its current operation, and future capabilities. Many tenants and users commented on the layout and efficiency of the current Air Terminal Building (ATB).

The inclusion of the Canadian Air Transport Security Authority (CATSA) within the ATB was noted as one of the prime concerns for air carriers operating at Prince Albert Municipal Airport. Air operators transporting passengers from northern communities without passenger and baggage screening are required to screen all passengers and cargo if they are making a stop in Prince Albert en-route to Saskatoon or Regina, even if passengers are not deplaning in Prince Albert. However, if passengers are flown directly from non-sterile northern airports, directly to Saskatoon or Regina without making a stop in Prince Albert, they are not required to be screened and are transferred through a non-sterile area within the ATB and are then screened if they are flying to points further.

Air carriers operating at the Airport do not see the need for CATSA within the current ATB, as it causes delays and potential passenger discomfort, especially for elders. Although Prince Albert is one of the 89 designated airports in Canada with CATSA services, some stakeholders feel that the airport should be removed from the list, removing operational restrictions and improving efficiency.

Some stakeholders feel that removing Airport from CATSA's list will inhibit the community from getting regularly scheduled air services by major network carriers such as Air Canada Jazz and WestJet. If CATSA's services were removed from Prince Albert and both of these carriers expressed interest in operating to the airport, CATSA services could be reinstated and the airport would be placed back on the list of designated airports.

Consultations also revealed that the current Air Terminal Building is too small and is poorly configured, causing congestion during peak periods.

It was also noted that the washroom facilities located within the ATB are grossly undersized. An assessment of the ATB is included in Chapter 5 addressing the overall building size, space requirements and passenger flows.

Other stakeholders expressed concerns regarding the development of airport lands, primarily groundside areas not linked to airside infrastructure such as aprons and taxiways.

The City of Prince Albert has been rapidly expanding vehicle parking capacity at the airport by providing additional parking stalls for workers utilizing charter aircraft services departing Prince Albert, destined for northern resource development areas. Discussions indicate that the location selected for parking expansion may not be the best use of land, particularly due to the development potential of the area as it is provided with prime access to the airport entrance road, and the full range of utilities and services are available.

Stakeholders also noted that garbage pickup is not available at the airport. As taxpayers, businesses feel that they should be provided with this service, especially since tax revenues go directly in to the City's general pool instead of being re-invested in the airport.

A site visit revealed a relatively low number of small General Aviation (GA) aircraft at the Airport. Discussions with airport tenants and air operators suggest that many private GA operators may have re-located to the nearby Birch Hills Airport, due to lack of hangar facilities and availability of support services. Small GA operators have previously expressed interest in developing private hangars but land has not been easily available. Since large investments are sometimes made in these types of facilities, operators felt that their investment would be better protected at Birch Hills, as the administration at that airport has been very accommodating to this type of development, and was able to provide the necessary land at an affordable price and on relatively short notice.

These GA operators may have also re-located to Birch Hills partly due to the limited availability of aviation fuel at the Prince Albert Municipal Airport. One private tenant currently provides 100LL fuel (Avgas) to the GA operators but availability is limited.

Commercial operators requiring Jet A fuel are also required to make their own arrangements, as fuel is not readily provided by an independent operator. Some airport tenants would like to see fuel become more readily available.

Concerns were also raised regarding the use of the hangar facility currently under lease to Ceres Industries. It is understood that the building is used as a fertilizer storage facility and is located directly adjacent to Apron III. Fertilizer can be highly corrosive to metals such as aluminum – a product commonly used in the construction of aircraft.

Products with this type of corrosive properties should not be stored at an airport as they create a safety hazard.

Some airport tenants feel that the City of Prince Albert is not being adequately promoted as a 'bedroom community' for the resource sector. It is felt by some that further promotion could increase overall traffic levels at the Airport and provide additional revenues to support airport operations and future infrastructure improvements.

3.1 Current Role

The Airport Role Statement is the fundamental starting point in classifying current activity and determining a future position in terms of long-term activities and development at the site.

The Airport is certified in accordance with the requirements of Transport Canada document TP312E Aerodrome Standards and Recommended Practices. The Airport Certificate acknowledges that the airport meets all regulatory and operational requirements of the Canadian Aviation Regulations (CARs), and essentially enables the airport to accept scheduled air services.

The Airport serves the needs of scheduled and charter air services, with a limited amount of General Aviation operators primarily engaged in recreational flying activities.

In order to maximize the economic capabilities of the Airport, the future role should be to provide:

- ✈ a point of entry to the national air transportation system through links with major hub airports;
- ✈ a transportation hub for the City and Regional District of Prince Albert;
- ✈ a tourism gateway to Saskatchewan's near and far north;
- ✈ a medical entry and exit hub for Saskatchewan's near and far north;
- ✈ an expanded base for forest fire activities, including pilot training;
- ✈ a base for aviation education supporting post secondary ab initio flight training and the training of Aircraft Maintenance Engineers (AME); and
- ✈ a base for private aircraft owners and operators

3.2 Designation

The lands currently occupied by the Airport were originally purchased in 1929. The airport was developed with grass runways at the time. In 1940, the Department of National Defence invested in airport improvements in preparation for a flying training school under the British Commonwealth Air Training Plan. World War II pilots were trained at the Airport under this Plan.

In 1946 the City of Prince Albert took over the airport and operated it with a subsidy provided by Transport Canada. Saskatchewan Government Airways was formed in 1947 and provided passenger service, fire suppression, forest patrol and air ambulance services. The airport expanded to its present size in 1949.

Ownership of the airport was transferred to the City of Prince Albert in the mid 1990's under Canada's National Airports Policy. The City of Prince Albert has been both financially and operationally responsible for the airport since that time.

3.3 Current Infrastructure

The Airport consists of two runways, five taxiways, and four aprons. The development area exists in the southwest quadrant of the airport property. The site is illustrated in Figure 3-1. Airport information has been derived from various reference materials including the Airport Operations Manual (AOM), Canada Flight Supplement (CFS), and the Canada Air Pilot (CAP). The following table shows data specific to the Airport. This data is generally used for aviation operations and airport planning purposes.

Table 3-1 – Aerodrome Data

Reference Point (Coordinates)	N 53° 12' 51" W 105° 40' 22"
Aerodrome Elevation	428 m ASL
Aerodrome Magnetic Variation	12°E



3.3.1 Runways

The Airport currently has one paved runway (08-26) and one turf runway (16-34). Runway 08-26 measures 1,524 m x 45 m and is classified by Transport Canada standards as Code 3C – Precision. Runway 08-26 is equipped with high intensity threshold and edge lights, and is supported by a high intensity approach lighting system with runway alignment indicator lights, and Omni-Directional Approach Lighting (ODALS). The following table illustrates the current declared distances for Runway 08-26.

Table 3-2 – Runway 08-26 Declared Distances

Declared Distances	Rwy 08	Rwy 26
TORA Take-off Run Available	5,000'	5,000'
TODA Take-off Distance Available	6,000'	6,000'
ASDA Accelerate Stop Distance Available	5,000'	5,000'
LDA Landing Distance Available	5,000'	5,000'

*Distances derived from the CAP and are expressed in feet.

Runway 16-34 is 762 m x 30 m and is classified by Transport Canada as a Code 1A – Non-Instrument runway. This runway is not equipped with lighting systems and is used for day VFR flight operations only. All declared distances for Runway 16-34 are 2,500' in length.



Runway 08-26 is classified as a precision instrument runway, allowing for airport operations during periods of poor ceiling and visibility.

3.3.2 Taxiways

A series of taxiways connect the airport's core development area to the runway system. Taxiway 'A' is 23 m in width and connects Aprons I, II, and III to the near threshold of Runway 08. It is classified as Code C.

Taxiway 'B' connects the facilities located adjacent to Apron I and the rest of the airfield system. This surface is classified as Code 'B'.

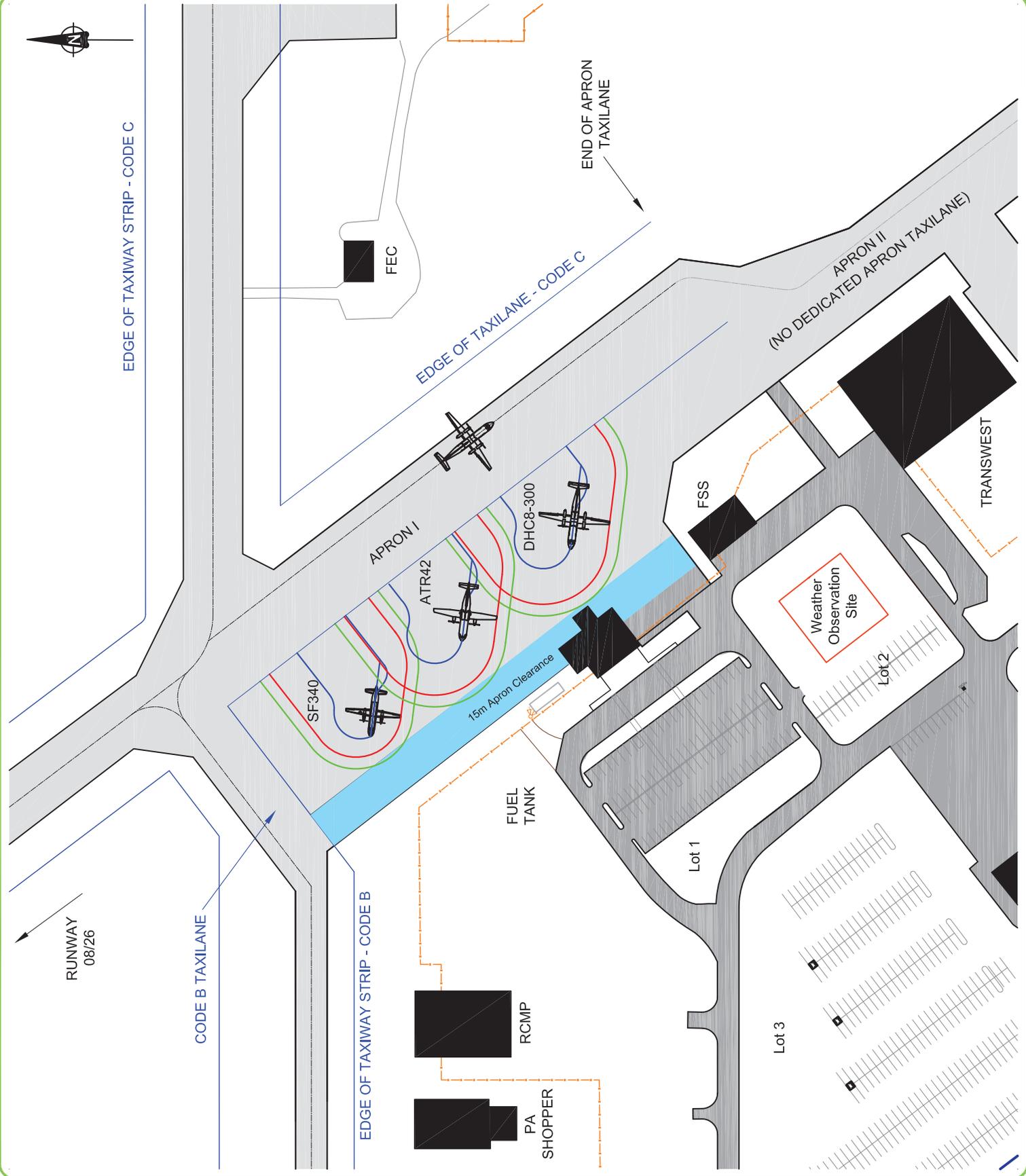
Taxi 'C' parallels runway 08-26 and connects Apron I to Apron IV and Taxiways 'D' and 'E'. Taxiway 'D' connects Taxi 'C' and 'E' to Runway 08-26. Both Taxiways 'C' and 'D' are classified as Code C.

Taxiway 'E' is comprised of a turf surface and connects the core development area to Runway 16-34. This taxiway is classified for Code B aircraft operations.

3.3.3 Aprons

The Airport includes four pavement surfaces designated as operational aprons. Apron I is approximately 20,300 m² in area. This is considered to be the site's main apron as it supports the Air Terminal Building (ATB) and a privately operated aircraft fuelling facility. The apron accommodates a variety of aircraft types including the ATR-42, Dash 8-300, Beech 1900C, King Air 200 and various other smaller aircraft. A layout and preliminary apron management plan is shown in Figure 3-2.

Apron II is estimated to be 7,000 m² in size and serves aircraft hangars owned and operated by Transwest Air and G&L Communications. Aircraft utilizing this apron are typically Code B in size (wingspan less than 24m). Apron III is approximately 1,200 m² and is located adjacent to Apron II, primarily supporting the hangar currently occupied by Ceres Industries. Apron IV is exclusively occupied by the Saskatchewan Government's air tanker base. The apron is approximately 7,100 m² in size and is located directly to the south of Taxi 'C', east of the airport's core development area.



3.3.4 Air Navigation Facilities

An Instrument Landing System (ILS) supports precision approaches to Runway 08 in conjunction with the Prince Albert Non-Directional Beacon (NDB) located approximately 4.0 Nautical Miles (NM) from the threshold of Runway 08.

Non-precision approaches are accommodated on Runway 26 utilizing the VHF Omni-Directional Range (VOR), combined with a co-located Distance Measuring Equipment (DME) unit, in addition to the Glass NDB located approximately 4.2NM east of the threshold along the extended Runway 26 centreline. The VOR has a co-located TACAN for military use.



The Airport's VOR provides both en-route and approach guidance to aircraft operating in the area.

The ILS consists of a localizer antenna located on the extended centreline of Runway 08, approximately 335m beyond the runway end. The glide path antenna is positioned approximately 320m east of the threshold of Runway 08 offset approximately 150m to the south of the runway centreline.

A Meteorological Observation facility located southwest of NAV CANADA's Flight Service Station (FSS) measures wind speed and direction, barometric pressure and temperature, and other atmospheric readings.

Protective areas are required around each of the air navigation facilities identified above, each with varying dimensions depending on the equipment. Any future developments should consider these protective requirements.

The Airport is also equipped with the following visual navigation aids assisting airport availability during periods of darkness or low visibility:

- ✈ Aerodrome Beacon;
- ✈ High-Intensity Runway Edge Lighting (08-26);
- ✈ Precision Approach Path Indicators (26);
- ✈ High-Intensity Simplified Short Approach Lighting with Runway Alignment Indicator Lights (SSALR) (08);
- ✈ Omni-Directional Approach Lighting System (ODALS) – (26);
- ✈ Taxiway and Apron Edge Lighting; and
- ✈ Lighted Windsocks (2)

The Prince Albert Municipal Airport is one of 4 airports in Canada which have a Canadian Centre for Remote Sensing RadarSat device used for the calibration of satellites. This device is located 30m southeast of the glide path antenna.

3.3.5 Air Terminal Building

The single storey terminal with an area of approximately 490 m² is located beside Apron I and currently serves scheduled and charter passengers utilizing the Airport.

The interior layout of the building includes several areas including a waiting area, ticket lobby, ticket counters, airline offices, baggage holding areas, cargo handling areas, CATSA passenger and baggage screening, secure and non-secure hold rooms, one baggage conveyor and washroom facilities. Consultations with airport stakeholders have revealed that the ATB is significantly undersized and poorly configured for the current level of traffic.

3.3.6 Access Roads and Parking

The Airport is accessed by a paved access road connecting to Highway 55 to the north. This road is approximately 7.5m in width and connects to the airport's core development area serving all airport facilities and tenants, including the ATB. Connections to the access road include various paved, gravel and grass driveways.

Parking facilities are provided by the airport for passengers and staff primarily involved in ATB activities. These parking facilities are concentrated in three areas on either side of the airport access road, near the ATB as shown in Figure 3-2.

Airport leaseholders are responsible for parking areas within their lease boundaries.

Table 3-3 identifies the number of parking spaces managed by the airport operator. All parking locations are equipped with plug-in electrical services, with the exception of the 21 public spaces located within Lot #1.

Table 3-3 – Airport Parking Facilities

Lot #	# of Spaces	Assigned Use
1	21	Public
1	24	Permit Holders
1	51	Cameco
2	35	Cameco
3	14	Public
3	13	Permit Holders
3	46	Areva
3	26	Cameco
Total	230	

Consultations with the airport operator have revealed additional demand for parking facilities from Areva and Cameco. An additional 20 spaces are being developed in the short-term and will be located adjacent to Lot #3.



The Airport provides several vehicle parking areas for short-term, long-term, and employee use.

3.3.7 Utilities and Services

Utilities and services are provided by the City of Prince Albert to most airport tenants and operations facilities.

The Airport's core development area is provided with municipal water and sanitary sewer services. All buildings and tenants within this area (including the ATB) are provided with these services.

Natural Gas is provided to airport tenants located within the airport's core development area. A gas main located in the ditch beside the main access road provides natural gas to these facilities.

The Government of Saskatchewan's air tanker base is provided with water services via a municipal feed. This facility utilizes a septic tank for treatment of wastewater and the building is heated using electricity. The pilot's readyroom located near the air tanker base, and the GA parking area, are also provided with electric heat.

3.3.8 Electrical and Communications

All airfield lighting systems are controlled from NAV CANADA's FSS, via the Field Electrical Centre (FEC) located to the south of Taxiway 'C', between Apron I and Apron IV. Power for the lighting systems is fed to the FEC then distributed to the airfield's lighting systems.

All electrical power (supporting both airside and groundside electrical systems) at the Airport is supplied by Sask Power.

Air-to-ground communications are via a Mandatory Frequency (MF) at 122.3. Pilots are required to broadcast their intentions on this frequency to Prince Albert Radio (manned by NAV CANADA's FSS). The FSS operator provides weather and air traffic information to pilots at and in the vicinity of the airport in the form of an airport advisory. Flight planning services are also available through the Prince Albert FSS.

3.3.9 Aircraft Fuel Facilities

Fuel is provided to aircraft from three different sources, depending on the aircraft operator.

- ✈ Pronto Airways and Westwind Aviation operates an above ground tank storing Jet A type fuel with a capacity of – 75,000L
- ✈ Transwest Air owns and operates an underground fuel facility with two 50,000L tanks, each supplying Jet A and 100LL (Avgas). A 10,000L 'slop tank' is also provided for fuel and oil waste.

✎ The Government of Saskatchewan Air Tanker base houses two above ground fuel tanks also supplying Jet A and 100LL. The tanks each have a capacity of 90,00L.

Dr. Steyn Medical Corporation houses a private gravity-fed fuel tank adjacent to the North Saskatchewan River. This tank houses 100LL fuel to support seaplane operations and is located on private property. The capacity of the tank is unknown.

Private aircraft operators are required to obtain fuel under arrangements with Transwest Air; however, fuel sales are at the discretion of Transwest and consultations have revealed that fuel availability can be an issue at certain times.

3.3.10 Access Control and Security

The Airport currently incorporates access control and security measures in accordance with standards for certified airports.

Chain-link fencing with an approximate height of 2.4 m acts as a security barrier between groundside and airside areas of the airport, with several secure gates placed at various locations. This fence acts as a security barrier restricting access to authorized persons only, and functions as a barrier to deter wildlife from entering the airfield. The fencing was recently upgraded with funding provided under Transport Canada's ACAP program.

The aerodrome does not have security staff on-site; however, personnel employed by tenants are on-site during normal operational hours and are expected to maintain a security watch.

3.3.11 Emergency Response Services

There are no on-site Emergency Response Services (ERS) at the Airport. In the event of an emergency, ERS would be provided by the City of Prince Albert.

The Prince Albert Fire Service currently occupies a small building located to east of the maintenance garage. This building is used for storage purposes only, and is not staffed with emergency response equipment or personnel. An emergency exercise building is also located on airport property and is used for training emergency response staff.

3.3.12 Airport Maintenance

All airfield maintenance is undertaken by staff employed by the City of Prince Albert. An airport maintenance building is located within the airport's core development area on the southwest side of the airport access road. Two full-time staff attend to the facility and the equipment is owned by the City of Prince Albert.

Airport maintenance activities typically include, but are not limited to the following tasks:

- ✎ Grass cutting;
- ✎ Snow clearing;
- ✎ Safety inspections
- ✎ Wildlife management;
- ✎ Fence maintenance;
- ✎ Maintenance of airfield electrical systems; and
- ✎ Groundside and airside pavement maintenance.



The airport maintenance garage helps support various types of equipment and airport personnel.

3.4 Land Use Issues

The Airport includes approximately 359 hectares of land within the city limits of Prince Albert. The site is officially designated as 'Airport' under the City's land use by-laws.

3.4.1 Airport Site Constraints

The airport property is constrained by the North Saskatchewan River to the south and southeast.

The northern boundary of the airport is bordered by a land parcel currently used for agricultural purposes.

Land directly to the west of the airport beyond the access road is owned by a private property owner, also utilizing the land for agricultural use.

3.4.2 Surrounding Land Uses

Land uses surrounding the Airport include agricultural and residential. A review of the City of Prince Albert's official zoning map reveals that areas surrounding the airport do not have current official land use designations.

Consultations with the City have revealed plans to further designate areas surrounding the airport in the near future for industrial and residential land uses.

3.5 Airport Standards & Zoning

Certified airports are required to comply with national standards for airport activities and construction. All current operations and future planning activities must be based on adherence to Transport Canada's Aerodrome Standards and Recommended Practices (TP312). Compliance with these Standards is also mandatory in order to maintain the airport's Operating Certificate.

Protection areas are established around certain airport components to protect the safety and security of aircraft operations. At the airport, given the nature of existing facilities and location of various topographical features adjacent to the site, other restrictions also apply. These restrictions are summarized below.

3.5.1 Airport Physical Standards

A numeric Reference Code is assigned to airport facilities which classifies runways according to their length, and using a letter code, further classifies runways, taxiways and aprons according to the wingspan and outer main wheel span of the designated design aircraft. In general, the higher the numeric or letter code, the greater the geometric requirements of the airport become.

In addition, runways are classified according to their capability to support three types of aircraft flight approaches: Non-Instrument (NI), Non-Precision Instrument (NP), and Precision (P) instrument approaches.

As approaches become more sophisticated for poor weather services, greater levels of protection are required.



The glide path antenna installation supporting Runway 08 provides vertical guidance to aircraft on approach.

Prince Albert's primary runway (08-26) is classified by Transport Canada Standards as a Precision (P) facility, supporting aircraft within the Code C category and lower (wingspan less than 24 m, and outer main wheel span of less than 6 m). The turf runway (16-34) is designated as a Code 1 runway, supporting Code A aircraft (wingspan less than 15 m and outer main wheel span less than 4.5 m).

3.5.2 Physical Zoning

Physical zoning refers to the obstacle limitation zoning protecting airspace around the airport which must be maintained free of obstacles. It defines the maximum height to which structures may be permitted. Zoning criteria are described in Transport Canada's Aerodrome Standards and Recommended Practices (TP312) and are based on runway reference codes described above. The physical zoning associated with the Airport resembles Code 3C-P standards, and Code 1A-NI in terms of Runway 16-34. Each runway possesses its own type of physical zoning, depending on the reference code assigned.

Figure 3-3 illustrates both the Code 3C-P and 1A-NI physical zoning requirements established for both runways at the Airport.

3.5.3 Electronic Zoning

Airport developments and operations must also be compatible with a variety of electronic transmissions occurring on or near the airport, all of which are critical to the safety of airport operations. Electronic zoning is designed to protect the integrity of the electronic systems of the aerodrome.

The zoning criteria are described in Transport Canada's document entitled TP1247 – Land Use in the Vicinity of Aerodromes.

The Airport is equipped with several navigation aids: an Instrument Landing System (ILS), a VHF Omnidirectional Range / Distance Measuring Equipment (DME), and a VHF Direction Finding (DF) installation, each identified in Section 3.3.4.

Figure 3-4 illustrates the current electronic zoning requirements stipulated by TP1247 necessary for protecting the integrity of the airport's electronic systems from interference or disruption.

3.5.4 Off-Airport Land Use Zoning

Physical zoning is not complete without protecting off-airport land requirements. Complete zoning plans usually include zoning regulations for obstacle limitation surfaces (OLS) including an outer surface consisting of a circular plane with a 4,000 m radius from the airport reference point (ARP); and a noise exposure forecast (NEF) to facilitate land use compatibility by providing guidance to the local land use authority for development in the vicinity of the Airport within the noise footprint.

The Airport's airside system and surrounding airspace is normally protected by Federal Aeronautical Zoning Regulations. The Zoning Regulations prohibit the erection of any structure that may compromise unobstructed safe aircraft operations. The maximum height of any structure is governed by its proximity to the runways, taxiways and any electronic or navigational aid equipment. Most certified airports within Canada's National Airport System (NAS) have registered federal zoning to protect land uses surrounding the airport. Although the Airport was not designated as a NAS airport by Transport Canada, registered zoning is currently in place.

Off-airport land affected by these Regulations is annotated on the Land Title to alert owners of the restrictions. All airport development falling within the affected zones is subject to these restrictions and guidelines. The Regulations apply within airport boundaries through the Ground Lease, as if they had been registered against title.

3.5.5 Noise

One of the most significant environmental impacts of airport activity is the noise generated by aircraft landing or taking off at the airport. In order to estimate the present or potential noise impact on areas in the vicinity of airports, noise exposure forecast contours (NEFs) are prepared based on the types of aircraft operating at the airport and flight frequencies.

Although the current location and status of the NEF contours for the Airport are unknown, noise has not been raised as an issue during consultations, likely due to the location of the airport being 6km from the City centre. In the medium to long-term, noise exposure forecasts (NEF) should be developed for the aerodrome to ensure that developments surrounding the airport are not exposed to unacceptable levels of aircraft noise.

3.6 Meteorological Conditions

Weather in the Prince Albert area affects the ability of an airport to remain open and operate effectively. It is therefore necessary to examine the meteorological conditions in the area to determine if actions are necessary to improve the usability of the airport.

The Airport is located to the north of the city centre, with two runways oriented east/west and northeast/southwest. The primary runway (08-26) is paved, and the secondary runway (16-34) consists of a turf surface.

Factors that effect the ability of a runway to meet its design needs are ambient temperature (the higher the temperature the more runway length is required for the same aircraft) wind speed and direction (a severe cross-wind can affect the ability of aircraft to land), and precipitation characteristics (snow and rainfall).



LEGEND

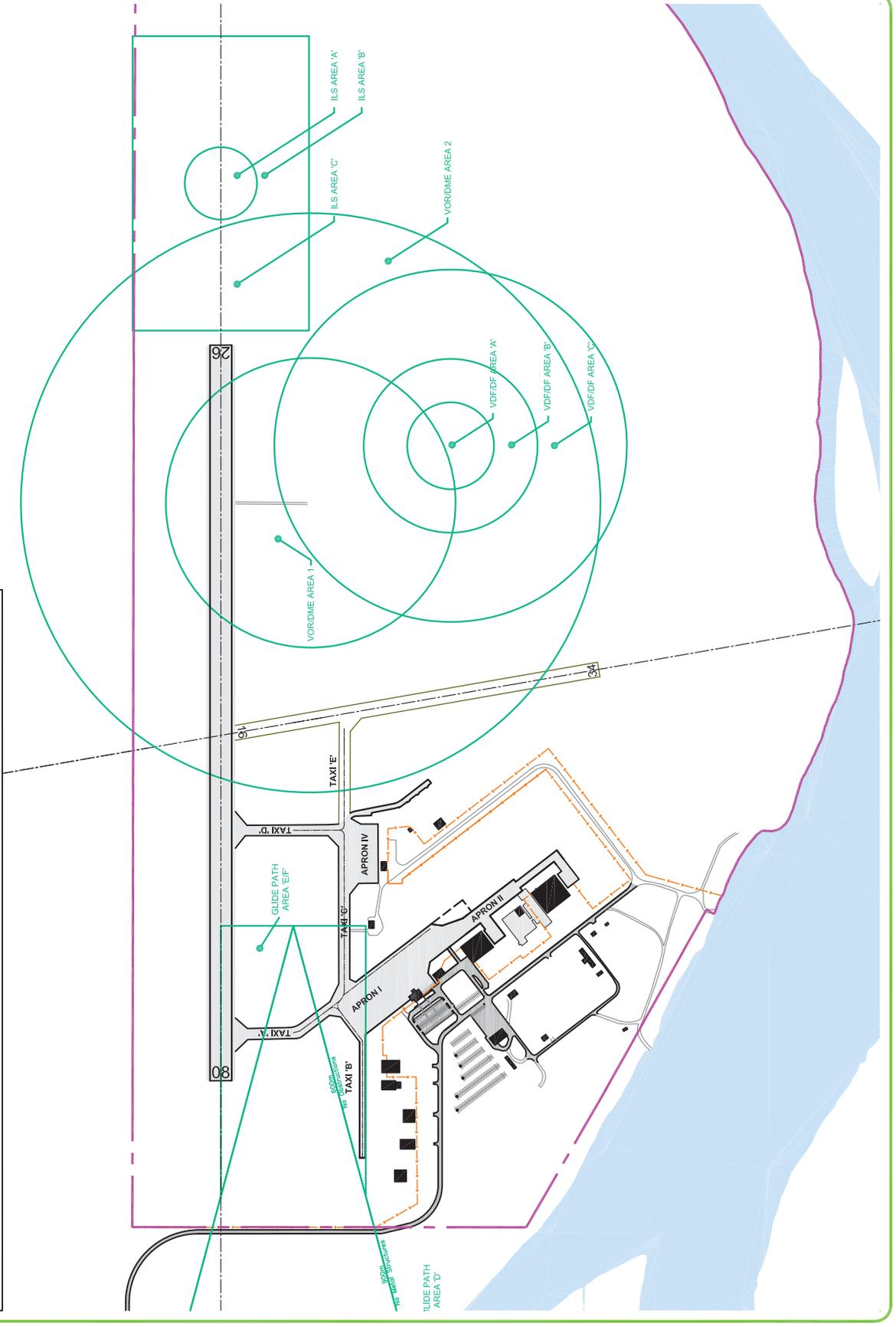
ILS LOCALIZER
 Area A: No objects > 1.2m
 Area B: No metallic objects > 1.2m
 Area C: Degrees subtended > 0.8
 Area D: Degrees subtended > 1.2
 No structural steel work > 1.6
 No non-metal object > 2.4
 No service roads < 180m

ILS GLIDE PATH
 Area D: No metallic fences, power lines, telephone lines, buildings, roads, railroads
 Approach lighting horizontal bars to be avoided within 600m
 Area E: Same restrictions as Area D
 Area F: Same restrictions as Area D

VOR/DME
 Area 1: No trees, fences, wire lines, structures, machinery or buildings
 Area 2: Excludes Area 1
 Subtended angle up to 1.2°
 Angle not above 0.5° above horizontal plane
 >600m: with subtended angle >1.2°
 <600m: or elevations <0.5°
 Line of sight clear

EXIT/SITE
 <500m: No electrical noise generators
 <1.5 km: Recommended no electrical noise generators
 <8km: No high power broadcasting

VHF/DFE
 Area A: Ground to be clear of trees, masts, metal fences and vehicles within 90m
 Area B: Ground to be clear of buildings, parking areas, and small metal structures within 180m
 Area C: Ground to be clear of built-up areas, hangars, railways, and other metallic structures within 360m



Based on over 30 years of weather data accumulated at Prince Albert, the daily average temperature ranges from a low of -19.1° C in January to a high of +17.5° C in July. With this small range there is very little effect on aircraft performance. In terms of daily maximum temperature, the maximum is in July at 23.9° C and daily minimum values have been recorded in January at -25.2° C. There are only 2.5 days per year on average with a maximum high above 30° C where aircraft performance could be particularly poor. The current runway alignment (Runway 08-26) and its supporting navigation systems are adequate for the types of aircraft proposed for the long-term and there is no need for runway modifications due to temperature.

The average wind speed varies from a low of 10.4 km/h in January to a high of 14.2 km/h in May. Predominate wind direction is from the west during the months including January, June through October and December. Predominate wind direction during other periods throughout the year is from the east.



The airport's close proximity to the North Saskatchewan River results in the presence of steam fog, primarily in the morning hours.

At these average wind speeds and directions and with a runway oriented east/west, there should not be any significant cross-wind issues in terms of aircraft operations. Maximum wind speeds appear to occur from the west and northwest. This is also the direction of Prince Albert's primary runway (08-26). Therefore, wind conditions should not restrict the type of operations proposed for the airport.

Rainfall in the Prince Albert area is at a minimum in February with 0.2 mm per month and in July at a maximum of 76.8 mm. Snowfall is at a minimum of 0 cm in the period from June through August, while the maximum is in January at 19.2 cm. These are not extreme accumulations of precipitation and the current runway structure (pavement, drainage etc.) can handle these amounts. Precipitation is not a limiting factor in terms of current or contemplated airport operations.

The current airport has been operational for many years and is usable in the current weather patterns. Given the Airport's close proximity to the North Saskatchewan River and low lying elevation when compared to its surroundings, significant amounts of fog have been reported by airport tenants and users, especially during early morning periods. An instrument landing system improves the airport's availability for aircraft operating in poor weather under Instrument Flight Rules (IFR).

4.1 Planning Horizons

A master plan typically considers all likely requirements and development needs within stipulated time frames, or planning horizons. The following planning horizons are considered for the Prince Albert Municipal Airport:

- ✈ Short-Term – 2009-2014 (5 years);
- ✈ Medium-Term – 2015-2020 (10 years);
- ✈ Long-Term – 2021- 2031 (20 years); and
- ✈ Ultimate – Beyond 2031.

4.2 Forecasting Approach

Passenger traffic projections for airports can be developed using several different techniques. Some forecasting methods examine extensive historical data and combine it with industry growth projections, and other performance indicators, such as GDP or Personal Disposable Income (PDI) forecasts. Since only limited amounts of historical passenger movement data is available for the Prince Albert Municipal Airport, less emphasis was placed on historical activity while developing the forecasts presented below. If accurate record keeping is undertaken by the airport, future forecasts can be developed with more emphasis on historical data.

Scheduled passenger volumes for the Airport are therefore projected based on Transport Canada forecast growth rates.

4.3 Economic Outlook

World economic conditions will continue to exert a strong influence over air traffic at Prince Albert. In late 2007, the world financial markets entered a period of turmoil. A correction in real estate markets in the United States, United Kingdom and other countries exacerbated problems of high household debt, government deficits, and lax oversight of financial markets.

The difficulties of valuing complex financial derivatives greatly complicated any assessment of financial company balance sheets. Several leading firms either failed or were acquired under emergency conditions.

The combination of falling wealth, weak consumer demand and the widespread disruption in financial flows has caused a severe recession. The United States, Canada, Japan, the European Union, India, China and other nations have experienced steep declines in economic activity. The large geographical extent of the contraction, the weakened financial sector, and the disruptions to real estate that affect the very grass-roots level of the economy suggest a longer and more severe recession than previous experience.

Between 2000 and 2007, the real Gross Domestic Product for Saskatchewan grew at a compounded annual rate of 1.9 percent. In contrast, British Columbia experienced a 3.1 percent growth, Alberta 3.8 percent, and Ontario 2.4 percent. Canada as a whole grew by 2.6 percent. The low growth rate for Saskatchewan shows that it expanded less than its peers in the recent economic boom, and should expect a less severe contraction.

Although the immediate term outlook is very volatile, the Prince Albert Municipal Airport will benefit from longer term trends. While crude oil prices have pulled back dramatically from their \$147/bbl high reached in July of 2008, the growing world consumption and exhaustion of long established reservoirs suggest that the price decline is only temporary. Higher prices will favour oil sands development. Producers may wish to diversify, and develop deposits in Saskatchewan. Their actions will depend partly on the Province's structure of royalties. The Airport could provide cost-effective access to new oil sands developments. The Prince Albert region will benefit along with all of Saskatchewan in the development of the Bakken field in the southeast.

The recession has temporarily softened the price of uranium. However, uranium sales will benefit from higher energy demands and growing concerns about carbon dioxide emissions from conventional thermal plants. The outlook for construction of new nuclear power plants is increasingly favourable.

Technologies such as the pebble bed reactor may help allay fears that followed the Three Mile Island and Chernobyl incidents.

Potash markets have suffered from declining demands for fertilizer. However, growing demands for foodstuffs and a shift in Asia away from subsistence farming create a robust outlook for potash prices. Prince Albert will share in the province-wide stimulus.

Traffic at the Airport will depend largely on the health of commodity markets, specifically oil, uranium and potash. Commodity prices tend to be strongly correlated, so a boom in one sector will likely be accompanied by strong conditions in another. While the oil, uranium and potash sectors have uniformly excellent growth prospects, the recent weaknesses highlight the short term volatility of commodity markets. The Prince Albert Municipal Airport should experience continuing traffic increases. However, the strong prospects of alternating booms and busts will challenge its long term planning. It must neither postpone improvements resulting from temporary traffic declines, nor over-build on the expectation of sustained booms.

A long term perspective that sees past temporary economic cycles will ensure that the Airport remains competitive, cost-effective, and fiscally sound.

4.4 Passengers – Charter

There are effectively two separate and distinct air travel markets at Prince Albert:

- ✎ a charter passenger/cargo market; and
- ✎ a scheduled service passenger/cargo market.

4.4.1 Current Passenger Volumes

Current air charter activities at the Airport primarily support Cameco and Areva mining projects in northern Saskatchewan and are provided by Westwind Aviation. Information from consultations suggests that there are an average of about 1,000 passenger enplanements and deplanements each week at the Airport. Charter passenger volumes increased 19% between 2006 and 2007. Actual passenger statistics are only available for the years of 2006 and 2007, as this activity has not previously been tracked by the airport management.

4.4.2 Projected Passenger Volumes

Charter traffic growth has been based primarily on mine activity. If resource development activities grow at a high rate in the future these figures could rise substantially. Ongoing consultations with the resource companies will reveal future growth as it occurs in a given time horizon along with the expected degree of increased activity.

4.5 Passengers – Scheduled

4.5.1 Current Passenger Volumes

Current scheduled air activities at the Airport are provided by Pronto and Transwest Air which provide service to various destinations in the north of the Province as well as Ft. McMurray, Alberta and Saskatoon. Flight schedules depend on the carrier and the day of the week. Operations range from a daily service for some destinations to a reduced service for others. Current data derived from industry consultations suggest that these activities generate an average of 1,200 enplanements and deplanements each week at the Airport. Passenger volumes increased about 44% between 2006 and 2007.

Historical passenger traffic figures have not been captured either by Transport Canada or by airport management. Prior to the recent rapid growth, these statistics would likely have shown a relatively stable market. Recent passenger traffic has been obtained from the air carriers but this data only covers an approximate three-year period beginning in 2005. Accurate passenger movement values do not appear to be available before 2005.

4.5.2 Projected Passenger Volumes

The current published Transport Canada growth rate applicable to Prince Albert is 2.7% per annum. This rate does not account for the global economic slowdown. Based on consultations and the deferral of investment by the resources industry, and mining companies in particular, a very low growth rate is projected by LPS AVIA for 2009. The IMF estimates world GDP will be 2.2% in 2009, and with many countries pledging to bolster and accelerate infrastructure investment, Saskatchewan is still well-positioned given its resources, to compete globally.

Therefore a growth rate of 0.5% has been adopted for scheduled passenger traffic for 2009¹. Economic recovery is expected to occur in late 2009 to early 2010 however the growth rate is unlikely to equal the Transport Canada growth forecast of 2.7%. The forecast growth rate used for 2010 is 1.5%².

As the economy starts to expand, growth rates are forecast to be 2.0% for 2011³ and 2.5% for 2012⁴, still short of Transport Canada's forecast growth rate of 2.7%. This growth rate of 2.7% is forecast to return in the 2013 to 2015 period.

A conservative growth rate of 1% is used for all charter traffic for all periods from 2009-2031.

Figure 4-1 below illustrates the growth projections considered in the Master Plan.

Tables 4-1 and 4-2 illustrate the growth rates and forecasts by year.

Figure 4-1 – Passenger Forecasts

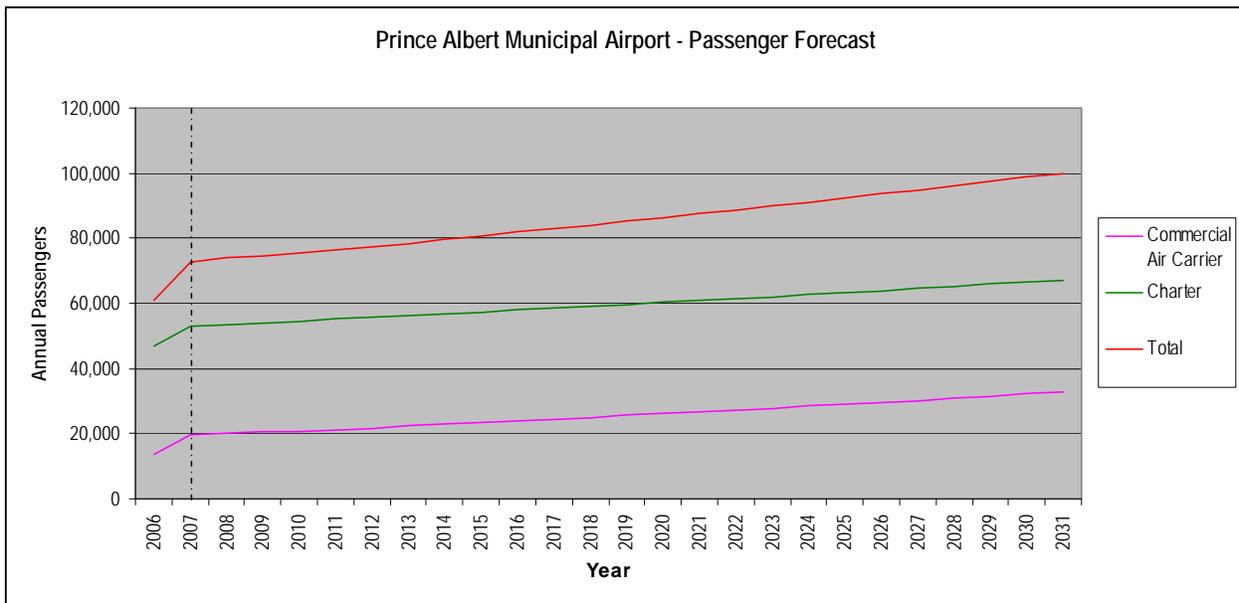


Table 4-1 – Passenger Forecast Growth Rates

Passenger Air Traffic Forecast			
Period	Growth Rate (%)		
	Transport Canada	Scheduled	Charter
2009 ¹	2.7%	0.5%	1.0%
2010 ²		1.5%	1.0%
2011 ³		2.0%	1.0%
2012		2.5%	1.0%
2013-2015 ⁴		2.7%	1.0%
2016-2020	2.1%	2.1%	1.0%
2021-2031	2.1% (est.)	2.1%	1.0%

Table 4-2 – Total Passenger Forecasts

Passenger Forecasts			
Year	Growth %		Total
	Commercial Air Carrier*	Charter % Growth	
2006	2.70%	1.00%	60,773
2007	2.70%	1.00%	72,775
2008	2.70%	1.00%	73,840
2009	0.50%	1.00%	74,476
2010	1.50%	1.00%	75,324
2011	2.00%	1.00%	76,285
2012	2.50%	1.00%	77,365
2013	2.70%	1.00%	78,508
2014	2.70%	1.00%	79,673
2015	2.70%	1.00%	80,859
2016	2.10%	1.00%	81,926
2017	2.10%	1.00%	83,010
2018	2.10%	1.00%	84,110
2019	2.10%	1.00%	85,227
2020	2.10%	1.00%	86,360
2021	2.10%	1.00%	87,511
2022	2.10%	1.00%	88,679
2023	2.10%	1.00%	89,866
2024	2.10%	1.00%	91,070
2025	2.10%	1.00%	92,293
2026	2.10%	1.00%	93,534
2027	2.10%	1.00%	94,795
2028	2.10%	1.00%	96,075
2029	2.10%	1.00%	97,375
2030	2.10%	1.00%	98,695
2031	2.10%	1.00%	100,035

Note: Section 4.2.2 discusses the assumptions for the different growth rates found in Table 4-2. Each growth rate was applied to the figures supplied by each carrier, which remain proprietary. Subsequently, only total passengers are provided.

4.6 Cargo

Prince Albert functions as a regional shopping destination and distribution point. Much of the air freight shipped from the City is destined for northern communities throughout the Province of Saskatchewan. Walmart is open 24 hours per day in Prince Albert.

There are no dedicated air cargo or courier facilities at the Airport. Cargo is generally processed through the public air terminal building. Cargo handling is provided by Pronto Airways and Transwest Air.

Westwind does not provide independent cargo operations as baggage and passenger freight is included as part of the mine contracts. Any additional freight is forwarded on a space available basis.

Consultations have revealed that existing baggage facilities at the Airport are inadequate. This has resulted in air carriers creating additional storage capacity using garden sheds housed on the terminal's airside to handle the overflow. While this is only supposed to be a stopgap measure, it identifies a capacity constraint with the existing air terminal building which challenges carriers daily as they confront expanding cargo operations. These capacity constraints prevent carriers from charging storage fees. This challenges carriers if customers cannot collect shipments on a timely basis or if cargo is shipped ahead.

Actual cargo volumes enplaned at the Airport are significant and estimated to be in excess of 3,000 kgs per day.

Consultations suggest that much of the freight is re-supply and this figure is expected to outgrow passenger growth rates.

Therefore, a year-over-year growth rate of 2% is used to project freight as shown in Table 4-3.

Table 4-3 – Cargo Forecast

Cargo Forecasts			
Year	Annual Cargo (Kg)	% Growth	Total
2007	1,040,000	-	1,040,000
2008	1,144,000	2.00%	1,166,880
2009	1,352,000	2.00%	1,379,040
2010	1,379,040	2.00%	1,406,621
2011	1,406,621	2.00%	1,434,753
2012	1,434,753	2.00%	1,463,448
2013	1,463,448	2.00%	1,492,717
2014	1,492,717	2.00%	1,522,572
2015	1,522,572	2.00%	1,553,023
2016	1,553,023	2.00%	1,584,083
2017	1,584,083	2.00%	1,615,765
2018	1,615,765	2.00%	1,648,080
2019	1,648,080	2.00%	1,681,042
2020	1,681,042	2.00%	1,714,663
2021	1,714,663	2.00%	1,748,956
2022	1,748,956	2.00%	1,783,935
2023	1,783,935	2.00%	1,819,614
2024	1,819,614	2.00%	1,856,006
2025	1,856,006	2.00%	1,893,126
2026	1,893,126	2.00%	1,930,989
2027	1,930,989	2.00%	1,969,609
2028	1,969,609	2.00%	2,009,001
2029	2,009,001	2.00%	2,049,181
2030	2,049,181	2.00%	2,089,361
2031	2,100,410	2.00%	2,152,921

4.7 Aircraft Movements

The Airport currently handles a mix of local and itinerant aircraft movements. These are generated by scheduled air services, charter flights, aviation industrial operations, government flying services, and recreational flying activities.

4.7.1 Current Movement Levels

Aircraft movements at the Airport are tracked by NAV CANADA and reported to Transport Canada. Figures for 2005-2007 are provided by NAV CANADA and reveal that traffic at the airport has been increasing since 2005 as shown in Table 4-4.

Table 4-4 – Annual Movements

Year	Total Annual Movements
2005	15,670
2006	19,328
2007	19,747
2008 Estimated	20,043

The growth forecast rate of 2.7% is provided by Transport Canada and is the annual forecast growth rate from 2008 to 2015 inclusive.

Aircraft movement data was obtained from Transport Canada's Publication TP577 – Aircraft Movement Statistics in order to measure the amount and type of aircraft movements historically recorded at the Airport. This data is displayed in Table 4-6 and Table 4-7.

A review of the statistics shows that overall movements have decreased by 25% since 1996. The number of commercial air carrier movements has fluctuated, while the number of local, private and government movements has decreased by more than 50% in most cases. The decline in the number of private movements also supports statements made during stakeholder consultations regarding the relocation of several operators to other nearby airports. Stakeholders have speculated as to why these relocations have occurred stating that availability of development lands and fuel availability may have been two major factors.

4.7.2 Projected Movement Levels

Projected movements reflect activity by commercial air carriers, other commercial, private, government, military and local air traffic. The majority of movements at the airport are charter and scheduled-charter activity in support of the mine sites. There is little in the way of historical movement data for this type of activity because it is a relatively recent activity. Service commenced in 2005.

Table 4-5 shows the customary classifications for aircraft movements at airports.

4.7.3 Traffic Mix Analysis

The total number of movements in 2007 was 19,747. Analysis of air traffic at the Airport reveals the following traffic mix breakdown in terms of percentage and related characteristics. See Table 4-5.

Commercial Air Carrier - 70.1%

Year-over-year increases in commercial air carrier movements have been experienced in line with mining activity in Saskatchewan's north to meet the mine's various labour requirements. This ranges from contractor, to construction worker and middle management. Movements in 2007 exceeded 1996 levels and peaked in 1997 at 16,093 movements which accounted for only 52% of total movements that year.

Other Commercial - 3.8%

Other commercial is typically charter traffic however little is known about the exact types of aircraft or their frequency. This number has risen 300% since 2003 which is 10.5% of the traffic which peaked in 2002 at 7,883 movements, likely from flying school activity.

Private - 8.2%

Private aircraft activity has been steadily declining since 1996 and at 1,624 movements per year it is only at 38% of peak movements which occurred that year. While this includes corporate activity, much of the decline likely has resulted from small aircraft owners migrating to other airports such as Birch Hills or abandoning aircraft ownership primarily due to insurance costs, which spiked after September 2001.

Table 4-5 – Aircraft Movement Classifications

Category	Description
Commercial	Flights by aircraft operators licensed by the Canadian Transportation Agency to perform commercial air services. Commercial operations are divided into two categories: Air Carrier and Other Commercial
Private	Aircraft used solely for private purposes, not for hire and compensation, which are classified as "Private" or "Private Restricted" in the Canadian civil aircraft register.
Government	Aircraft owned by federal, provincial and municipal bodies as well as foreign states, but excluding those owned by crown corporations, boards and commissions.
Military	Aircraft of any branch of the armed forces of any nation.
Local	An aircraft movement in which the aircraft remains in the close proximity of an airport.
Itinerant	An aircraft movement in which the aircraft arrives from or departs to a point other than the reporting airport; or a movement by an aircraft that leaves the close proximity of an airport and returns without landing at another airport.

Government - 8.5%

Government aircraft has been on the decline and is also 52% of 1996 figures. While the RCMP does relocate detainees, the Province's executive air services branch and ambulatory services (Medevacs), likely comprise the remainder. Improved Medevac services and health care facilities in the north could well have contributed to this decline in traffic levels. Re-designating the City of Prince Albert hospital into a Regional Health Centre and teaching hospital to include training of Medical professionals would create new opportunity in this area.

Military - 2.3%

Military traffic has increased to 453 annual movements since 2004 and is nearing its peak of 645 movements established in 2003.

Local - 7.1%

Local traffic figures have steadily declined to 26% of 1999 peak traffic levels of 5,408. This may have resulted in lack of fuel, fuel charges provided by existing operators or lack of identified development lands. Strategic marketing could endeavour to return some or all of this traffic. Future growth is forecast at 2%.

Table 4-6 presents historical aircraft movements at the Airport and Table 4-7 presents forecast movements by year and planning horizon.

Figure 4-1 presents combined historical and forecast movements in a graph.

Table 4-6 – Prince Albert Historical Aircraft Movements

Year	Commercial Air Carrier	Other Commercial	Private	Government	Military	Local	Total	Growth Rate
96	13,421	915	4,237	3,224	175	4,493	26,465	-
97	16,093	560	3,995	3,033	160	7,090	30,931	16.9%
98	13,736	930	2,935	2,826	98	3,762	24,287	-21.5%
99	14,520	373	2,908	2,492	96	5,408	25,797	6.2%
00	13,522	491	2,668	2,489	42	5,102	24,314	-5.7%
01	8,449	4,628	2,081	2,612	58	4,100	21,928	-9.8%
02	8,807	7,883	1,734	2,914	79	4,779	26,196	19.5%
03	13,808	249	1,408	2,360	645	3,660	22,130	-15.5%
04	12,040	249	1,727	1,595	386	3,818	19,815	-10.5%
05	9,921	254	1,474	1,645	490	1,879	15,663	-21.0%
06	13,070	409	1,447	2,099	486	1,809	19,320	23.3%
07	13,850	752	1,624	1,676	453	1,392	19,747	2.2%

Note: Traffic volumes declined significantly in 2001 and throughout 2002. This was a common occurrence as a result of September 11, 2001.

Table 4-7 – Air Traffic Movement Forecast

Air Traffic Movement Forecasts													
Year	Commercial Air Carrier	Growth (%)	Other Commercial	Growth (%)	Private	Growth (%)	Gov't	Growth (%)	Military	Growth (%)	Local	Growth (%)	Total
2008	14,224	2.7%	760	1.0%	1,656	2.0%	1,676	0.0%	453	0.0%	1,420	2.0%	20,500
2009	14,348	0.9%	767	1.0%	1,690	2.0%	1,676	0.0%	453	0.0%	1,448	2.0%	20,700
2010	14,509	1.1%	775	1.0%	1,723	2.0%	1,676	0.0%	453	0.0%	1,477	2.0%	20,937
2011	14,690	1.3%	783	1.0%	1,758	2.0%	1,676	0.0%	453	0.0%	1,507	2.0%	21,197
2012	14,892	1.4%	790	1.0%	1,793	2.0%	1,676	0.0%	453	0.0%	1,537	2.0%	21,478
2013	15,294	2.7%	798	1.0%	1,829	2.0%	1,676	0.0%	453	0.0%	1,568	2.0%	21,961
2014	15,707	2.7%	806	1.0%	1,865	2.0%	1,676	0.0%	453	0.0%	1,599	2.0%	22,457
2015	16,131	2.7%	814	1.0%	1,903	2.0%	2,000	0.0%	453	0.0%	1,631	2.0%	23,289
2016	16,470	2.1%	822	1.0%	1,941	2.0%	2,000	0.0%	453	0.0%	1,664	2.0%	23,714
2017	16,815	2.1%	831	1.0%	1,980	2.0%	2,000	0.0%	453	0.0%	1,697	2.0%	24,147
2018	17,169	2.1%	839	1.0%	2,019	2.0%	2,000	0.0%	453	0.0%	1,731	2.0%	24,590
2019	17,529	2.1%	847	1.0%	2,060	2.0%	2,000	0.0%	453	0.0%	1,765	2.0%	25,041
2020	17,897	2.1%	856	1.0%	2,101	2.0%	2,000	0.0%	453	0.0%	1,801	2.0%	25,502
2021	18,273	2.1%	864	1.0%	2,143	2.0%	2,000	0.0%	453	0.0%	1,837	2.0%	25,972
2022	18,657	2.1%	873	1.0%	2,186	2.0%	2,000	0.0%	453	0.0%	1,873	2.0%	24,169
2023	19,049	2.1%	882	1.0%	2,229	2.0%	2,000	0.0%	453	0.0%	1,911	2.0%	24,613
2024	19,449	2.1%	891	1.0%	2,274	2.0%	2,000	0.0%	453	0.0%	1,949	2.0%	25,066
2025	19,857	2.1%	900	1.0%	2,319	2.0%	2,000	0.0%	453	0.0%	1,988	2.0%	25,529
2026	20,274	2.1%	908	1.0%	2,366	2.0%	2,000	0.0%	453	0.0%	2,028	2.0%	26,001
2027	20,700	2.1%	918	1.0%	2,413	2.0%	2,000	0.0%	453	0.0%	2,068	2.0%	26,484
2028	21,134	2.1%	927	1.0%	2,461	2.0%	2,000	0.0%	453	0.0%	2,110	2.0%	26,976
2029	21,578	2.1%	936	1.0%	2,511	2.0%	2,000	0.0%	453	0.0%	2,152	2.0%	27,478
2030	22,031	2.1%	945	1.0%	2,561	2.0%	2,000	0.0%	453	0.0%	2,195	2.0%	27,991
2031	22,494	2.1%	955	1.0%	2,612	2.0%	2,000	0.0%	453	0.0%	2,239	2.0%	28,514

Note: denotes the beginning of each planning horizon.

Figure 4-2 – Prince Albert Forecast Aircraft Movements



4.5.4 Airfield Capacity

Airfield capacity is based on an analysis of the runways, taxiways and instrument approaches available at the airport. Factors having a major effect on capacity include aircraft separation on approach, runway occupancy times, taxiway layout and circulation, airspace constraints, and the current and forecast types of aircraft activity.

The Airport has a NAV CANADA Flight Service Station (FSS) and local traffic operates in Class 'E' airspace. The airspace is considered uncontrolled and radar services are not provided. Given the lack of radar and positive control, multiple aircraft are not permitted to enter the approach and landing phase, or takeoff and departure phase of flight. In a controlled zone with radar services multiple aircraft can be accommodated.

Based on the current runway and taxiway configuration at the airport, and in consideration of the current aircraft mix, capacity estimates were prepared for primary Runway 08-26. Under Visual Flight Rule (VFR) conditions in a single runway operation, approximately 25 movements per hour can be accommodated with current infrastructure. Grass Runway 16-34 was not included as this surface is used for recreational flying purposes.

Under Instrument Flight Rule (IFR) conditions in a single runway operation, only 8 movements per hour can be accommodated. This low number is due to the increased aircraft separation required on approach, as a result of not having radar coverage.

Consultations with airport tenants and air operators have suggested that hourly capacity needs to be improved, both in terms of VFR and IFR aircraft operations. Analysis suggests that adding a full length parallel taxiway to Runway 08-26 will increase the hourly capacity to approximately 35 aircraft movements per hour by reducing overall runway occupancy times. This would yield a movement capacity increase of approximately 40%.

Providing a full length parallel taxiway is not expected to increase hourly capacity during IFR operations because aircraft separation on approach is the limiting factor, not runway occupancy time.

In order to increase airside capacity for IFR operations, radar coverage or another type of surveillance such as the new Multi-Lateral Wide Area Augmentation System will be required. If this type of service were to be provided, analysis suggests that the IFR capacity could be increased to 16 movements per hour, yielding a 100% increase over the current situation.

Given various conditions of prevailing weather and runway use, an annual capacity of 150,000 aircraft movements is estimated for the airport. The Airport recorded 19,747 aircraft movements in 2007, suggesting that annual runway capacity is not considered to be a limiting factor throughout all master planning horizons.

The airfield capacity analysis demonstrates that the Airport will not require additional runways in the foreseeable future.

4.6 Design Aircraft

4.6.1 Background

Airports are designed to permit regular operation of aircraft up to and including a specific size known as the "design" or the "critical aircraft". The three most significant operational parameters necessary for airport planning and design are the design aircraft's runway length requirements, pavement loading and manoeuvring characteristics. Sometimes each of the three critical planning parameters may be dictated by a different design aircraft.

4.6.2 Current Design Aircraft

The design aircraft for the Airport has been listed as the Hawker Siddeley HS-748 in the Airport Operations Manual (AOM). This aircraft has been identified based on runway length requirements and can operate from the Airport without operational restrictions.

The AOM also makes reference to the Boeing 737 aircraft family. Aircraft within this family require upwards of 7,000' of runway length to operate without weight restrictions and it is believed that the B737 was selected as the design aircraft based on pavement strength and runway width requirements and likely assumed restricted takeoff weight operations.

Due to the increasing charter and scheduled passenger traffic and the introduction of more modern aircraft types, use of the HS748 as the design aircraft for the next 20 years is considered inappropriate.

4.6.3 Recommended Design Aircraft

Selection of a design aircraft for the long-term and ultimate planning horizons require careful consideration due to a number of new conditions and emerging trends in air services and Saskatchewan in particular.

The selected design aircraft should support the airport's long term roles as identified in Section 3.1.

Commercial air services are expected to grow at the Airport due to Saskatchewan's burgeoning resource sector. A review of current aircraft seat capacities currently operating at the Airport, combined with future air travel projections suggests that an aircraft of approximately 100 seats would be the largest aircraft which could be expected to the long term planning horizon. Larger aircraft such as the B737-800 and similar types are unlikely to operate on a regular basis due to the close proximity of Saskatoon Airport, less than a 1.5 hour drive to the south.

An analysis of aircraft fleets operated within Canada suggests that the Embraer 190 as operated by Air Canada would be the most appropriate design aircraft for the Airport in the short to medium term.

Although the B737-800 (as operated by WestJet) is not recommended as the design aircraft in the short to medium-long-term, it is still able to use the Airport subject to certain operating limitations.

An examination of airport performance characteristics for the E190 (see Table 4-8) demonstrates that approximately 6,500' of runway length is needed to operate the aircraft at Maximum Take-off Weight (MTOW) and at International Standard Atmospheric (ISA) conditions. This aircraft has significant range (eg: 2,200 NM) and is capable of serving the Prince Albert-Toronto market for example.

Consideration was also given to future corporate aircraft operating at the Airport. Due to growing resource industry activity in the region, increased corporate General Aviation (GA) traffic is expected at the airport. Resource company personnel and executives are expected to frequent the area and use Prince Albert as a point of entry.

An examination of aircraft performance characteristics related to corporate GA suggests that a runway length of approximately 6,200' or 6,300' would be required to support the Global Express XRS and Challenger 850 which are typical new generation, high performance aircraft used by industry.

Based on a runway length of 6,500' as defined by the operating characteristics of the E190, these corporate aircraft will be able to operate unrestricted from the Airport.

Table 4-8 – Aircraft Performance Overview

	Aircraft	Runway Length	Reference Code	Number of Pax	Range (NM)*
Current	HS748	3,300'	2C	40	926
	ATR42	3,822	2C	48	915
Short-Term/ Medium-Term	ATR72	4,232	3C	70	937
	Global Express XRS	6,200'	4C	8-19	6,472
	Challenger 850	6,300'	4C	8	2,770
	Embraer 190	6,500'	4C	98-106	2,200
	CRJ-900	6,550'	4C	86	1,350
Long-Term/ Ultimate	Boeing 737-800	7,100'	4C	162-189	3,060

* Subject to certain operational assumptions (including Balanced Field Length). Fuel reserves not included in range calculations

5.1 Airfield System

5.1.1 Runways

The current runway system efficiently serves all current charter, scheduled, government and GA traffic. The primary runway (08-26) not only needs to accommodate current traffic, but must be capable of supporting the aircraft types and frequencies identified in the forecasts, depending on the time frame. The runway also needs to support the future design aircraft identified in Chapter 4.

Based on the recommended design aircraft, runway expansion and upgrading will be required beyond the Code 3C-P certification standards to enable larger airline category (E190 and similar) to operate from the airport. It is recommended that the runway be expanded in stages:

- ✈ Lengthening Runway 08-26 to Code 4C-P standards in the medium-term; and
- ✈ Further lengthening the runway to 8,000' in the ultimate-term.

Upgrading the runway to Code 4C-P standards will require an increase in runway length, extending the pavement surface to 1,982 m (6,500') from the current 1,524 m (5,000'). A review of the current site suggests that this expansion should occur on the east side of the current runway surface, within current airport boundaries. The current runway width is sufficient to support Code C aircraft operations.

Further extending the runway will allow for the operation of the design aircraft (E190), in addition to the other corporate aircraft types identified in Chapter 4.

Lengthening the runway to a total of 2,440 m (8,000') may be appropriate ultimately depending on traffic levels and air carrier operating decisions. The land to the west of the current runway has been designated for this purpose; however, additional land will have to be acquired by the airport to support this expansion opportunity. The airport is encouraged to purchase this land in the medium-term and hold it in reserve until runway expansion is necessary.

Runway pavement overlays are required on a recurring basis depending on use, condition, prevailing site conditions and original construction. The Airport's annual budget indicates that pavement projects are planned approximately every five years, and can be dependent on ACAP funding from the Federal Government.



Extending Runway 08-26 will allow for larger aircraft types to operate at the airport and increase overall margins of safety for existing operations.

It is recommended that Runway 16-34 remain as a turf surface through all planning horizons. Re-location of this runway in the long-term is recommended to permit further development of the General Aviation area located to the southeast of the Saskatchewan Air Tanker Base. The cost of relocating the unlighted turf runway is not expected to be significant compared to other major infrastructure investments.

The re-aligned runway is shown in the Development Plan and is expected to be re-numbered to correspond with to a new magnetic heading of approximately 130 degrees and 310 degrees (ie: 13/31). This runway alignment will ensure that GA aircraft are able to operate when strong crosswinds prevail on Runway 08-26. Although the new alignment may not provide the same crosswind coverage as the existing layout, it is still expected to be sufficient to support GA operations. Exact runway availability and crosswind components for this new runway could be determined by meteorological study if deemed necessary in the long term.

Additional runways will not be required as adequate capacity is expected to be provided within and beyond the planning horizons presented in this plan.

5.1.2 Taxiways

Consultations have revealed that the current taxiway infrastructure may not be providing the efficiency required to support high frequency runway operations, particularly during peak periods. The capacity analysis presented in Section 4.5.4 supports these statements.

It is recommended that Taxiway 'C' be expanded to connect to the threshold of Runway 26 in the short-term. This will increase runway capacity by approximately 10 movements per hour during VFR operations.

The hourly capacity during IFR operations will not be increased by extending this taxiway, as separation on approach is the limiting factor, as opposed to runway occupancy time.

The expansion of this taxiway comes with a major challenge, as the Prince Albert VOR navigation aid is located adjacent to the taxiway's extended centreline. In order for Taxiway 'C' to be extended to the threshold of Runway 26 in the short-term, the VOR will have to be re-located. Consultations with NAV CANADA have revealed that significant costs are associated with moving this navigation aid and the airport will most likely be expected to fund the relocation. Further information regarding relocating the VOR is provided in Section 5.2.3.

It is recommended that Taxiway 'B' be extended in the immediate term to equitably serve all commercial tenants located adjacent to the taxiway strip. Currently all tenants in this area are served except one.

Once Runway 08-26 has been expanded to 6,500' Taxiway 'C' should be extended in the medium-term to connect to the new threshold of Runway 26. Following ultimate-term expansions (if required), Taxi 'B' should be re-aligned and widened to become a Code 'C' facility, consistent with the runway, and be connected to the new threshold of Runway 08.

Planned taxiway developments are shown in the Development Plan (Figure 7-1).

In summary, the following taxiway developments should be undertaken in the identified planning horizons:

- ✎ Taxiway 'B' should be lengthened to serve all current and future tenants in the immediate-term;
- ✎ Taxiway 'C' should be extended to a full-length parallel taxiway connecting to the existing threshold of Runway 26 in the short-term;
- ✎ Taxiway 'C' should be further extended in the medium-term to connect with the new threshold of Runway 26 as a result of the runway extension project in the medium-term;
- ✎ Taxiway 'A' should be extended beyond Apron III to support future commercial developments in the medium-term;
- ✎ Taxiway 'F' should be extended to service condo and t-hangar development area in the long-term; and
- ✎ Taxiway 'B' should be re-aligned and widened as a Code 'C' facility and be connected to the new threshold of Runway 08 upon ultimate runway expansion.

5.1.3 Aprons

Apron I (considered the main apron) is of sufficient size to support aircraft types up to Code 'C' category (wingspan 24 m to 35 m). A Code 'C' apron taxilane should be established in the short-term on the eastern side of the apron to provide adequate aircraft manoeuvring clearances. The establishment of this taxilane will enable the apron to support up to 4 aircraft parking positions as shown in Figure 5-1.

Apron I will require expansion in the medium-term in order to support an increased number of aircraft parking positions. An apron expansion of approximately 1,850 m² is recommended on the eastern apron edge opposite the Transwest Air hangar and the Flight Service Station. This expansion will support additional aircraft parking positions and accommodate a new or expanded ATB. Apron I has been configured to support up to 4 aircraft parking positions including one for B737-800 aircraft and types smaller.

Aprons II and III do not appear to require expansion to support operations within the short and medium-term. Future expansion may be required in the long to ultimate-term, depending on the needs of commercial operators.

Apron IV is operated by the Saskatchewan air tanker base. Consultations with the Government have revealed that this apron will be resurfaced and re-graded to improve drainage in the short-term, and expanded in the medium-term to accommodate increasing volumes of overnight aircraft parking. Officials have indicated that this expansion will occur to the west of the current pavement surface. Exact dimensions of the expansion were not provided during consultations however, an approximation is shown in the development concepts. All apron expansion and improvement activities will be conducted by the Government of Saskatchewan, and airport funding is not expected to be required.

5.1.4 Airside Pavements

Airside pavements were briefly reviewed during a site visit. Some pavement cracking and ravelling was observed on Runway 08-26, primarily near the threshold. Although the airport has maintained a crack sealing program over previous years, some areas of this runway may require rehabilitation in the short-term in order to reduce the potential of Foreign Object Damage to aircraft and to restore the infrastructure.

Aprons II and III were noted to have significant amounts of cracking and ravelling. These pavements are also likely to need rehabilitation in the short-term.

An engineering pavement evaluation is recommended prior to undertaking significant rehabilitation investments.



Significant pavement deterioration was noted on Aprons II and III.

Consultations revealed that the turf surfaces of Taxiway 'E' and Runway 16-34 are uneven in various locations due to holes created by wildlife.

These surfaces do not appear to have been rehabilitated in many years and it is recommended that both Taxiway 'E' and Runway 16-34 be re-graded and seeded in the immediate-term. This rehabilitation will help to prevent future aircraft damage caused by holes and ruts and improve the use of these surfaces for light, general aviation aircraft.

Pavement load ratings (PLRs) have been established as a means of indicating pavement strength at airports for various aircraft types. Generally speaking, the PLR value should be greater or equal to the Aircraft Load Rating (ALR) of the airport's selected design aircraft.

The PLR for Runway 08-26 has been identified as 9 within the current Airport Operations Manual (AOM). Based on an ALR of 8.9 for the design aircraft (Embraer 190), the load rating for Runway 08-26 appears to be adequate. Some pavement load limitations could be present and designated taxi routing may need to be established to accommodate the critical aircraft in the short-term, as PLR values for Apron I and Taxiways 'C' and 'D' appear to fall below recommended values for the EMB190 according to the AOM. A review of the Manual suggests that the published PLRs may be out of date, as the last revision was made in April of 1995. Apron I has been rehabilitated since the PLRs were published, suggesting that the PLR may be higher than the published value of 8. This could also be true for other pavement surfaces. A detailed assessment of the pavement structures should be conducted and PLR values should be updated within the AOM as appropriate.

Although the E190 has been designated as the design aircraft in the long-term, major efforts to accommodate the aircraft in the short term are not required; however, any infrastructure upgrades such as pavement rehabilitations and new constructions should accommodate the design aircraft and be designed with PLR values of at least 9.

5.2 Air Navigation Facilities

Air navigation facilities include aerodrome lighting systems, signage, navigation aids, flight advisory services, and weather observation facilities.

5.2.1 Aerodrome Lighting

The current aerodrome lighting system is expected to serve the needs of the Airport into the short term, with potential upgrades in the medium to long-term in order to improve airport availability during periods of poor weather.

The aerodrome beacon is installed to the southwest of the core development area at the Airport. This beacon is expected to provide adequate aerodrome visibility from the air through all planning horizons.

The approach lighting systems associated with Runway 08-26 appear adequate to support aircraft operations through the medium-term, and potentially into the long-term, depending on changing technologies.

The approach lighting system associated with Runway 08, and the high-intensity edge lights enable this runway to support precision approaches, down to a height of 200' above ground. This runway meets the requirements for a Category I, Precision approach and future lighting improvements beyond this capability are not anticipated.

Some lighting systems may require expansion or relocation to support infrastructure improvements. If a runway extension is undertaken for example, approach lighting systems will require re-location.

5.2.2 Airside Signage

Airside signage is provided to convey a mandatory instruction, information on a specific location or destination on a movement area, or to provide other information to airport users.

The Airport appears to comply with signage standards and requirements set forth by Transport Canada for certified airports.

Additional signage should be installed as the various recommended taxiway, runway and apron expansions are completed.

Airport signage should be upgraded as a result of any infrastructure changes identified herein.

5.2.3 Navigation Aids

Consultations with the airport operator and various airport users have revealed that no additional navigation aids are required to support operations at the Airport.

In order to support the expansion of Taxiway 'C' to a full-length parallel taxiway, the VOR/DME antenna needs to be re-located in the short-term, as its current location lies in the direct path of the taxiway extension. Analysis and consultations with NAV CANADA have indicated that moving this navigational aid would be costly; however, it could be accommodated at another site on airport property. T

he current VHF/DF (VHF radio direction finder) site has been identified as a suitable re-location position for the VOR antenna (see Figure 3-4) as adequate protective areas are provided from structures, trees and other objects that may interfere with the antenna's signal.

Relocating the VOR/DME facility to this location may trigger the decommissioning of the DF antenna, as NAV CANADA has indicated that the technology is becoming obsolete and most aircraft operators no longer utilize the service. However, small aircraft may be utilize DF service when they become disoriented during flight, and therefore may oppose the decommissioning.

Once runway expansion occurs to the east as recommended for the medium-term, the ILS localizer antenna will have to be re-located to the east as shown in the Development Plan in Chapter 7. The glide path antenna may have to be relocated if runway expansion occurs to the west (ultimate-term), unless a displaced threshold is authorised for runway 08 landings. Glide path antennas are ideally located at a distance of 320 m from the runway threshold.

5.2.4 Aviation Weather

Consultations with NAV CANADA have revealed that the current weather observation capability at the airport is sufficient to support operations throughout all planning horizons. Weather observations are conducted using several meteorological instruments located within a MET Compound to the south of the Flight Service Station. While the current site is expected to support weather observations in the future, progressive development of buildings in the vicinity may eventually trigger a desire to relocate the MET Compound to a more isolated location replicating runway weather conditions.

The airport operator has indicated that Environment Canada is placing a new meteorological observation station on the airport site, located to the south of the airport access road and southeast of the airport maintenance building. This location is not considered to be ideal in the context of the Development Plan presented in Chapter 7 as the highest and best use for this area is for groundside airport commercial development.

The airport operator should consult with Environment Canada to determine a suitable alternate location that meets the objectives of the long-term development plan as well as meteorological requirements.

5.2.5 Flight Service Station

The Flight Service Station (FSS) operated by NAV CANADA at the Airport is expected to remain at the site throughout all planning horizons. NAV CANADA may decide to upgrade services to an Air Traffic Control (ATC) tower, if annual aircraft movements surpass 140,000.

This is not expected to occur within the planning horizons based on the movement forecasts developed in Chapter 4. The current facility occupied by NAV CANADA's FSS is undergoing renovation.

5.3 Air Terminal Building

5.3.1 Assessment Methodology

Several information sources were reviewed in order to assess the functionality and space requirements of the current Prince Albert Air Terminal Building (ATB).

The assessment methodology used as a part of this Plan compares space and functionality requirements published by Transport Canada, the International Air Transportation Association (IATA), and other industry sources with current areas provided for various functions including but not limited to check-in, security, airside departure, arrivals and baggage, cargo, and administration areas.

The primary industry metric used to determine ATB space and functionality requirements is defined as the Typical Peak Hour Passenger (TPHP). TPHP is defined as the peak hour of the average peak day of the peak month.

A review of air carrier schedules, combined with stakeholder consultations have identified Wednesday as the average peak day.

TPHP values are then used in conjunction with IATA Level of Service (LOS) standards as per Table 5-1 to determine space requirements within the ATB.

Transport Canada devised a Systemized Terminal Expansion Program (STEP) as a guide for the design and progressive expansion of small ATBs. Standards contained within the STEP program are also based on peak passenger volumes.

Various regulatory and operational requirements have changed since STEP was developed and the program doesn't necessarily reflect the requirements of CATSA, and adequately address air cargo needs within the ATB.

IATA has published space requirements for various elements of the ATB, based on selected LOS criteria as per Table 5-1.

Table 5-1 – IATA LOS Criteria

Level	Quality	Characteristics
A	Excellent	Condition of free flow, no delays; excellent level of comfort.
B	High	Condition of stable flow; high level of comfort.
C	Good	Condition of stable flow; acceptable throughput; systems in balance.
D	Adequate	Condition of unstable flow; delays for passengers; conditions acceptable for short periods.
E	Unacceptable	Unstable flow; conditions seriously limiting the capacity of the system.

Following the STEP methodology, 9 basic sizes of Air Terminal Buildings are classified in order of processing capability. Each size of terminal is capable of processing a range of passenger volumes depending on the desired Level of Service. Each size classification corresponds to a prescribed balance of functional services, amenities and building areas. They may be adjusted as required to meet specific local characteristics.

Table 5-2 provides an overview of STEP terminal sizes.

Table 5-2 – STEP Air Terminal Capacities

ATB Class	Total Space Required (m ²)	Typical Peak Hour Passengers	
		Lower Limit (LOS B)	Upper Limit (LOS E)
STEP 3	314	26	60
STEP 3.5	424	34	80
STEP 4	628	47	110
STEP 4.5	841	64	150
STEP 5	1289	84	200
STEP 5.5	1623	109	260
STEP 6	2043	139	330
STEP 5.5X	2516	180	430
STEP 6X	3007	230	550

5.3.2 Existing Air Terminal Building

The Prince Albert Airport ATB currently is approximately 490 m² in area serving approximately 73,000 passengers per annum. Based on air carrier schedules and consultations, a current TPHP value of 122 has been identified for the facility based on the maximum number of aircraft seats provided within a 1 hour period. The following aircraft mix was considered:

- ✈ 1 x DHC8-300;
- ✈ 1 x ATR42; and
- ✈ 1 x SF340.

When a TPHP value of 122 is compared to Transport Canada’s STEP program, it suggests that an ATB of approximately 1,623 m² in size should be in place to support TPHP levels at a LOS equal to ‘B’ (note that the recommended STEP 5.5 size does not take into account CATSA and cargo requirements.

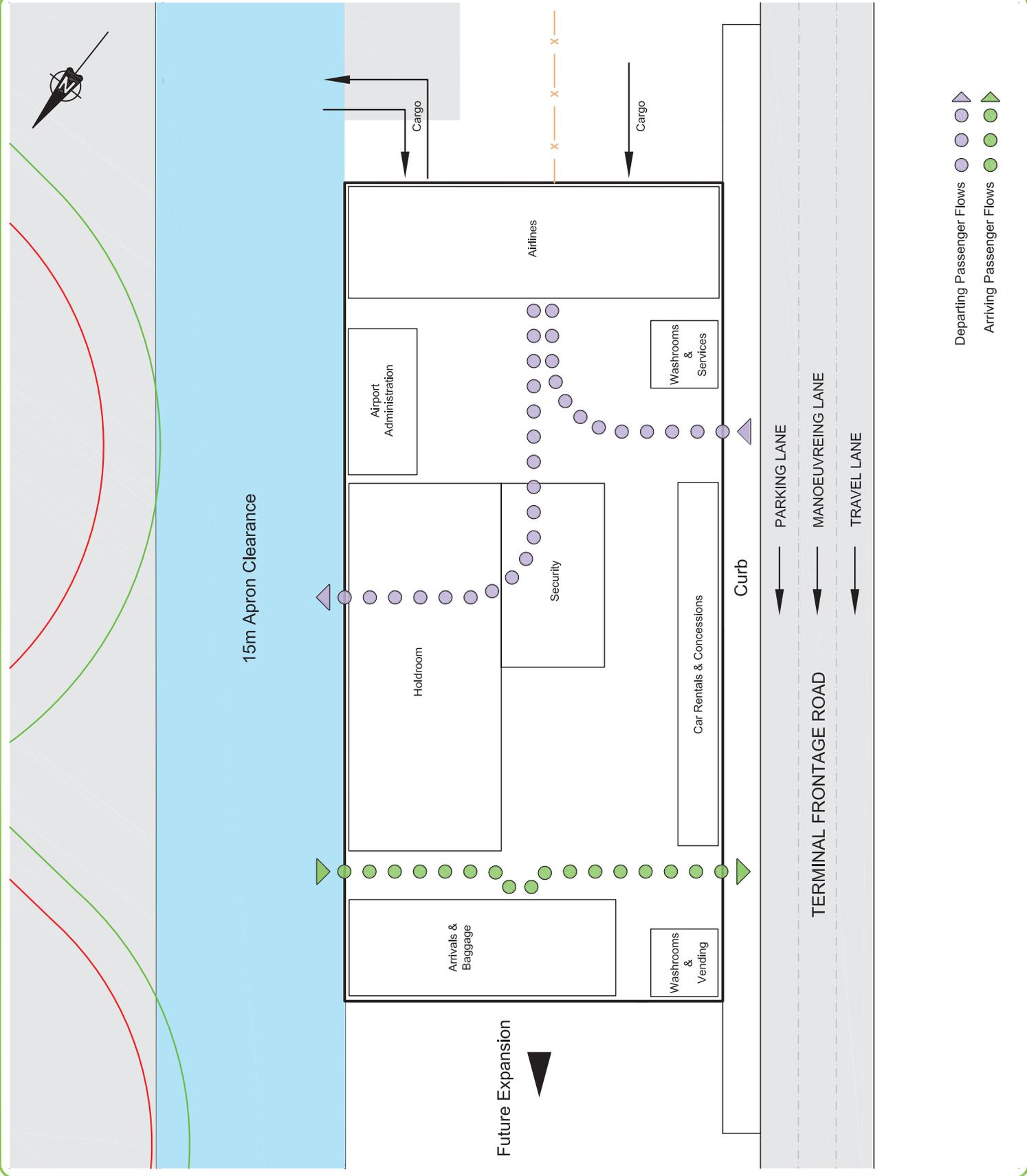
This indicates that a larger ATB will be required). Based on the current volume of passengers, it is estimated that passengers are currently experiencing a LOS beyond level ‘E’ during peak periods, suggesting that unstable flows and capacity limitations are present.

It is evident that the Airport ATB needs to be further developed in order to better accommodate current passengers at a higher level of service, in addition to supporting the needs of forecasted passenger and cargo volumes through the planning horizons identified within this Plan.

Findings have been supported during stakeholder consultations. The space program developed for the current ATB is presented in Table 5-3.



The air terminal building has been found to be undersized for the current volumes of passengers using the facility.



Departing Passenger Flows
 Arriving Passenger Flows

Table 5-3 – Current ATB Space Program

PRINCE ALBERT MASTER PLAN
Air Terminal BUILDING SPACE REVIEW
Current Space Program Evaluation

<u>DESIGN CRITERIA</u>		TPHP 122 LOS = B			0.1 MPPA		
<u>TERMINAL ELEMENTS</u>	<u>NOTES</u>	<u>REQUIREMENT</u>	<u>UNIT</u>	<u>VALUE</u>	<u>ACTUAL AREAS</u>	<u>RECOMMENDED AREAS</u>	<u>Variance</u>
					<u>m²</u>	<u>m²</u>	<u>m²</u>
<u>Check-in Area</u>							
Check-In Counters	Standard Size	6.25	m ²	6	14	37.5	-23.5
Queuing	Based per TPHP	122	TPHP	0.87	31	106.14	-75.14
Offices	2 offices provided	10	m ²	2	21	20	1
Concessions	Based per MPPA	0.1	MPPA	900	2	18	-16
Washrooms	Based per TPHP	122	TPHP	0.3	20.7	12	8.5
Public Circulation	Based per MPPA	0.1	MPPA	900	47	90	-43
Baggage Belt Allowance	Standard Size	3.25	m ²	6	0	20	-19.5
Airport Security	Standard Size	10	m ²	1	0	10	-10
Cargo Areas	Based per Tonne	1144	Tonne	0.1	65	114.4	-49.4
Sub Total - Check-In Areas					201	428	-227.0
<u>Security</u>							
Metal Detector - Pax Screening	1 Screening Device	45	m ²	1	21	45	-24
Single X-Ray & Baggage Inspection	Standard Size	40	m ²	1	23	40	-17
CATSA Security Office	Standard Size	10	m ²	1	16	10	6
Outgoing Baggage Assembly	Standard Size	45	m ²	1	45	45	0
Sub Total - Security					105	140	-35
<u>Airside Departure Areas</u>							
Departure Lounges	Based per TPHP	122	TPHP	1.2	57	110	-52.8
Circulation Allowance	Based per Gate	200	m ²	2	6	400	-394
Concessions	Based per MPPA	0.1	MPPA	900	0	63	-63
Internet/Communications	(Estimated 5m x 2.5m)	12.5	m ²	2	0	25	-25
Washrooms	Based per TPHP	136	TPHP	0.3	0	14	-13.6
Sub Total - Airside Areas					63	611	-548.4
<u>Arrivals & Baggage</u>							
Baggage Claim Device	Standard Size	30	m ²	1	10	30	-20
Baggage Claim Area	Standard Size	158	m ²	1	16	158	-142
Arrivals Hall/Circulation	Standard Size	155	m ²	1	33	155	-122
Concessions	Based per MPPA	0.1	MPPA	900	0	9	-9
Washrooms	Based per TPHP	122	TPHP	0.3	0	12	-12.2
Sub Total - Groundside Arrival Areas					59	364	-305.2
<u>Administration</u>							
Airport Manager	Standard Size	15	m ²	1	0	15	-15
General Office	Standard Size	18	m ²	1	0	18	-18
Meeting Room	Standard Size	15	m ²	1	0	15	-15
Kitchen/Coffee Area	Standard Size	8	m ²	1	0	8	-8
Sub Total - Administration					4	56	-56
Subtotal					323	1599	-1276.6
Building Services & Equipment	10 % Allowance		m ²		176	160	16.1
TOTAL (m2)					499	1759	-1260.6

*TPHP = Typical Peak Hour Passengers

**MPPA = Million Passengers Per Annum

***LOS = IATA Level of Service

5.3.4 ATB Design Considerations

Based on the space program developed for the future ATB, a facility with a footprint of 30 m x 65 m has been estimated to accommodate current traffic volumes and the forecast passenger traffic through the short and into the medium-term (depending on actual levels of growth), with modular expansion potential thereafter.

The ATB has been configured for arriving and departing passenger flows, for both sterile (secure) and non-sterile (non-secure) passengers, based on a TPHP value of 163 passengers (2 x ATR72, 1 x B1900D).

Due to operational constraints imposed by CATSA security regulations, non-sterile passengers en-route from non-sterile environments are expected to continue to be subject to security screening if they are destined for Saskatoon, or other CATSA designated airports. Adequate space has been provided for these functions however, a detailed ATB Feasibility Study should be conducted to determine exact size requirements and ensure stable and efficient passenger flows within the building. An ATB schematic is provided in Figure 5-1 to illustrate the approximate placement of building functions, based on Transport Canada's STEP program.

Cargo handling space has been included within the ATB schematic. Due to the Airport's position as a gateway to Saskatchewan's north, a significant amount of cargo is currently handled at the airport, and in the ATB, and volumes are expected to increase.

The estimated space requirements for cargo areas within the ATB are based on forecast annual cargo volumes presented in Chapter 4, in combination with an industry metric of providing 0.1 metre of cargo space per annual metric tonne of cargo handled.

Future cargo handling is expected to continue to take place within the ATB however, commercial land is available for an air cargo facility if activity levels increase substantially.

Increased concession space to increase revenues is included within the ATB schematic. These concession areas should be strategically located to maximize airport revenues and provide adequate passenger comfort, especially during peak periods.

The facility also includes increased space for washroom facilities, queuing, baggage claim, airline offices, airport administration, departure halls and arrival areas.

It is recommended that the new ATB be located immediately northwest of the current ATB. This placement will allow for the construction of the new ATB, while the existing facility remains in operation. Circulation roads should be reconfigured to provide increased capacity and accessibility for increasing levels of traffic. Additional capacity is required for vehicles, and for curb side parking for taxis, buses and other public vehicles.

The ATB schematic provided in Figure 5-1 illustrates three vehicle lanes positioned adjacent to the curb providing adequate capacity and circulation.

5.4 Access Roads & Parking

The Airport includes several groundside roads with a few airside service roads to access navigational aids.

The vehicle parking areas on the airport are managed by private leaseholders, and public parking areas are managed by the airport operator.

The airport operator plans public parking expansion to the southwest of the airport access road, adjacent to the existing parking areas. This expansion is primarily to accommodate the increased demand from resource companies. New parking lots will comprise gravel surfaces and be provided with electrical services to support vehicle plug-ins.

The airport access road is expected to serve the needs of the Airport and its tenants in the long-term. However, if a Runway 08-26 were to be expanded to the west, this road would require realignment as illustrated in the Development Concept presented in Chapter 7.

Expansion of the ATB will require modifications to the Terminal Frontage, Terminal Approach, and Terminal Access roads. A three lane terminal frontage road is recommended to minimize congestion and provide adequate drop-off and pick-up space for busses, taxis and others.

The introduction of a new terminal frontage road will require the short-term parking area immediately to the southwest of the ATB be re-located. Adequate parking capacity is provided for this and other types of parking within the areas identified in the Development Concept provided in Chapter 7.

The current parking area utilized by the resource companies can be expanded to accommodate the passenger movements identified within this plan. Depending on activity levels, vehicle parking designations may have to be reconfigured appropriately to support short-term, employee, and long-term parking activities.

5.5 Utilities & Services

All airport facilities located within the core development area are provided with water, gas, and sanitary sewer services. Natural gas and sanitary services are not provided to the Saskatchewan Government's Air Tanker base, and the other general aviation facilities located to the northeast of the core apron area.

The requirement for expanded utilities and services depends on the rate of development at the airport. Since developments require different services depending on the scope of their operation, some may require only water services while others may require water, sewer and gas. Short-term development is not expected to warrant a significant extension of existing services as there are lots available for development that are currently serviced. If groundside development is to occur in the identified areas to the southwest of the proposed weather site, services can easily be provided by connecting to nearby water, sewer and gas lines.

Medium-term development may introduce the requirement for sanitary sewer and gas services to the northeast of the main apron area. The development lots have been identified as best suited for medium-size hangars, primarily for commercial use. Sanitary and gas services can be provided to this area by extending the current services located in the airport's core development area to the northeast side of the apron area. The additional development lots identified further to the northeast have been identified for light general aviation use, and are only expected to require

water service due to the smaller scope of their operations. The proposed future GA tie down area will not be provided with water, sanitary, or gas services.

Other long-term developments such as the airside commercial areas located on the airport's entrance road will require sanitary, gas and water services. These utilities can be easily provided to these future development areas due to their close proximity to existing services adjacent to the entrance road.

It is recommended that a detailed engineering assessment be conducted before any significant extensions are made to the current systems.

This assessment should reveal the age and condition of water, sanitary, and gas lines on airport property and determine upgrades necessary (if any) to support further expansion at the airport.

5.5.1 Existing Services

The airport is currently serviced by a municipal sanitary collection system and a water distribution network. The existing installations are illustrated on the Airport Servicing Plan Figure 7-2.

The sanitary system consists of a series of gravity sewer pipes ranging in size up to 225 mm in diameter. These pipes originate at the existing establishments, run adjacent to the existing roadways and through open spaces; eventually outletting into the existing pump station located southwest of Airport Road, near the North Saskatchewan River.

Pump station flows are pumped westerly across the river via an existing 150 mm forcemain. The forcemain discharges into the City of Prince Albert's municipal sewer system, which conveys the flow to the sewage treatment plant.

General discussions with engineering staff at the City of Prince Albert suggest that the pump station is designed with adequate capacity to accommodate current as well as additional future flows during dry weather conditions. Staff indicated that the station is sometimes overloaded during major rain events due to likely stormwater inflow into the sanitary system.

The water network consists mainly of several central loops made up of 150 mm diameter watermains.

The Terminal Building and other establishments to the west along Airport Road are serviced by a single line extension, 150 mm in diameter. There is also a 200 mm northeasterly extension to service the Water Bomber Base.

The local water network is supplied by an incoming 250 mm diameter feedermain originating from the City's municipal system on the west side of the North Saskatchewan River. It crosses the river parallel to the forcemain, increases in size to 300 mm and continues along the access road.

The main then continues northwesterly along Airport Road, where it connects to the local loop near the terminal building.

The Airport Authority has not been conducting flow tests on the local fire hydrants, so there is no record to verify the actual capacity in the network. However, subject to the available hydraulic grade line at the source, the existing system configuration appears to be capable of transmitting adequate flows to meet the airport demand.

5.5.2 Existing Drainage

Current drainage of the developed areas is generally accomplished by road side ditches. There is also an underground stormsewer network which collects the runoff from the existing taxi way. All storm flows outlet to the North Saskatchewan River, with no apparent stormwater management.

5.6 Electrical & Communications

The Airport has submitted an Airport Capital Assistance Program (ACAP) application for funding to replace the existing 250kW diesel generator and transfer control panel within the Field Electrical Centre (FEC). The consultant has selected a diesel generator that will supply 100kW. The airport is expecting to complete the generator and control panel replacements in early 2009.

Due to the amount of data available, it is assumed that the new generator will provide an adequate amount of power to support the current airfield systems in the event of an emergency power failure.

It is unclear whether the new 100kW generator will supply adequate amounts of power to support the infrastructure requirements identified within this Plan. Airfield electrical engineering assessments should be carried out as each project is initiated in order to verify additional emergency power requirements.

All future development areas identified within this Plan will require conventional electrical services, including the General Aviation tie down area identified for development in the long-term.

5.7 Aircraft Fuel Facilities

Current aviation fuelling services at the Airport should be upgraded in order to support the growing traffic levels anticipated at the site.

It is recommended that the airport take control of fuel storage and sales in the short-term in order for the fuel to become 100% available to all aircraft operators, as opposed to the current situation where fuel can only be obtained under private arrangements with Pronto or Transwest Air.

The City of Prince Albert is encouraged to purchase storage tanks to support both Jet A and 100LL fuels and contract out fuel delivery services to a third party contractor. It is recommended that the storage tank for Jet A fuel be installed with a capacity of 75,000L, in addition to a 50,000L storage tank for 100LL fuel. All aviation fuel should be publicly available during regular operational hours, and after hours on a call out basis for a nominal fee.

The fuel tanks can either be located adjacent to Apron I, or could be placed within a tank farm located on groundside. This plan strongly recommends that a fuel tank farm be established in a groundside area. Placing fuel tanks adjacent to an apron has limitations associated with it as only a limited number of aircraft parking positions will be provided with fuel.

If the bulk fuel storage facility option were to be exercised, fuel could be transported from the farm and delivered directly to the aircraft using a bowser. The benefit of this option is that aircraft can be fuelled regardless of their parking positions.

It is recommended that development of a bulk fuel storage facility proceed in the short-term. The airport could obtain funds for the facility through adding a small fuel surcharge to all fuel sales. A recommended site for the facility is illustrated within the Development Concept presented in Chapter 7.

5.8 Access Control & Security

The airport is fully fenced and all airside areas are subject to access control procedures.

Access control procedures are in accordance with the Canadian Aviation Security Regulations. These regulations ensure individuals and vehicles requiring airside access establish Need and Right of Entry. Drivers are qualified to operate on the aprons and/or manoeuvring areas as appropriate. Unqualified drivers who establish Need and Right of Entry are escorted as required.

All persons who have a requirement to operate vehicles on airport movement areas obtain Airside Vehicle Operators' Permits (AVOPs).

All vehicles and equipment that are operated on the manoeuvring areas of the airport are equipped with rotating beacons and radios. The operators of vehicles/equipment hold Restricted Radiotelephone Operators' Certificates.

Significant upgrades to the airport's access control and security procedures are not expected throughout the planning horizons identified in this Plan. Additional security fencing should be erected when required due to the airside access road re-location as a result of lot development in the medium-term.

5.9 Emergency Response

The Airport currently provides Emergency Response Services (ERS) under an operating arrangement with the City of Prince Albert's Emergency Services. Dedicated ERS services are not provided at the airport.

The Canadian Aviation Regulations (CARs) state that dedicated Aircraft Rescue and Firefighting services are required at designated airports, which is an airport at where the total number of enplaned and deplaned passengers is more than 180,000 per year. Statistics in respect to the number of enplaned and deplaned passengers should be obtained as a result of the Electronic Collection of Air Transportation Statistics project carried out by the Department of Transport and Statistics Canada.

Based on the passenger forecasts developed in Chapter 4, the airport is not expected to reach the benchmark of 180,000 passengers per annum, suggesting that the current level of emergency response provided at the site is adequate throughout all planning horizons.

If passenger movement levels were to increase beyond 180,000 per annum, the airport may have to consider providing dedicated ERS at the airport.

5.10 Airport Maintenance

The airport maintenance garage currently includes 5 vehicle bays, and houses several different equipment types including a snow plow, a grader, runway de-icing/anti-icing spreader, a snow blower, a front-end loader and a pickup truck. Other small pieces of equipment are also stored and maintained within the maintenance garage such as lawn mowers, welders, crack sealer equipment, etc. A former agricultural building located behind the maintenance garage is also used for equipment storage.

Consultations with the airport operator have revealed that difficulties are experienced when airport personnel prepare to conduct snow removal activities as adequate indoor space is not currently provided for equipment staging. Prior to snow clearing, airport maintenance personnel connect the snow plow to a sweeper, resulting in an equipment chain. Currently the equipment is staged outdoors, making the operation less efficient and increasing snow removal response times. The fifth vehicle bay could be expanded to the south, increasing the overall space to approximately double the current size. Expansion of this vehicle bay is recommended for the short-term.

5.11 Airport Environment

5.11.1 Environmental Concerns

Environmental concerns at airports are typically the same at many sites across Canada, and in other parts of the world. Aircraft operations, combined with adverse weather conditions requires the use of chemicals as anti icing/de-icing agents for both aircraft and airport movement and manoeuvring areas.

Glycol is a non-flammable petroleum product used for aircraft de-icing, similar to those used in automotive cooling systems. Since glycol has very good de-icing properties, it is usually mixed with warm water and applied to aircraft surfaces to remove ice, snow or frost using a “cheery picker” or similar apparatus.

Commercial aircraft de-icing for Pronto, Westwind and Transwest Air is undertaken by company staff. De-icing for smaller aircraft is usually conducted using small garden sprayers containing methanol and/or glycol, but only for frost and light volumes of ground ice. During periods of heavy icing, and depending on aircraft size, a local contractor with a “cherry picker” may be hired.

The current level of aircraft de-icing activities does not warrant construction of a dedicated de-icing facility; however, aircraft de-icing activities should be in designated areas only, where glycol can be captured and then treated through the municipal wastewater system, or by other means. Potential de-icing areas on Aprons I and II are shown in Figure 7-1.

Urea is another chemical commonly found at airports and is used as an airport surface de-icing and anti icing agent. Urea normally comes in pellet form and is applied to airside pavement surfaces using a spreader. Urea is considered to be effective at temperatures of -10°C to above freezing; however, the substance has two major drawbacks. Because its major application is an agricultural fertilizer, it can end up in local streams, rivers or lakes due to natural runoff and encourage the growth of oxygen algae, lowering oxygen levels within the water. It can also elevate the nitrate levels in ground water and other water courses, creating a potential hazard for human consumption.

Many airports now use acetate runway de-icers which come in liquid applications. Potassium acetate and calcium-magnesium acetates are available for purchase in many industry markets, and have been recognized as more environmentally friendly for airport use.

Consultations with the airport operator have revealed that both urea and potassium acetate are being used as airport surface de-icing and anti-icing agents.

Aging fuel storage tanks can also be seen as a potential environmental concern. The majority of fuel is stored above-ground, however, two underground storage tanks are currently owned and operated by Transwest Air, located adjacent to Apron II. The age and current condition of these tanks is unknown. At the present time these tanks have not been noted as an environmental concern but should be carefully observed throughout the short and medium-term planning horizons to ensure they are not discharging petroleum products into the ground surrounding the tanks.

If it is found at some point that these tanks are leaking and have exceeded their life cycle, they may have to be removed.

The hangar facility located at the southern end of Apron II is currently leased and operated as a fertilizer storage facility. This type of use can be considered to be an environmental concern at the Airport due to the potential corrosive properties of the fertilizer. These properties may present a hazard and this issue should be further investigated by the appropriate authorities.

5.11.2 Wildlife Control

Each year in Canada millions of dollars in damage to aircraft is caused in collisions with birds and other wildlife. Throughout North America, collisions between wildlife and aircraft have resulted in forced landings, loss of aircraft and loss of human life. Transport Canada, as the national authority responsible for aviation safety, has the responsibility for the development of policies, standards and guidelines for wildlife control at airports as well as creating awareness of the problem within the aviation community in both the public and private sector. Bird and wildlife management is one of the issues facing airports today.

On May 17, 2006 Transport Canada's Wildlife Planning and Management Regulation came into force. Not all airports in Canada are required to prepare an Airport Wildlife Management Plan. The regulation applies to any certified airport in Canada that meets one of the following criteria(s):

- ✈ The airport receives commercial passenger-carrying aircraft operating under Subpart 4 or 5 of Part VII of the CARs with more than 2,800 annual movements;
- ✈ A wildlife strike has occurred when:
 1. A pilot reports a strike;
 2. Maintenance personnel report that aircraft damage is due to a wildlife strike
 3. Airport personnel report seeing a wildlife strike; and
 4. Airport personnel find wildlife remains on airside areas within 200' of a runway centreline and no other cause of death is identified.
- ✈ The airport has had an incident where a turbine-powered aircraft collided with wildlife other than a bird and suffered damage, collided with more than one bird or ingested a bird through an engine;
- ✈ The presence of wildlife hazards, including those referred to in section 322.302 of the Airport Standards – Airport Wildlife Planning and Management, has been observed in an airport flight pattern or movement area;
- ✈ There is a waste disposal facility within 15 km of the geometric centre of the airport; and/or
- ✈ The airport is located within a built-up area.

A review of the Canadian Aviation Daily Occurrence Reporting System (CADORS) indicates that several bird strikes have occurred since 2000, in addition to several instances where wildlife such as deer and coyotes have been reported in the vicinity of the runway. In addition, the Prince Albert's waste disposal facility is located within 15 km of the geometric centre of the airport. These two factors are considered to be triggers for a Wildlife Management Plan under the CARs.

Consultations with the airport operator have revealed that the airport perimeter fencing has been recently upgraded in order to prevent large mammals such as coyotes and deer from gaining access to the airport's runways, taxiways and aprons. Airport employees patrol the grounds on a regular basis and utilize scare tactics to ward off animals whenever necessary. Although these are seen as wildlife mitigation measures, they are only considered as part of the overall wildlife management process under the regulations. Consultations with the airport operator have also revealed that a Wildlife Management Plan has recently been submitted to Transport Canada for approval.

5.11.3 Environmental Development Constraints

The North Saskatchewan River is the principal environmental constraint for development of the airport.

All future airport developments should be designed to have minimal impacts on the river, especially in terms of storm water management, among other potential issues.

6.1 Current Activities & Inventory

The airport's current development area is concentrated within the southwest quadrant of the site. A total of 10 land leases are currently in place, with the following operated as commercial businesses:

- ✎ Dr. Steyn Medical corporation operates a small hangar and provides medical services to communities in northern Saskatchewan;
- ✎ National Aviation and Cochrane Rental & Leasing provide aircraft rentals, charters and aircraft maintenance services;
- ✎ The Prince Albert Shopper leases a hangar for publishing and warehousing purposes;
- ✎ Transwest Air offers scheduled, charter, and cargo services from a hangar facility adjacent to Apron II;
- ✎ G&L Communications operates a small hangar and provides aerial work services; and
- ✎ Ceres Industries leases a large hangar facility adjacent to Apron III. This building is currently used for fertilizer storage.

Other land leases are used for general aviation use and government applications (RCMP & Air Tanker Base). Currently, all revenue from these leases is collected by the airport and the associated municipal taxes are paid directly to the City of Prince Albert.

Airport lands beyond the east and west ends of Runway 08-26 are constrained by the presence the North Saskatchewan River, and by a private land owner. There are no surplus lands to the north of the existing runway within the current airport boundary due to the boundary's close proximity to the edge of the Code 3C-P runway strip.

The 74 hectare parcel of land immediately adjacent to the northern boundary of the airport is currently owned by the City of Prince Albert and is used for agricultural purposes. Due to an industrial land shortage within the city, this site could be ideal for commercial and industrial uses due to its close proximity to Highway 55 and other ground transportation routes.

Developments must meet airport vicinity land use requirements in order to ensure compatibility with airport operations.

Potential future development areas for commercial facilities within the current airport boundary are identified in the Development Concepts presented in Chapter 7.

6.2 Air Cargo

There were over one million kilograms of freight shipped from the Airport in 2007 and 2008.

Consultations with air carriers using the Airport have indicated that cargo is poised to be a significant growth area. Based on the carriers own growth expectations, the current dedicated baggage handling area within the ATB is insufficient to support any further growth. Additional space has been created on the airside of the ATB using makeshift garden sheds, but this remains a temporary measure. Longer term storage is also a concern as aircraft can either bulk out or become weight limited. Air carriers are requesting additional space.

The new ATB design is configured to accommodate the forecasted amounts of air cargo however, if volumes increase substantially, a dedicated cargo facility may be required.

6.3 Aircraft Maintenance

Transwest Air conducts its own maintenance on its fleet of aircraft. The airport however does not have independent Aircraft Maintenance Repair and Overhaul (MRO) services available. This type of a facility receives contract maintenance from air carriers and other aircraft operators that either may not be large enough to have a maintenance department, require the manpower assistance, consider the option more cost effective than using an existing maintenance department or simply lack the core competency.

Discussions with stakeholders including the Prince Albert Grand Council have suggested creating an Aircraft Maintenance Engineer training program in affiliation with the Saskatchewan Indian Institute of Technology (SIIT) or the Saskatchewan Institute of Applied Science and Technology (SIAST). Local business such as Transwest Air may elect to invest in creating such a Training Centre with either institution given the firm's existing involvement with First Nations. (Prince Albert Herald September 27, 2008, pp. A1-2)

The potential for a seaplane maintenance facility has been identified due to the seaplane base and activity found on the North Saskatchewan River. Although National Aviation conducts these activities currently this concept requires further analysis given the water surface flows and at times, floating timber and other debris which can interfere with aircraft operations.

Suitable airside development lots exist for this type of activity as per the Airport Development Plan. Further consultations and promotion by PAREDA and the Prince Albert Grand Council may reveal additional expressions of interest.

6.4 General Aviation

General Aviation (GA) is defined as civil aviation activities operated by individuals, organizations, and businesses providing the following services:

- ✈ Public charter aircraft operations;
- ✈ Private charter operations serving the regional air transportation requirements of companies, organizations, and government departments;
- ✈ Private aircraft operations for business or personal use;
- ✈ Flight training;
- ✈ Public and private helicopter operations;
- ✈ Support activities for the above including repair, sale and inspection of aircraft and associated support material,
- ✈ Supply fuel and oil;

- ✈ Private office and hangar space for GA operators; and
- ✈ Medevac services.

General Aviation at the Airport includes a limited number of the above activities. A review of historical aircraft movements in the private category suggests that the amount of GA operators at the airport has decreased substantially over the past 10 years. Stakeholder consultations have revealed that there is an interest to further develop GA activities at the Airport, provided that airport administration accommodates some of their basic needs (i.e. fuel availability, long-term hangar leases, etc.). The airport operator is encouraged to attract additional GA operators by offering long-term leases to the site in order to maximize airport land use and aeronautical revenues.

General Aviation development areas are available for immediate development, primarily to the northeast of Aprons II and III. These areas are identified for expansion through the medium and long-term planning horizons of this plan. Current and future land parcels will provide small and medium size hangar lots, and capacity for condo, t-hangar and aircraft tie down developments. Adequate capacity is also provided for flight training facilities. Prince Albert should attract future flight training to the site and market their variety of navigational aids and airside infrastructure accordingly. Educational facilities could also be located at the airport within the development areas, perhaps in coordination with the Saskatchewan Indian Institute of Technology (SIIT), or the Saskatchewan Institute of Applied Science and Technology (SIAT).

The airport could also develop a seaplane base on the banks of the North Saskatchewan River to attract future seaplane operators, and aviation training activities. The airport is in an ideal location to develop a small ramp and floating dock facility to support seaplane operations; however, specific considerations should be made for fluctuating water levels and other hazards including sand bars and floating debris. Consultations with the Government of Saskatchewan have indicated that the river is too shallow to support aircraft water bomber training; however, the river is adequate for light general aviation operations. If the seaplane base is developed and marketed appropriately, it could attract future business to the airport.

Table 6-1 – Aeronautical Commercial Opportunities

Potential Use	Local Competition	Interest	Constraints	Possibility
Fixed Base Operator	No	Possible	None	High
Aircraft Hangars	Yes	Possible	None	Medium-high
Aircraft Overhaul	Yes	Possible	None	Medium-high
Flying Training	No	Possible	None	Medium-high
Aircraft Maintenance	Yes	Limited	None	Medium
Air Cargo Facility	No	No	None	Medium-low
Aircraft Assembly	No	No	None	Low
Flight Kitchen	No	No	None	Low

Table 6-2 – Non-Aeronautical Commercial Opportunities

Potential Use	Local Competition	Interest	Constraints	Possibility
Outdoor Advertising	Yes	Yes	None	High
Air Terminal Advertising	Yes	Yes	None	High
Freight Distribution	Yes	Yes	None	High
Truck Terminal	Yes	Yes	None	High
Agricultural	Yes	Yes	None	High
Rental Car Facility	Yes	Possible	None	High
Restaurant	Yes	Possible	None	High
Educational Institutions	Yes	Possible	None	Medium-high
Fast Food	Yes	Possible	None	Medium-high
Warehousing	Yes	Possible	None	Medium-high
Office Buildings	Yes	Possible	None	Medium-high
Postal Facilities	Yes	Possible	None	Medium-high
Mini Storage	Yes	Possible	None	Medium
Hotel/Motel	Yes	Possible	None	Medium
Outdoor/Indoor Market	Yes	Limited	None	Medium
RV/Boat Storage	Yes	Limited	None	Medium-low
Conference Centre	Yes	Limited	None	Medium-low
Tourist/Outfitters	Yes	No	None	Medium-low
Mini Malls	Yes	No	None	Medium-low
Picnic Grounds	Yes	No	Zoning By-laws	Low

Potential Use	Local Competition	Interest	Constraints	Possibility
Plant Nursery	Yes	No	None	Low
Gas/Service Station	Yes	No	None	Low
Manufacturing	Yes	No	None	Low
Skating Rink	Yes	No	None	Low
Shopping Plaza	Yes	No	None	Low
Animal Farm	No	No	Zoning By-laws	Low
Animal Quarantine	No	No	Zoning By-laws	Low
Athletic Track	Yes	No	None	Low
Auto Track/Motor Park	No	No	Zoning By-laws	Low
Big Box Retail	Yes	No	None	Low
Camping	Yes	No	Zoning By-laws	Low
Car Dealerships	Yes	No	None	Low
Fairgrounds/Amusement	Yes	No	Zoning By-laws	Low
Forest Lands	Yes	No	None	Low
Golf Course	Yes	No	Zoning By-laws	Low
Incinerators	No	No	Zoning By-laws	Low
Livestock Handling	Yes	No	Zoning By-laws	Low
Trailer Park	Yes	No	Zoning By-laws	Low

6.5 Commercial Opportunities

Industrial growth in the Prince Albert region is being driven by the increasing demand for many different types of natural resources. As a hub of many uranium and gold regions of Saskatchewan, several existing and new projects are in a rapid state of expansion. Many of these projects are in remote areas, and depend on air services to support their logistics needs.

The Airport is in a strategic position to serve as a transportation gateway to the north and near-north of the province. Cameco and Areva frequent the airport and move significant volumes of passengers on scheduled charter aircraft. Consultations with these organizations indicate that traffic frequencies are expected to increase.

Careful planning at and to the north of the airport site could also help position Prince Albert as an intermodal hub combining several transportation modes, serving the needs of the region and beyond. Commercial developments at the Airport will support traffic growth and bring financial benefits to the City of Prince Albert and the Region through aeronautical and non-aeronautical revenues.

LPS AVIA uses an extensive check-list of commercial development opportunities for development planning. This list provides an initial screening of opportunities and ensures that due consideration is given to all common commercial activities, as well as some of the more uncommon commercial developments which can occur on airport properties. Tables 6-1 and 6-2 identify a comprehensive list of potential aeronautical and non-aeronautical development opportunities, local competition, interests, constraints, and potential for development at the site.

6.5.1 Aeronautical

The commercial opportunities scan identified the following aviation-related businesses as high and medium-high potential opportunities for the Airport:

- ✈ Fixed Based Operator (FBO);
- ✈ Aircraft Hangars
- ✈ Aircraft Overhaul; and
- ✈ Flight Training.

The airport does not currently have an FBO tenant, therefore fuel is sold on a private basis, and dedicated air crew rest/lounge areas are not provided. FBO development is considered to be the commercial use that has the greatest opportunity for growth at the Airport. Aircraft hangars of various sizes could be constructed depending on the nature of operations (commercial, private business, private recreational, etc.). These facilities could be owned by the airport and leased to operators, or operators could construct their own facilities based on a long-term leasing agreement (25 years). Aircraft overhaul and flight training facilities were identified as potential opportunities during stakeholder consultations, and through industry analysis.

6.5.2 Non-aeronautical

Non-aeronautical opportunities were identified separately from aeronautical in order to show the importance of diversifying airport commercial activities and land uses. It has been determined that the Airport has land available for developments that are not directly related to airport operations, also referred to as non-aeronautical uses. Table 6-2 on the following pages shows the results of the commercial scan conducted to identify potential non-aeronautical commercial opportunities.

The commercial opportunities scan identified the following non-aeronautical business types as having high and medium-high potential opportunities for the Airport:

- ✈ Outdoor Advertising;
- ✈ Air Terminal Advertising;
- ✈ Freight Distribution
- ✈ Truck Terminal;
- ✈ Agricultural,
- ✈ Rental Car Facility; and
- ✈ Restaurant.

Some of these activities are currently being undertaken at the airport, however; the City should explore further expansion of indoor and outdoor advertising, and welcome developers wishing to pursue non-aeronautical business interests such as restaurants, car rental facilities and others as identified above.

Non-aeronautical activities should be located based on highest and best use principles. Recognized airport planning practices indicate that aeronautical land uses get priority over non-aeronautical uses, meaning that development lots with access to airside infrastructure are intended primarily for aeronautical use. By definition, non-aeronautical commercial activities (also referred to as groundside commercial) do not require access to airside infrastructure.

The Development Concept presented in Chapter 7 recognizes the highest and best use principle.

6.6 Aviation Commercial Land

6.6.1 Demand

Demand for development land has continued sporadically for many years at the airport. In the recent past two leased land parcels have been developed for light General Aviation use. Accurate measures of historical land uptake by commercial interests beyond the recent past are not currently available. Historical land uptake is estimated at approximately two leased lots per year.

Future demand projections for aviation commercial land are difficult to predict in an exact nature; however, several assumptions can be made to determine an approximate land uptake rate consistent with the Plan's planning horizons. This Plan assumes that airside commercial development lot will be leased per year, beginning in the medium-term. This number could increase further, depending on the level of aviation activity, especially in the GA category as many operators are expected to return from Birch Hills once more services are provided such as affordable hangar lots and/or lease rates and publicly available fuelling services.

6.6.2 Supply

Analysis of the site suggests that adequate land is available for aviation commercial development within the current airport boundary. Additional airside commercial land parcels have been identified within the Development Concept presented in Chapter 7. These land parcels, and the land areas currently serviced and available for development are expected to meet the commercial needs of the airport beyond the established planning horizons contained herein.

The proposed Development Concept divides airport commercial lands into 5 sites, 4 of which cater to aviation/airside development. Airside commercial development parcels include those listed below.

- ✎ Site 1, situated to the southeast of Apron III, has been selected for medium to large general aviation uses, such as hangar developments, and/or an FBO. This site is an extension of the airport's existing hangar development area.
- ✎ Site 2 is the largest of the areas and is located to the northeast of Aprons II and III. This area has been identified for medium to small GA use, preferably for small to medium-sized hangar developments.
- ✎ Site 3 is located to the southeast of the Saskatchewan Government's air tanker facility and has been identified based on an extension of the existing GA area. Future developments in this area should be limited to small condominium and t-hangar structures supporting light GA activities.
- ✎ Site 4 is an extension of the airport's current airside commercial development area, located directly to the south of Taxi 'B'. Additional development lots have been identified in this area to support medium-sized hangar developments and similar aviation uses.

Varying degrees of expansion to roads, water supply, gas, storm and sanitary services may be required to service these development lots.

6.7 Non-Aviation Commercial Land

6.7.1 Demand

The airport does not currently have any properties specifically designated for non-aviation commercial use within its boundary. Some of the leased properties within the airport's core development area are being used for non-aviation purposes, although aviation commercial uses would be more appropriate based on highest and best use principles.

Demand for non-aeronautical development lands at the Airport is difficult to measure. However, consultations with officials from the City of Prince Albert have indicated an overall commercial land shortage within the area, which could result in increased demand for non-aviation lands, on or adjacent to airport property.

It is expected that the overall demand for non-aviation commercial land will increase, especially as the airport begins to diversify revenue streams as recommended within this Plan. This study assumes that approximately one non-aviation commercial land parcel will be leased per year.

6.7.2 Supply

The Development Concept identifies one key area for non-aviation commercial land development opportunities.

- ✎ Site 5 is located near the former Airport Manager's residence and the proposed Environment Canada meteorological site. Eleven development lots have been identified in this area for small to large-sized non-aeronautical commercial developments.

A limited amount of expansion to water, gas, storm and sanitary services will be required to service this development area, as per recommendations in Section 7.2.

It is estimated that adequate amounts of airport-owned groundside commercial development lands are available for the short to medium-term. The airport is encouraged to maximize the use of existing and future land parcels within Site 5, possibly by re-locating or removing some of the current uses, especially if current activity levels are low and revenues from non-aeronautical activities are weak.

If the former Airport Manager residence, the fire storage site, the fire-training tower and other facilities located in this area are removed or re-located, additional development parcels will become available beyond those identified within this Plan, increasing the overall supply.

The land parcel directly to the north of the airport site measures approximately 74 hectares, and has been identified as a potential site for non-aviation commercial development, although not located on airport property. This site is also ideal for future commercial development, as it could bring increased revenues to the airport and help diversity revenue streams.

Non-aviation commercial developments should be encouraged to locate within the 74 hectare land parcel immediately adjacent to the airport once groundside commercial land areas have reached capacity, assuming that an adequate portion of lease and tax revenues can be returned to the airport.

6.8 Hangar Refurbishment

Several large wood frame hangars remain at the Airport constructed in the early 1940's under the British Commonwealth Air Training Plan. Before considering the re-use or relocation of World War II timber training hangars (similar to the hangar occupied by Ceres Industries), a number of issues should be considered.

Usually a detailed environmental and structural evaluation should be carried out before considering re-use, relocation or rehabilitation. A review of the use and occupancy should also be undertaken to properly assess the adequacy or need to upgrade life safety and fire safety systems.

These structures were typically built in the early 1940's. The primary structural material for the columns and roof trusses was British Columbia Fir. The trusses are of a Warren configuration and they have nominally flat top and bottom chords. Typically the trusses span about 33.5 metres (110 feet) and are spaced at 5.9 to 6 metre (16' to 20') centres. Bottom chords of the trusses are about 6.7 metres (22') from the floor.

While these buildings may appear to be sound, a detailed investigation of the structures usually reveals major rehabilitation work is required, if no work has been done to upgrade them since they were built. Even if retrofitted or reinforced in past, the structural members have often deteriorated further and require additional upgrading.

There are inherent structural problems with the trusses of these buildings, which form the roof structure of these hangars. These structural problems were sometimes rectified in the 1960's by adding pre-stressing cables to reinforce the roof. Typically, this pre-stressing has now relaxed and needs to be renewed.



The former World War II hangar currently occupied by Ceres industries could have significant environmental cleanup issues.

There is also usually substantial structural repair required to ensure that the structures of these buildings meet current Building Code requirements. Some of these structures have dry rot in the base and rot in the trusses and roof deck. There are usually broken truss members in need of repair or which need to be reinforced or replaced. Often joints must be reinforced. This usually involves removal of the pre-stressing, if installed, then jacking the trusses to relieve member and joint stresses, so damaged/under strength members and joints can be replaced or repaired. As noted previously, pre-stressing has generally relaxed to the point where it is no longer effective so the pre-stressing reinforcement must be renewed.

Usually the existing pre-stressing cables must be replaced as the ends of the cables beyond the setting point are too short to connect to the pre-stressing jacks.

There are other inherent problems with these hangers. Almost all painted surfaces are covered with lead-based paints, which poses health and safety concerns. Dealing with this issue costs considerably more money during renovation or demolition. The original heating system in these hangars was generally a steam heating system; the steam pipes are partially or fully insulated with asbestos insulation. The asbestos pipe insulation is usually in a friable condition and must be removed for safety of occupants. This work may have been done in the past, but a detailed asbestos survey is necessary before any work is contemplated. The partitions in the office areas of these buildings were invariably constructed using asbestos cement board.

The exterior of these buildings were usually clad with asbestos cement shingles. The hangar doors in these buildings are simple, un-motorized and uninsulated or poorly insulated. They are usually in very poor repair. There is usually very little insulation in the wall or in the roofs of these buildings, unless the building has been renovated. There can be soil contamination issues as the floor drains from the hangars were not usually equipped with interceptors. Local services (sanitary sewer) were not usually available in the immediate area when these buildings were constructed so untreated effluent from the hangar floor drained to tile beds outside the building. Any change of use may also trigger requirements to upgrade the life safety systems, including but not limited to exit locations and travel distances, fire alarm, exit lighting, fire hose systems and sprinkler systems etc.

It is generally not economically feasible to relocate these buildings as there are significant costs, not only for the relocation but also for dealing with the recladding, re-insulation, asbestos and lead paint issues, and door upgrades.

In their current location, these buildings can be moderately economic buildings for relatively low-temperature storage provided a high-energy input is not required or unless they have been retrofitted from insulation and energy point of view. Asbestos removal is generally required on the heating piping.

Other asbestos, in a wallboard and in exterior cladding, does not have to be removed provided there is no renovation work to be carried out, which would involve cutting or breaking these components. Lead paint is usually not an issue unless demolition or renovation is involved.

Structural rehabilitation is usually required, involving pre-stressing renewal (if installed) or pre-stressing installation, jacking trusses for replacement or reinforcing of members and replacement of rotted beams.

These buildings are relatively costly to demolish, because of the disposal costs associated with the lead paint and asbestos. However, there is some salvage value in the timber.

6.9 Development Strategy

The development strategy is based on providing adequately serviced lots to potential airport tenants as demand occurs. Rising traffic levels indicate that developments may occur in the short to medium-term, especially in terms of non-aeronautical commercial uses. Subsequent developments are expected to follow in the medium to long-term or beyond.

Table 6-3 provides a phasing strategy based on forecasted airport growth. The program identifies each development parcel, the available areas, and an estimated time frame for development. It is important to note that if demand is significantly higher than forecasted levels, lands may have to be developed sooner. Conversely, if actual demand is less than forecasted parcels may have to be developed within longer planning horizons.

Table 6-3 – Land Development Strategy

Parcel	Existing Area	Short Term		Medium Term		Long Term	
		Area	Lots	Area	Lots	Area	Lots
Existing (28 lots)	15.9 ha.	-					
Site 1 (Airside)	-	-	-	3.8 ha.	4	-	
Site 2 (Airside)	-	-	-	4.4 ha.	8	-	
Site 3 (Airside)	-	-	-	-	-	4.0 ha.	13
Site 4 (Airside)	-	-	-	-	-	4.4 ha.	5
Site 5 (Groundside)		1.2 ha.	6	0.8 ha.	3	0.8 ha.	2
Totals	-	1.2 ha.	6	9.0 ha.	15	9.2 ha.	20

7.1 Strategy

The Development Plan presented in Figure 7-1 is expected to meet the current and future airside, air terminal and groundside requirements, and improve any identified operational deficiencies at the site. The Plan protects sufficient land to accommodate growth beyond the long-term planning horizon.

Development is recommended in phases to support current traffic levels and forecasted growth as defined in Chapter 4.

Airside development is recommended in addition to groundside developments including infrastructure such as access roads, development lots, and parking areas. These developments need to occur as activity levels at the airport increase in order to maintain an efficient system.

Air terminal developments have also been identified within the planning horizons. The ATB should be sized and configured in order to efficiently support current and forecasted passenger movements, and generate adequate amounts of airport revenue to support future developments.

The Airport Development Strategy Table in the Executive Summary identifies all recommended airside, groundside and ATB developments within the defined planning horizons.

The existing developed land at the Airport is clustered in the southwest quadrant of the Airport property bordered between the bend in the North Saskatchewan River, Apron II and III and the access road to the airport. Subsequently, new land for additional development in this area is quite limited.

The City of Prince Albert should identify highest and best uses for the existing Airport lands to the north of runway 07-25 and immediately north of the Airport lands designated as Industrial land use, located between the Airport boundary and the highway.

This will serve to:

1. protect this land should the airport decide to expand;
2. enable the airport to differentiate its business model away from aeronautical revenue and non-aeronautical revenue;
3. attract businesses and investment to the airport area by allocating lots for sale versus those solely for lease; and
4. increase the revenue potential

Consultations with stakeholders have identified the south side of the Airport land as a potential for bridge construction. A bridge site is not recommended in this area as any road to link the highway with the City at this point will further limit airport development land.



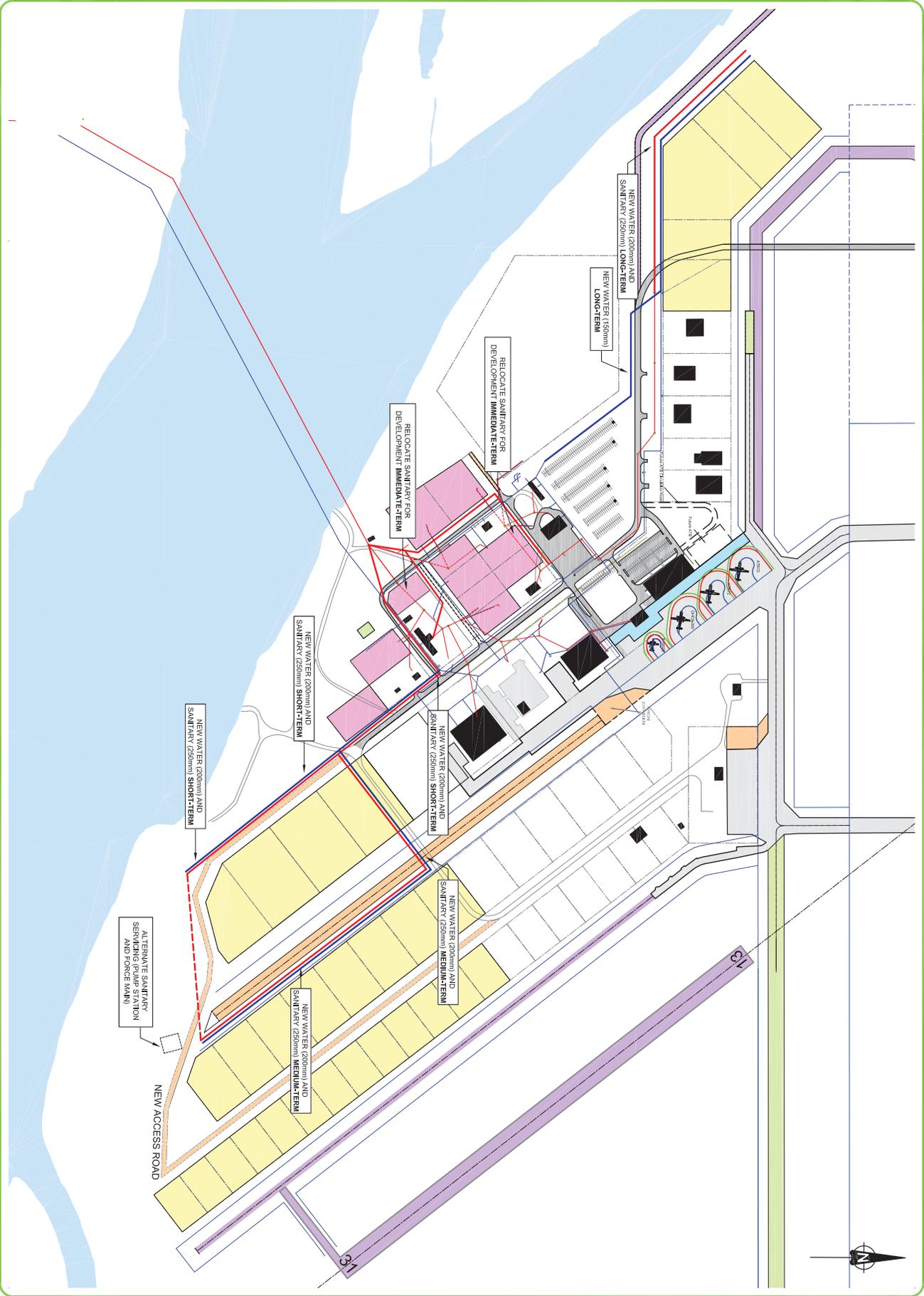
Significant amounts of airport lands are available for commercial development.

7.1.1 Land Tenure and Ownership

It is recommended that the airport continue to lease property to tenants, as opposed to selling airport lands for revenue.

Potential investors may be more willing to develop facilities at the airport if long-term lease agreements are available, preferably 25 year.

However, privately owned land in the neighbouring Industrial Park to the north could, with proper controls, be accorded access to the airside areas of the Airport through an interconnecting taxiway if required.



LBPAVIA
 One Antares Drive,
 Suite 250 Ottawa, ON,
 Canada K2E 8C4
 www.lpsaviation.ca

Client

 City of Prince Albert
 Municipal Airport

Title
**AIRPORT
 SERVICING
 PLAN**

Notes
 1. Preliminary
 2. All dimensions approximate

Figure No. 7-2
 Drawn By AMM
 Approved By EGL
 Date Feb 20, 2009
 Scale NTS
 Filename Airport-LS.dwg

7.2 Utilities & Services

In order for the proposed Development strategy to take place, additional lands will require municipal services such as water, and sanitary sewer.

7.2.1 Servicing of Future Expansion

The following servicing scenarios are based on the projected time frame for each of the proposed expansion areas. Please refer to the servicing plan (Fig. 7-2) for details of the proposed layouts and associated costs.

Short Term – Site 5

This site can be easily serviced by the existing water and sanitary installations, with some modifications. The existing sewers located across the open spaces will have to be relocated adjacent to the roadways to free up the sites for development.

Medium Term – Sites 1 and 2

Water servicing to these two sites can be achieved by installing a new loop starting from the existing 300 mm water main in front of the Ceres Fertilizer building on Airport Road.

New sanitary sewers can be extended from the pump station to service these two areas. Gravity flow can be achieved for Site 1 with minor fill requirements. However, due to the relatively shallow inlet invert at the pump station, Site 2 will likely require significant importation of fill. To avoid that, the airport management may prefer to install a small prefabricated pump station at the southeast end of the taxiway and pump the sewer to the gravity system on Airport Road. Alternatively, the existing pump station could be upgraded to allow for a lower inlet elevation.

Long Term – Sites 3 and 4

The proposed Condominium and Hangar lots within Site 3 will not require water or sanitary services.

Site 4 can be serviced by extending the existing water and sanitary pipes west and north along the proposed realignment of Airport Road. The water main should be looped back to improve the flow and boost system pressure.

The overall capacity of the water system should be confirmed by a detailed network analysis plus local testing.

Airport Management should also investigate the existing sanitary sewer system to locate the sources of the storm water inflow or high rates of infiltration. Necessary measures should be undertaken to minimize extraneous flows.

7.2.2 Flow Projections

This section estimates the projected sanitary flows and water demand resulting from the proposed expansion areas, described in earlier sections of this Master Plan.

The criteria for the flow calculations will be based on the gross areas of the proposed expansions and theoretical unit flow projections for commercial zones (we are not able to obtain sufficient flow records to establish current trends).

The following criteria will be applied:

Sewage Flows

- Average Commercial Flow: 60m³ per hectare per day
- Peaking Factor: 1.5
- Peak Infiltration Allowance: 0.28 liters per hectare per second

Water Demand

- Average Commercial Demand: 50 m³ per hectare per day
- Maximum Day Demand: 1.5 times average
- Peak Hourly Demand 1.8 times maximum day

Fire flow requirements must meet the current Fire Underwriters Survey and the local Building Code. The level of fire protection for each building will have to be established at the Building Permit stage (some buildings may require a sprinkler system).

Based on the above noted criteria, the flow projections for each of the proposed expansion areas are calculated as follows:

Table 7-1 – Sanitary Flows

Site	Gross Area (ha)	Average Daily Flow (m ³ /day)	Infiltration (l/s)	Total Peak Flow (l/s)
1	3.8	228	1.06	3.7
2	4.4	264	1.23	4.3
3	4.0	240	1.12	3.9
4	4.4	264	1.23	4.3
5	3.2	192	0.90	3.1

Table 7-3 – Water Demand

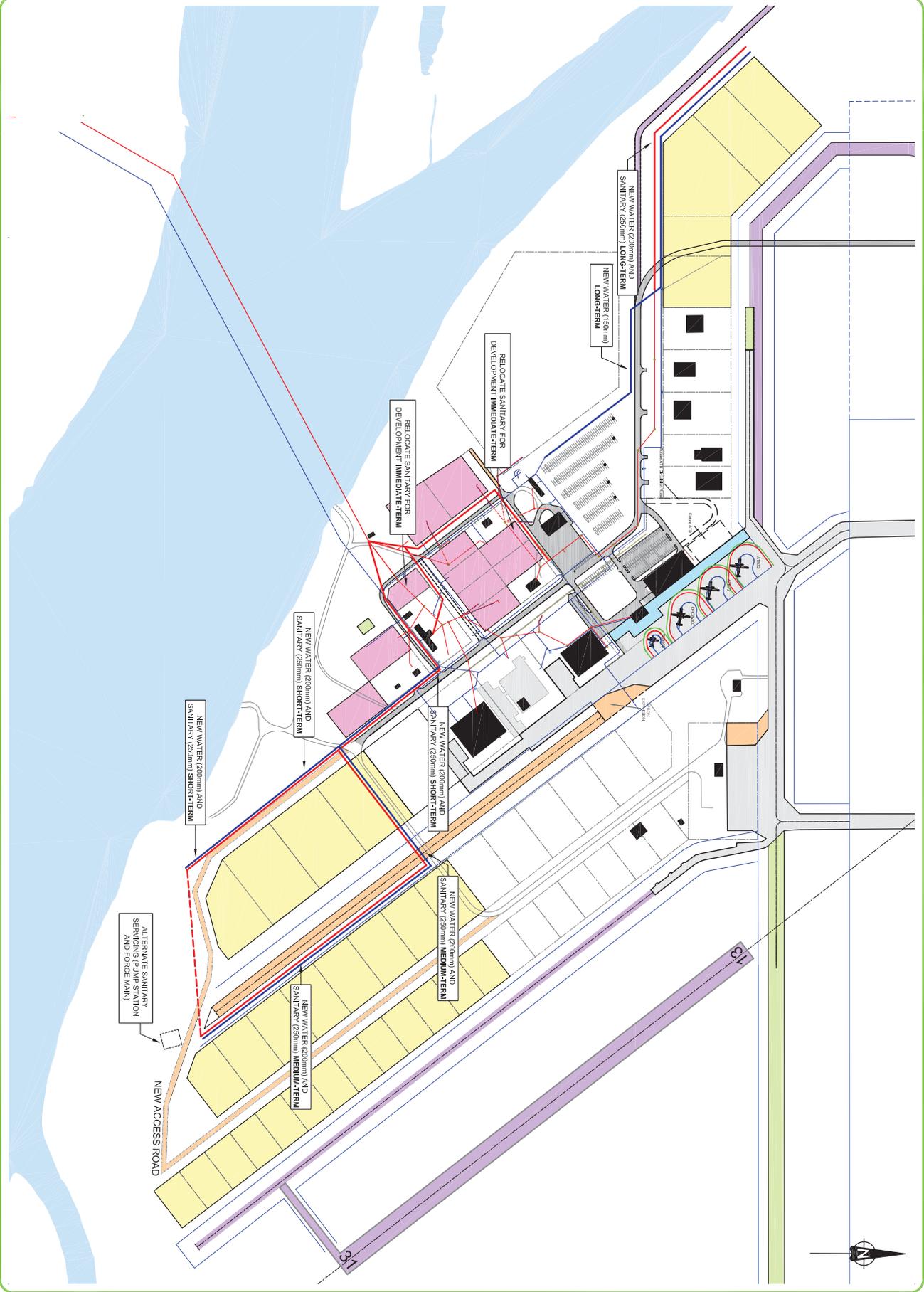
Site	Gross Area (ha)	Average Day (m ³ /day)	Maximum Day (l/min.)	Peak Hourly (l/min.)
1	3.8	190	132	237
2	4.4	220	153	275
3	4.0	200	139	250
4	4.4	220	153	275
5	3.2	160	111	200

In addition to the maximum day demand, the water network should be capable of providing adequate fire flows to meet the guidelines established by the local authorities. The system should be able to supply at least one fire hydrant (1900 l/minute at 140 kpa pressure), but the City may require a higher level of fire protection (i.e. two or more hydrants operating simultaneously).

7.2.3 Future Drainage

Drainage from the proposed expansion areas is expected to follow the current patterns. It will be achieved by installing road side ditches along the new access roads. The existing underground storm sewers along the taxi way can also be extended. Outflow from the site will continue to be to the North Saskatchewan River. The river authority will provide directions as to any required storm water management.

Any connections to electrical or natural gas services would be provided from the appropriate local providers. Exact costs for extending these services to new developments will need to be negotiated with these providers.



PRIMA
CONSULTING

One Antares Drive,
Suite 250 Ottawa, ON,
Canada K2E 8C4
www.primaconsulting.ca

Client

City of Prince Albert
Municipal Airport

Title

**AIRPORT
SERVICING
PLAN**

Notes

1. Preliminary
2. All dimensions approximate

Figure No.	7-2
Drawn By	AMM
Approved By	EGL
Date	Feb 20, 2009
Scale	NTS
Filename	Airport-LS.dwg

8.1 Systematic Land Assignment

A recommended Airport Land Use Plan has been prepared for use within all identified planning horizons.

The intent of the Land Use Plan is to identify and maximize the use of airport lands. The Plan also provides a rational and comprehensive framework for the development and use of airport lands, permitting the balanced fulfilment of future needs.

The order of priority used in the systematic land assignment for airport facilities as well as a definition of each use, are provided below:

- ✈ **Airfield** – fixed and rotary wing manoeuvring areas, taxiways, aprons and navigational aids at the airport.
- ✈ **Air Terminal & Operations** – air terminal building, maintenance garage, security, fuel facilities, utilities, public facilities, terminal road system and public parking.

- ✈ **Airside Commercial** – general aviation facilities and aviation support functions on land requiring airside access, including air cargo and helicopter facilities.

- ✈ **Groundside Commercial** – public or private concerns not requiring direct airside access.

- ✈ **Airport Reserve** – lands for which it is not practical to designate more specific uses at this time. The lands are held in reserve in order to meet unforeseen or possible contingency requirements within and beyond the planning horizon.

8.2 Recommended Plan

The Recommended Land Use Plan for the Airport is presented as Figure 8-1 on the following page.



LEGEND

	AIRFIELD
	AIR TERMINAL & OPERATIONS
	AIRSIDE COMMERCIAL
	GROUNDSIDE COMMERCIAL
	AIRPORT RESERVE

FUTURE INDUSTRIAL PARK

POTENTIAL LAND USE RESTRICTIONS ADJACENT TO AIRPORT



NORTH SASKATCHEWAN RIVER

SR 144/00101

9.1 Airport Revenue Streams

Developing reliable and sustainable streams of revenue at an airport is a fundamental requirement for the airport operator in order to achieve economic self-sufficiency. To do this however, revenues and expenses need to be carefully monitored and controlled. Fees that are too high tend to upset users while fees that are too low result in forgone revenue and limit profit potential and cost recovery opportunities. Therefore, a balance needs to be determined in accordance with the governance policy and stated objectives of the airport.

Airports receive revenue from aeronautical and non-aeronautical activities. Airports with high volumes of aviation activity are less reliant on non-aeronautical based revenues. Those airports with lesser volumes of aviation activity or limited growth potential in air traffic need to be more diversified and tend to be more reliant on non-aeronautical based revenues.

In general, airports derive revenue from a variety of user pay services. The practice of imposing these fees on the user differs between airports. Some airport operators choose to aggressively charge users in a variety of different ways, while others charge very little. Those that charge excessively usually lose customer confidence, and those airports that do not collect enough revenues can find themselves seeking additional funds to support capital expenditures and operational costs.

In order for a user pay system to function properly the following guiding principles should be considered:

- ✈ Full disclosure or transparency of charges
- ✈ Acceptable cost recovery
- ✈ Reasonable fee structure
- ✈ Efficient use of airport resources
- ✈ Flexibility

A carefully designed system of charges is considered as a necessity in order to achieve financial independence.

It is recommended that the Airport operators pursue several revenue streams in order to be more financially self sufficient, while providing increased services to airport users. Airport charges are addressed below with recommendations on specific areas of opportunity for the Airport.

9.1.1 Airport User Charges

Airport user charges are classified into two categories: aeronautical and non-aeronautical. Aeronautical charges are levied for services and facilities related directly to the processing of aircraft, their passengers, and cargo. Non-aeronautical charges refer to the various ancillary commercial services, facilities and amenities that are usually available at an airport such as parking, air terminal concession fees and advertising.

Airport operators are encouraged to maximize the amounts of revenue collected from aeronautical and non-aeronautical activities in order to generate funds to support the airports current operations and to contribute to capital investment and improvements.

Below is a list of aeronautical and non-aeronautical revenue opportunities that should be explored (if not explored already) at the Airport.

Aeronautical Revenues

- Aircraft Landing Fees
- Aircraft Parking Fees
- Airport Improvement Fees (AIF)
- Air Cargo Surcharge
- Fuel Concessions

Non-Aeronautical Revenues

- Car Parking
- Retail/Advertising Concessions
- Air Terminal Revenues
- Land Leases
- Bulk Fuel Storage and Supply

9.2 Aeronautical Revenue

9.2.1 Recent Aeronautical Revenue Activity

The current revenues and expenses for the Airport were analyzed using historical Airport Fund figures from 2004 to 2008 dated for the twelve month period ending December 31, 2008. The “Statement of Allowable Expenses Incurred Operating the Airport” dated December 31, 2007 was also examined in detail.

Since 2005, revenue from aircraft landing fees has been increasing inline with the growth in aircraft movements. From 2005 to 2006, aircraft landing fee revenues increased 29% from \$106,971 to \$137,984 while air traffic increased 23% from 15,663 to 19,320 movements over the same period.

During the following period from 2006 to 2007, aircraft landing fees increased 14.2% to \$157,623 despite movements increasing a modest 2.2%. Aircraft landing fees are expected to meet the 2008 budget of \$140,000 and are projected to increase along with forecast traffic movement levels as described in Chapter 4.

9.2.2 Aircraft Landing Fees

Landing fees are collected by the airport operator and are charged primarily for the use of airside infrastructure (ie runways, taxiways and aprons). These fees are usually identified by using a formula that relates aircraft weight to the charge being incurred by the aircraft operator.

Maximum Takeoff Weight (MTOW) is generally used as the reference weight when this fee is being calculated; however, some airports may chose to use the Maximum Landing Weight (MLW) for this purpose.

Landing fees are generally structured by bracketing, where a fixed charge will be levied up to a specified weight threshold. Sometimes a surcharge proportional to a given weight above a particular threshold is added.

Airports can elect to charge a landing fee in proportion to the weight of the aircraft, but with a variable rate per unit of weight for different ranges. This model is used by the Airport and the respective aircraft landing fee structure is detailed in Table 9-1.

Table 9-1 Aircraft Landing Fees

Aircraft Landing Fees	
Turboprop Aircraft *	\$1.94 per 1,000kg up to 21,000kg
	\$2.46 per 1,000kg from 21,001 to 45,000kg
	\$2.96 per 1,000kg over 45,001kg
Jet Aircraft	\$2.21 per 1,000kg up to 21,000kg
	\$2.84 per 1,000kg from 21,001 to 45,000kg
	\$3.33 per 1,000kg over 45,001kg
Piston Aircraft	No Charge up to 2,000kg
	\$5.00 from 2,001kg to 5,000kg
	\$10.00 over 5,000kg
* \$7.80 minimum charge per landing	
<i>All fees exclude GST unless otherwise noted</i>	

9.2.3 Aircraft Parking Fees

Aircraft parking and tie-down fees are collected by an airport for the use of apron stands, remote parking facilities, aircraft tie-downs, and occasionally hangar space. These fees are normally calculated based on the weight of the aircraft or its dimensions.

Airports can elect to charge parking fees based on the amount of time an aircraft is positioned on the parking stand and based on the location of the stand.

Proposed aircraft parking rates for the Airport are outlined in Table 9-2 below. Since most aircraft operators are tenants at the Airport, most park their aircraft within their own lease areas, and are not subject to parking fees.

Table 9-2 Proposed Aircraft Parking Rates

Aircraft Parking Fees	Daily Charge (\$)	Monthly Charge (\$)	Annual Charge (\$)
0 to 2,000kg	\$5.00	\$75.00	\$400.00
2,001 to 5,000kg	\$7.50	\$90.00	\$500.00
5,001 to 10,000kg	\$10.00	\$125.00	\$600.00
10,001 to 30,000kg	\$17.00	\$125.00	\$600.00
30,001 to 60,000kg	\$25.00	\$125.00	\$600.00
60,001 to 100,000kg	\$40.00	\$125.00	\$600.00
100,001 to 200,000kg	\$65.00	\$125.00	\$600.00
<i>All fees exclude GST unless otherwise noted</i>			

9.2.4 Airport Improvement Fees

Passenger service charges are commonly referred to as terminal service fees, and are collected to cover the costs directly related to the use of passenger buildings. In Canada, the most common charge recognized by air travelers is the Airport Improvement Fee (AIF). This fee is usually introduced by an airport to finance capital investment and is usually related to facility expansions and upgrades.

AIF's have become extremely popular at airports in Canada since the airports were forced to become financially sustainable after they were divested from the federal government in 1996.

Introducing an AIF at the Airport for all departing passengers would assist in driving revenues, funding the air terminal building expansion, and minimizing the airport's budget deficit and subsidization from the City.

9.2.5 Air Cargo Surcharge

An air cargo surcharge is often applied at airports in order to facilitate the processing of cargo through the airport facilities. This surcharge covers the provision of facilities to allow the processing of cargo through an airport.

It is recommended that an air cargo charge be established in order to capture additional airport revenues. A suggested charge of two to three cents per kilogram of freight moved through the air terminal building is considered to be an appropriate amount. However, caution must be exercised during this process as air operators may be opposed to the introduction of this fee.

9.2.6 Fuel Concessions

The Airport currently does not own and/or operate its own fuel concession operation, therefore it is recommended that a bulk storage facility be established at the airport in order to make fuel more available to airport operators and to increase aeronautical revenue opportunities. This will generate additional positive cash flows for the airport as it is able to apply a mark-up for the provision of fuel services to departing aircraft. The initial capital costs, along with operating and maintenance costs associated with operating the fuel storage and delivery operation are provided in the Financial Forecast Table in Appendix A.

The option of providing fuel through a third party could also increase revenues at the Airport. The airport could own the storage facility and the equipment and a private operator (preferably an FBO operation) could deliver the fuel for a small fee, reducing direct operating costs for the City. Suppliers of aviation fuel and oil at an airport typically pay a fee to the airport operator, normally an agreed percentage of gross revenue related to sales at the airport. Some airports may procure their own fuel for purchase and resale to various aircraft operators at a slightly higher margin in order to maximize revenue potential.

It is recommended that the airport operator develop its own bulk fuel storage facility and deliver the fuel directly to the operators, or establish a contract with a fuelling contractor in order to make supplies available to all aircraft using the airport.

9.3 Non-Aeronautical Revenue

9.3.1 Vehicle Parking Charges

Funds collected from vehicle parking and car rental agencies are generally considered to be one of the fastest growing sources of revenue for airports around the world. Generally they are the largest generators of non-aeronautical revenue, and arrangements for the construction and operation of these facilities can vary depending on the site.

Long and Short Stay Car parking charges at the Airport are currently considered to be low when compared with other similar airports. The attached financial forecast table in Appendix A retains the current level of car parking charges throughout 2009, and proposes to increase them from 2010 and beyond to be more in line with other airport car park facilities and charges.

Arrangements should also be made in terms of providing access to rental vehicles. As passenger volumes increase as the airport grows, parking spaces for rental vehicles should be provided, either in close proximity to an airport's revenue generating car parking facility, or in other areas off airport property. Airport operators can collect revenues from the vehicle rental companies based on the number of parking spots they occupy, or based on a percentage of their overall sales volumes at the airport.

The proposed new ATB design building allows for vehicle rental facilities to be provided once it is constructed.

9.3.2 Retail & Advertising Concessions

Revenue collected from airport retail generally involves charging fees for the operation of shops, bars, restaurants, newsstands, gift shops, and other commercial services. These services are usually located within areas of high passenger traffic, generally within the ATB, and adjacent to airport access roads.

Concession fees are charged either on a fixed rent basis for a space provided, or more often on a variable rent basis based on a percentage of gross sales. These fees are usually supplemented by a guarantee of a minimum annual level of revenue for the airport operator.

Airport advertising can also significantly contribute to airport revenues provided it is strategically and appropriately placed in the correct location and targeted to the appropriate audience.

Airports commonly lease advertising space within the passenger terminal facilities - both landside and airside, adjacent to entrance roads, and other such areas offering high levels of exposure. Advertising areas can be created by turning unused spaces into high visibility areas within the ATB, or potentially along and at airport entrance roads. Airports can create these spaces and lease them to private agencies that pay to use them to promote their products and services. It is recommended that the Airport increase the amount of advertising space available on the airport entrance road, and within the ATB.

The attached financial forecast table in Appendix A includes a provision for further developed retail concessions and advertising opportunities within the airport environment.

9.3.3 Air Terminal Leases

Airports can opt to lease or rent facilities to users for either aeronautical or non-aeronautical use, depending on the site and scope of the proposed operation. The most common sources of non-aeronautical revenues are derived from space rented to airlines for offices or lounges, as well as facilities and equipment rented to support the movement of air freight.

The development of the new air terminal building allows for additional operational areas to support the movement of baggage, cargo and passengers. The increased space provided will not only allow for a more efficient operation, but will also provide additional revenues to the airport operator as increased space is being leased to air carriers.

9.3.4 Airport Land Leases

Airports generally own the lands within their property boundary and opt to lease areas to parties interested in operating their business at the airport, aviation or non-aviation related. These interested parties usually enter into an agreement with the airport to lease the property for a set period of time, for a particular use. Lease rates are established and the user pays the airport for use of the land on a regular basis, usually monthly.

Airports can sometimes own buildings that may not be used for aviation purposes, such as a hangar used for storage or warehousing purposes. Airports can also choose to lease these facilities to increase overall lease revenues. Airport operators typically choose to lease lands for non-aeronautical uses that are located at a distance from runway, taxiway, and apron environments, as these types of businesses usually do not require access to these facilities.

The Airport is capable of developing land for long term lease to external third parties, as shown within the development concept presented in Chapter 7. The Airport should retain ownership of the land through a long-term lease as it has two key advantages. Firstly, it minimizes the land development costs to the tenant, but secondly, and more importantly, the airport retains ownership and control of the land uses at the airport and is able to regain full control of this property through a termination of the lease, if necessary. Potential investors may be reluctant to invest capital on leased land; however, if the terms of lease are long-term, investment would be more likely.

9.4 Revenue and Expenditures Forecast

The financial forecast table presented in Appendix A is considered to be a rough order of magnitude only. Costs were determined based on similar projects and recent industry experience.

A number of economic factors, such as the actual rate of traffic growth are subject to prevailing economic conditions and could affect the results of the model and the success of the airport's marketing initiatives.

9.4.1 Model Assumptions

A number of assumptions have been made in preparing the financial forecast table as presented in Appendix A.

Financial income and expenditure for the Immediate and Short Term have been developed on a yearly basis. Income and Expenditure for the Medium, Long and Ultimate timeframes have been grouped into their banded years.

The assumption is that detailed financial planning is only relevant in the short term with the medium and longer terms providing more uncertainty and giving an indication and outlook only.

Inflation has been established at 2% across the financial forecast tables.

Aircraft landing fees have been developed using an assumed aircraft per type of movement developed in the passenger forecast, along with the airports landing fees per kg, per type of aircraft.

It is assumed that no landing fee revenues are collected for Military or Local flights.

An approximation of \$1,125 per annum for aircraft parking fees has been assumed across the timeframe, increasing with inflation. This is based upon one aircraft paying a yearly parking rate, three occasions where aircraft pay to park for one month, and fifteen occasions where visiting aircraft park for one day.

The old Air Terminal Leases have been developed using existing rates through 2014.

Future Air Terminal Leases have been developed once the new terminal is constructed. Rates are based on 75 m² each (total 150 m²) and an average rate of \$412.13 per m² applied. Inflation has been applied for future years.

Construction of the future Air Terminal has been assumed to take place over a two-year period, associated Capital Costs have been spread over 2013 and 2014, along with realigning the ATB frontage road.

An AIF has been proposed, initially at \$10 per passenger. The Airport has been assumed to retain \$9.50 after airlines retain their collection fee.

Two dollars is assumed to be the average amount spent on retail per passenger. Assume the airport retains 20% of this income from retail operators (i.e. \$0.40 per \$2 spent).

Advertising has been assumed at \$2,000 per annum starting in 2010 and increasing to \$5,000 in 2013, then \$7,500 per annum beyond 2021.

Car Parking charges remain at \$4 per visit in 2009 and increases in 2010 and beyond to:

- ✈ Short Stay - average of \$10 per visit per vehicle. Vehicle generation based on 10% of annual passengers using short stay car park.
- ✈ Long Stay - assume average visit is 6 days, assume 40% car sharing between employees. Dedicated Corporate Car parks represent 66% of car park spaces, which is assumed to be occupied 90% of the time.
- ✈ It is assumed that Permit Holders have free car parking (their car park fee is included as part of their lease).

It is assumed that 25% of flights need refueling of approximately 1,000L at an average cost of 12 cents per litre. This income only applies beyond 2012 once the new bulk fuel storage facility has been constructed and is operational.

Current land lease revenues have been compiled from 2007 adjusted rates from the Airport, and further adjusted to obtain 2009 values and beyond.

Operating expenses have been developed from 2007 and 2008 accounts. These have been sorted broadly into the categories shown and adjusted to obtain 2009 values. Inflation at 2% has been applied.

A rate of inflation plus 1% (i.e. 3%) for staff salaries, wages et al. has been used to indicate a level of staff retention.

Vehicle electricity costs were reported at \$4,218 from Dec 07 to April 08. New car parking spaces will have a timer, and future costs are estimated to remain stable. Inflation is assumed beyond 2009.

Costs associated with the Bulk Fuel Storage Facility have been estimated at \$300,000 and include staff and maintenance expenses.

Appendix A – Financial Forecast Tables

Prince Albert Municipal Airport
Forecast Revenue and Expense Statement

	Unit	Rate	Immediate		Short Term			Medium Term	Long Term	Ultimate Term	
			2009	2010	2011	2012	2013	2014	2015 - 2020	2021 - 2029	2030 +
Passenger Forecast			74,476	75,324	76,285	77,365	78,508	79,673	80,859	87,511	98,695
ATM Forecast			20,382	20,614	20,867	21,141	21,618	22,106	22,932	25,570	30,186
Cargo Forecast			1,379,040	1,406,621	1,434,753	1,463,448	1,492,717	1,522,572	1,553,023	1,748,956	2,089,361
Gross Income											
Landing Fees	Commercial Air Carrier	Saab340	\$176,758	\$178,738	\$180,972	\$183,451	\$188,404	\$193,491	\$198,716	\$225,106	\$271,405
	Other Commercial	ATR42	\$12,426	\$12,551	\$12,676	\$12,803	\$12,931	\$13,060	\$13,191	\$14,002	\$15,314
	Private	King Air	\$9,293	\$9,479	\$9,668	\$9,861	\$10,059	\$10,260	\$10,465	\$11,785	\$14,085
	Government	King Air	\$9,218	\$9,218	\$9,218	\$9,218	\$9,218	\$9,218	\$11,000	\$11,000	\$11,000
	Military	C130	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Local	C172	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Aircraft Parking Fees	rate	\$1,125	\$1,148	\$1,170	\$1,194	\$1,218	\$1,242	\$1,267	\$1,399	\$1,672
Air Terminal Revenues	AIF (\$10)	per pax	\$9.50	\$707,527	\$715,574	\$724,704	\$734,972	\$745,830	\$756,891	\$768,161	\$831,354
	Concessions Revenues (\$2)	per pax	\$0.40	\$29,791	\$30,129	\$30,514	\$30,946	\$31,403	\$31,869	\$32,344	\$39,478
	Old Air Terminal Leases	per sqm	varies	\$28,244	\$28,809	\$29,385	\$29,972	\$30,572	\$31,183	\$0	\$0
	New Air Terminal Leases	per sqm	varies	\$0	\$0	\$0	\$0	\$0	\$0	\$61,820	\$69,619
	Advertising	LS	\$0	\$2,000	\$3,000	\$4,000	\$5,000	\$5,000	\$5,000	\$7,500	\$7,500
	Air Cargo Surcharge (ATB)	per kg	\$0.02	\$27,581	\$28,132	\$28,695	\$29,269	\$29,854	\$30,451	\$31,060	\$34,979
Vehicle Parking	Public Car Park	per visit	\$10.00	\$29,791	\$75,324	\$76,285	\$77,365	\$78,508	\$79,673	\$80,859	\$87,511
	Corporate Carparking	per day	\$8.00	\$637,042	\$1,288,576	\$1,305,017	\$1,323,506	\$1,343,059	\$1,362,978	\$1,383,272	\$1,497,068
Public Fuel Revenues	AvGas & Jet A1	flow / L	0.12	\$0	\$0	\$634,230	\$648,527	\$663,193	\$687,956	\$767,100	\$905,572
Commercial Leases	Current Land Leases		\$100,715	\$102,729	\$106,880	\$113,421	\$122,771	\$135,549	\$152,650	\$189,802	\$282,035
	Airside Serviced (New)	per sqm	\$1.83	\$0	\$0	\$0	\$0	\$0	\$150,060	\$230,580	\$243,085
	Airside Non Serviced (New)	per sqm	\$1.00	\$0	\$0	\$0	\$0	\$0	\$0	\$40,000	\$43,076
	Landside Serviced (New)	per sqm	\$1.56	\$3,111	\$6,222	\$9,333	\$12,444	\$15,555	\$18,666	\$31,110	\$46,665
	Outside Funding for Capital Projects		\$508,725								
Total Gross Income			\$2,281,346	\$2,488,628	\$2,527,516	\$3,206,653	\$3,272,910	\$3,342,726	\$3,618,930	\$4,097,363	\$4,730,567
Operating Expenses											
	Payroll - Salaries, Wages et al	Inflation + 1%	3%	\$214,973	\$221,422	\$228,064	\$234,906	\$241,953	\$249,212	\$256,688	\$297,572
	Travel	Inflation	2%	\$67,399	\$68,747	\$70,122	\$71,524	\$72,955	\$74,414	\$75,902	\$83,802
	Training	Inflation	2%	\$1,250	\$1,275	\$1,301	\$1,327	\$1,354	\$1,381	\$1,408	\$1,555
	Utilities	Inflation	2%	\$56,807	\$57,943	\$59,102	\$60,284	\$61,490	\$62,719	\$63,974	\$70,632
	Office Costs	Inflation	2%	\$4,191	\$4,275	\$4,360	\$4,448	\$4,537	\$4,627	\$4,720	\$5,211
	Insurance	Inflation	2%	\$25,978	\$26,498	\$27,027	\$27,568	\$28,119	\$28,682	\$29,255	\$32,300
	Maintenance	Inflation	2%	\$43,732	\$44,607	\$45,499	\$46,409	\$47,337	\$48,284	\$49,249	\$54,375
	External	Inflation	2%	\$216	\$220	\$224	\$229	\$233	\$238	\$243	\$320
	Other	Inflation	2%	\$8,968	\$9,148	\$9,331	\$9,517	\$9,708	\$9,902	\$10,100	\$11,151
	Vehicle Electricity Costs (Parking)	Inflation	2%	\$4,218	\$4,302	\$4,388	\$4,476	\$4,566	\$4,657	\$4,750	\$5,245
	Bulk Fuel Storage	Inflation	2%	\$0	\$0	\$0	\$300,000	\$306,000	\$312,120	\$318,362	\$358,528
Total Operating Expenses			\$427,732	\$438,436	\$449,419	\$760,688	\$778,251	\$796,236	\$814,652	\$920,639	\$1,132,887
Total Capital Expenses (see Page 2)			\$875,325	\$270,000	\$5,840,175	\$337,160	\$3,181,900	\$3,122,500	\$12,709,000	\$804,600	\$7,151,900
Total Expenses			\$1,303,057	\$708,436	\$6,289,594	\$1,097,848	\$3,960,151	\$3,918,736	\$13,523,652	\$1,725,239	\$8,284,787
Income - Expenses			\$978,289	\$1,780,192	-\$3,762,078	\$2,108,805	-\$687,241	-\$576,010			
Profit / Loss			Profit	Profit	Loss	Profit	Loss	Loss			

Prince Albert Municipal Airport
Forecast Revenue and Expense Statement

	Unit	Rate	Immediate		Short Term			Medium Term	Long Term	Ultimate Term	
			2009	2010	2011	2012	2013	2014	2015 - 2020	2021 - 2029	2030 +
Passenger Forecast			74,476	75,324	76,285	77,365	78,508	79,673	80,859	87,511	98,695
ATM Forecast			20,382	20,614	20,867	21,141	21,618	22,106	22,932	25,570	30,186
Capital Expenses											
Upgrade Field Electrical Centre (FEC)	-	\$508,725									
Taxi 'B' Extension	-	\$150,000									
Taxi 'B' Edge Lighting	-	\$8,800									
Rehabilitate Rwy 16/34 (Turf)	-	\$10,000									
Initiate ATB Study	-			\$20,000							
Rehabilitate Taxi 'E' (turf)	-	\$5,000									
Service Groundside Commercial Lots (Site 5) - Sewer	-	\$192,800									
Taxi 'C' Parallel Extension	-				\$5,300,000						
Taxi 'C' Edge Lighting	-				\$92,400						
VOR/DME Relocation	-			\$250,000							
Rwy 08/26 Pavement Rehabilitation	-					\$137,160					
Aprons II & III Pavement Rehabilitation	-				\$122,775						
Construct New Bulk Fuel Storage Facility	-				\$75,000						
Purchase Fuel Bowsers	-				\$250,000						
Expand (Widen and Lengthen) Airport Maintenance Garage	-					\$200,000					
Construct Air Terminal Building	-						\$2,925,000	\$2,925,000			
Re-Align ATB Frontage Road	-						\$45,500	\$45,500			
Re-locate Short-term Parking	-						\$25,000				
Construct New Access Road to Site 1	-							\$152,000			
Service Airside Hangar Lots (Site 1) - Water	-						\$93,200				
Service Airside Hangar Lots (Site 1) - Sewer	-						\$93,200				
Extend Runway 08/26 To East	-							\$4,122,000			
Runway 08/26 Edge Lighting	-							\$39,600			
ILS Localizer Relocation	-							\$250,000			
Taxi 'C' Parallel Extension	-							\$3,304,000			
Taxi 'C' Edge Lighting	-							\$55,000			
Taxi 'A' Extension	-							\$2,567,400			
Taxi 'A' Edge Lighting	-							\$61,600			
Apron I Expansion	-							\$369,000			
Apron I Edge Lighting	-							\$4,400			
Acquire Additional Property to West	-							\$1,071,000			
Construct New Access Road to Site 2	-							\$502,500			
Service Small Hangar Lots (Site 2) - Water	-							\$123,000			
Service Small Hangar Lots (Site 2) - Sewer	-							\$123,000			
Purchase additional land for ultimate runway extension	-							\$76,500			
Update Airport Master Plan	-							\$40,000			
Relocate Runway 16/34 (Turf)	-								\$25,000		
Develop Taxiway 'F' to Service Development Area (Turf)	-								\$435,900		
Service Airside Commercial Lots (Site 4) - Water	-								\$144,200		
Service Airside Commercial Lots (Site 4) - Sewer	-								\$81,000		
Develop General Aviation Aircraft Tie-down Area	-								\$20,000		
Extend Groundside Access Road	-								\$33,500		
Update Airport Master Plan	-								\$40,000		
Update Airport Strategic Marketing Study	-								\$25,000		
Extend Runway 08/26 to West	-									\$4,122,000	
Runway 08/26 Edge Lighting	-									\$35,200	
Relocate Glide Path Antenna	-									\$100,000	
Relocate Airport Access Road	-									\$514,500	
Widen & Extend Parallel Taxiway 'B'	-									\$2,340,600	
Taxiway 'B' Edge Lighting	-									\$39,600	
Total Capital Expenses			\$875,325	\$270,000	\$5,840,175	\$337,160	\$3,181,900	\$3,122,500	\$12,709,000	\$804,600	\$7,151,900
Total Income / Total Pax			\$30.63	\$33.04	\$33.13	\$41.45	\$41.69	\$41.96	\$44.76	\$46.82	\$47.93



LPS AVIA
CONSULTING

One Antares Drive, Suite 250

Ottawa, ON K2E 8C4

Telephone: (613) 226-6050

Fax: (613) 226-5236

e-mail: info@lpsaviation.ca

www.lpsaviation.ca