

AIRPORT MASTER PLAN UPDATE – 2008

EXECUTIVE SUMMARY



Prepared for:
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International Airport Authority**

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I. INTRODUCTION

The Ottawa Macdonald-Cartier International Airport Authority has experienced strong aviation and passenger growth in recent years, representing a significant achievement for the Authority. Since the last Airport Master Plan was completed in 1998, the Authority has grown from approximately 3.11 million passengers to 3.81 million passengers in 2006.

Future passenger activity is forecast to grow at an average rate of 2.8% over the next 20 years to approximately 7.66 million passengers by 2030. In the same forecast period, aircraft movements are forecast to grow at an average rate of 1.5% from 145,428 in 2006 to 207,800 by 2030. This growth will put increased pressure on the existing facilities, pressing the OMCIAA to monitor conditions closely over the planning horizon. Updates to the Airport Master Plan on a ten year cycle are not only required by the Ground Lease with Transport Canada but indeed prudent to ensure that long-term growth is not curbed by a lack of facilities.

Objectives of the Master Plan

The central purpose of the Airport Master Plan Update is to ensure continued operational and service excellence in the management of the airport to 2030 and beyond. To do so means anticipating future air transportation conditions, needs and opportunities and thinking strategically about future directions and opportunities.

The primary goal of the Airport Master Plan is to provide strategic direction and planning focus for the future development of the airport. The Plan is meant to assist management and stakeholders with short and medium term operational decisions and to guide future capital investments in a manner that is consistent with the Authority's long term goals. The Plan includes recommendations that address current and near-term operational issues in the context of a long-term development strategy. Specifically, the 2008 Airport Master Plan identifies airfield, terminal building and ground transportation system facility requirements to 2012, 2017 and 2030.

As mentioned above, under the Ground Lease with the federal government, the Ottawa Macdonald-Cartier International Airport Authority is required to update the Airport Master Plan and Approved Land Use Plan every ten years. This ensures that the airport maintains a strategic land use plan for airport development over the life of the Ground Lease; a blueprint for growth that is elaborated in consultation with airport stakeholders and ultimately approved by the Minister of Transport.

Required components of the Airport Master Plan include the following:

- Socio-economic profiles of the community and region;
- Airport activity, role, classification and history;
- Airfield, air terminal building and ground transportation systems;
- Airport commercial services and facilities;
- Airport operational support services;
- Airport environment and environmental impact;

- Noise management plan; and
- Land use plan.

Although the Airport Master Plan is intended to address the whole of these components, it is solely the Approved Land Use Plan that the Minister of Transport is mandated to review and approve.

History of the Airport

The Ottawa International Airport was originally opened in 1928 as a flying field for the Ottawa Flying Club. The site was located on a large plot of agricultural land, far outside the city limits. In 1938, the Department of Transport purchased the airfield and the airport was formally opened and licensed on August 20th, 1938. By 1939 the airport was designated for military use which included the establishment of a military flight training school, the first of many to be established across Canada.

A passenger terminal building was constructed and opened in 1960 and by August 1964, the airport was officially designated as the Ottawa International Airport. Since then, much construction and expansion has occurred over the years.

In February of 1997, the Minister of Transport transferred the facility to the newly formed Ottawa Macdonald-Cartier International Airport Authority (OMCIAA), an independent corporation without share capital which was created on January 1, 1995 under Part II of the Canada Corporations Act. The Authority is governed by a 14-member Board of Directors representing the Ottawa and Gatineau business communities, major users of airport facilities and the travelling public.

Passenger traffic has risen significantly since the opening of the new Passenger Terminal Building in 2003, and now exceeds pre-September 11, 2001 figures. The accelerated growth resulted in saturation at peak times, and as a result, the Airport Authority announced in April, 2006, that it would expand the domestic and international holdroom to accommodate 12 new gates. The Airport Expansion Program Phase II (AEP II) broke ground in August of 2006, and is expected to be fully completed by the summer of 2008.

Airport Location and Strategic Role

The Ottawa International Airport is located approximately 13 kilometres from the city centre and is accessible by road (taxi, shuttle service, bus, private car) and serves a catchment area of approximately 3.6 million people within a 100 km radius.

The closest major airport to Ottawa is Montreal's Trudeau, approximately 2 hours drive south-east from Ottawa. The next closest airport is Toronto Pearson, which is approximately 5 hours drive south-west. Other smaller, regional airports are located in the general vicinity of Ottawa serving primarily general aviation aircraft.

The Ottawa International Airport plays an essential role in the economic growth of the National Capital Region, servicing the needs of millions of travellers each year. The airport acts as a gateway to Canada and the National Capital Region; both international and domestic traffic play an integral role for the region. The airport is operated in a manner that supports not only air passenger growth, but air cargo, corporate and other associated aviation and non-aviation services. See the Airport Location Plan, Exhibit I-1 on the following page for an aerial perspective of the airport study limits and local roads.

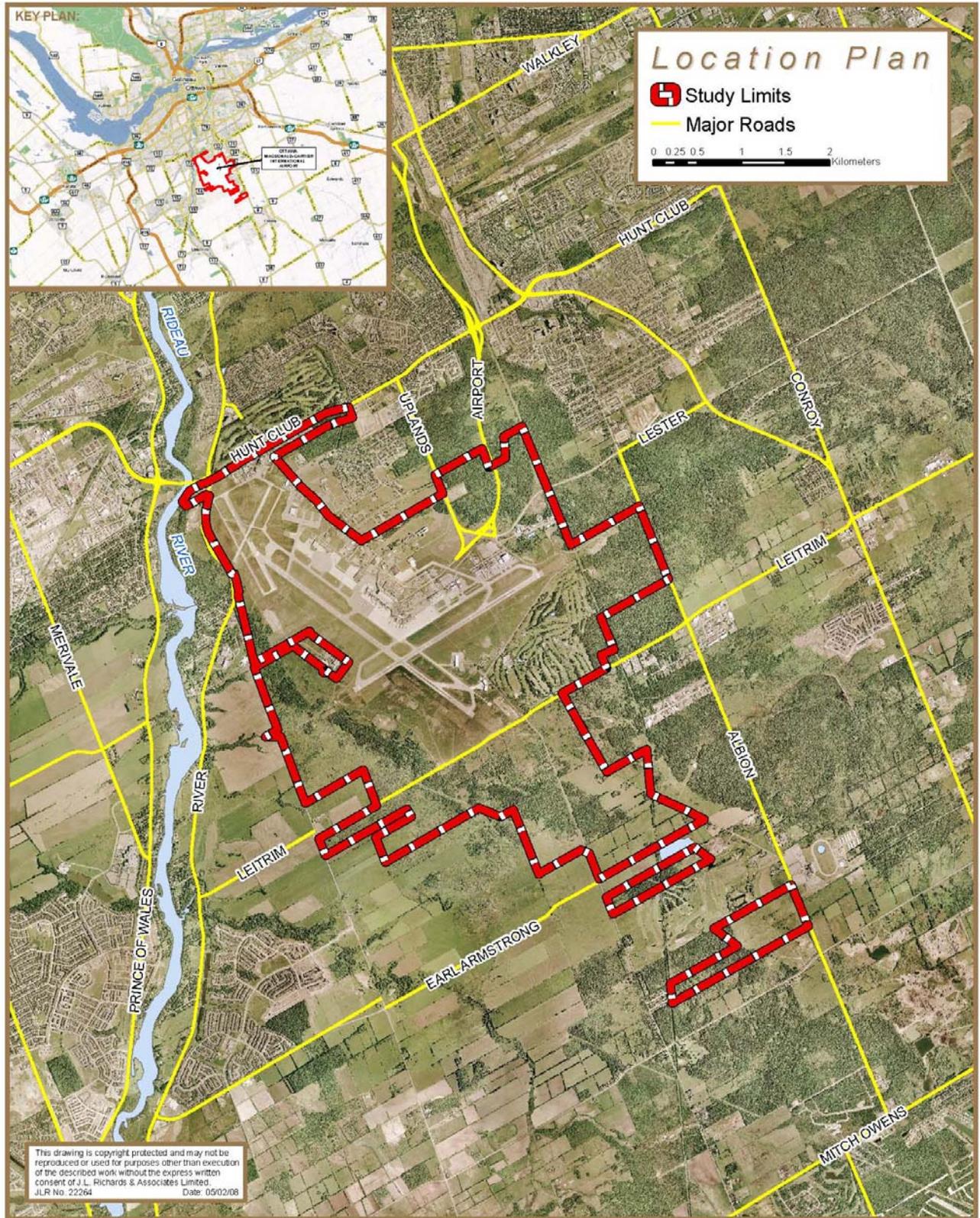


Exhibit I-1. Location Plan

Airport Governance

The launch of the National Airports Policy in 1994 resulted in the creation of local Airport Authorities across the country. The Ottawa Macdonald-Cartier International Airport Authority was established in 1997 after the assembly of a community-based Board of Directors, who are tasked with overseeing the management of the airport. The Airport Authority is a not-for-profit corporation with a Board of Directors made up of Federal, Provincial, Municipal and industry appointees.

The Airport Authority has an agreement with the federal government to operate the airport for the next 49 years and is obliged to meet the conditions of the airport ground lease with Transport Canada as well as all rules and regulations governing airport and aviation activity.

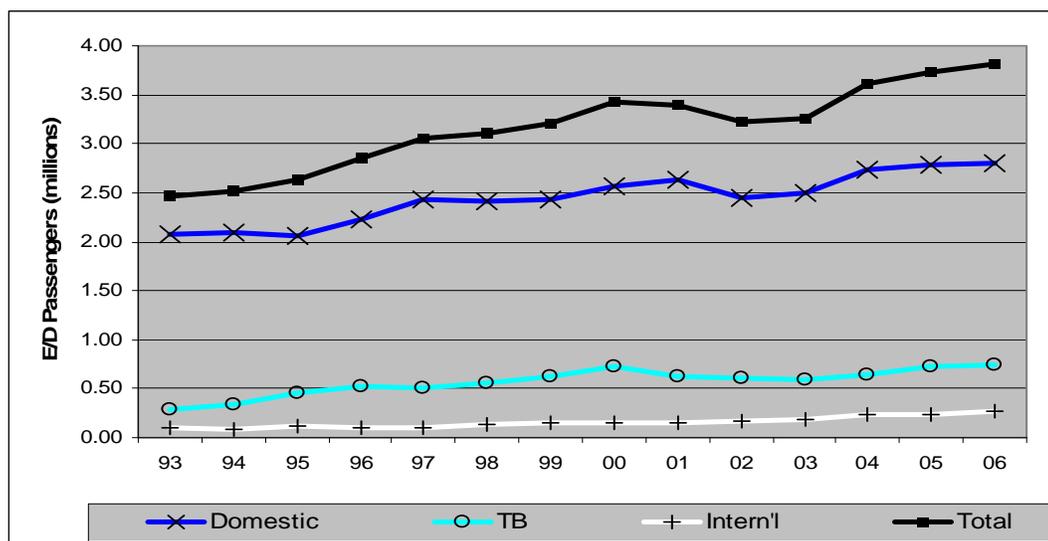
The airport lands are owned by the federal government and operated by the OMCIAA on a not-for-profit basis, as are all National Airport System (NAS) airports across Canada.

II. AVIATION ACTIVITY AND FORECASTS

Passenger Traffic

Historical Traffic

In 2006, 3.81 million passengers used Ottawa Macdonald-Cartier International Airport (YOW). Domestic traffic accounted for 74% of the overall volume at YOW, transborder 19% and international¹ 7%. This distribution of traffic by sector has changed significantly over the last 14 years with the proportion accounted for by the domestic sector declining from 84% in 1993 to 74% in 2006. While transborder traffic increased dramatically at the beginning of that period, the events of September, 11, 2001 and the SARS scare in 2003 significantly reduced transborder travel and demand only recovered in 2005/06. International traffic continued to grow throughout the period, except for a slight pause in 2000 and 2001. Please refer to Exhibit II-1 below.



Source: Ottawa Macdonald-Cartier International Airport Authority

Exhibit II-1. Growth in Enplaned and Deplaned Passenger 1993-2006

Current Air Services

Ottawa was served by 16 airlines in May 2007 that together provided a mix of regular scheduled and major charter service. Thirteen airlines offered scheduled passenger services and seven offered seasonal major charter services. These airlines offer regular non-stop scheduled service to 13 domestic destinations, 12 transborder destinations and a daily year-round service to the UK (London). Winter charter services were provided to 16 destinations in the Caribbean, Mexico and the US. By September 2007 the number of transborder destinations increased to 15 with the introduction of Northwest Airlines daily service to Minneapolis-St. Paul, Continental twice daily

¹ Throughout this report international traffic and services exclude those to the US, the latter are referred to as “transborder”.

service to Cleveland and Air Canada twice weekly service to Las Vegas. On November 5th, 2007 Air Canada announced the introduction of a daily non-stop flight from Ottawa to Frankfurt, Germany. Service is scheduled to begin on June 1st, 2008.

Passenger and Aircraft Movement Forecasts

Actual and forecast E/D passengers over the period 1993 to 2030 are presented graphically in Exhibit II-2. By 2030 passenger traffic is forecast to be 7.66 million. Average annual growth rates are forecast to be 3.8% for the four years 2006-2010, and 2.9% for the 10 years 2010 through to 2020 and 2.7% between 2020 to 2030.

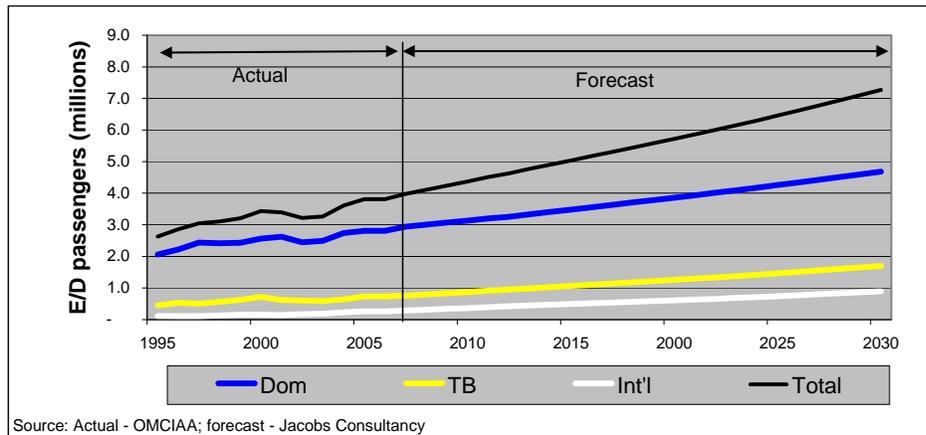


Exhibit II-2. Actual and Forecast Total E/D Passengers 1993-2030

The historical and forecast aircraft movements to 2025 are presented in Exhibit II-3. Total movements are expected to reach approximately 210,000 by 2030.

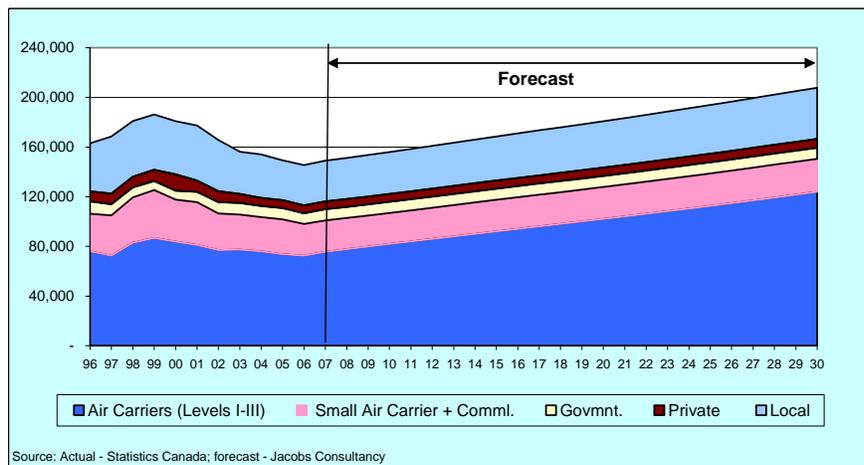


Exhibit II-3. Historical and Forecast Aircraft Movements at YOW

Air Cargo Forecasts

Current Cargo Services

Ottawa Macdonald-Cartier International Airport is served by a mix of cargo services including belly cargo of passenger aircraft, the upper deck of combination passenger/cargo aircraft, and freighter aircraft used for both all cargo and courier services. Approximately 60% of cargo is carried by freighter aircraft. The availability of belly cargo capacity in passenger aircraft has been negatively affected by the greater use of regional jets and the increase in passenger load factors over the past 10 years.

Cargo Forecast

Historical and forecast cargo are presented graphically in Exhibit II-4. The forecasts include low and high growth scenarios due to the greater uncertainty in the estimates compared to the passenger and movement forecasts. It should also be noted that the quality of the base data is far from optimal and efforts should be made to improve the quality.

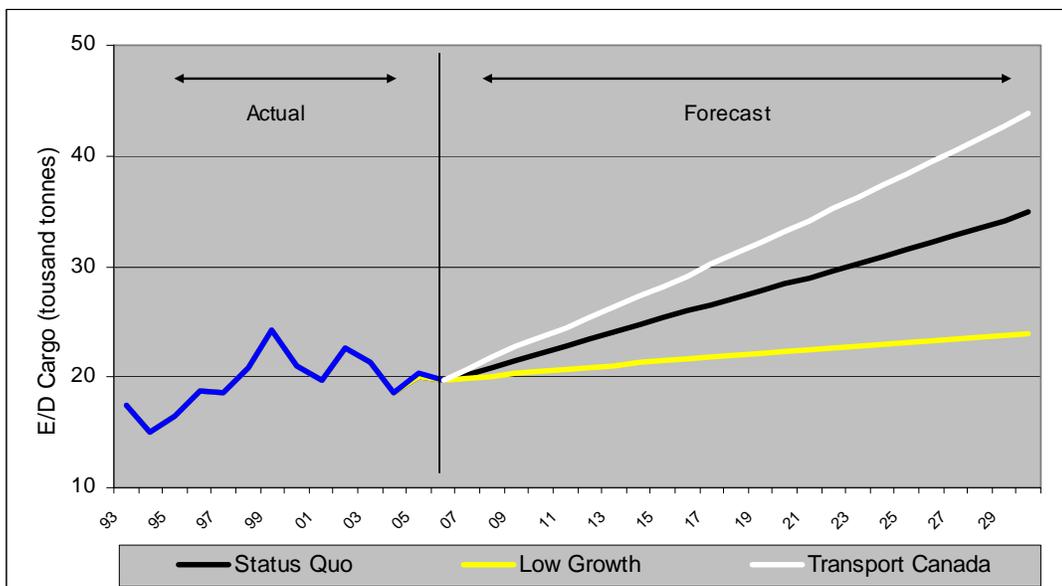


Exhibit II-4. Profile of Forecast Cargo at YOW 2006 – 2030

III. AIRPORT DEMAND / CAPACITY AND FACILITY REQUIREMENTS ANALYSIS

Introduction

The purpose of the Demand and Capacity Analysis is to determine:

- Those facilities and services that are deficient in terms of capacity under present air traffic demand conditions;
- The capacity required in the Airport facilities and services to meet future demand conditions based on forecast air traffic and other demand characteristics for the Master Plan period;
- The extent to which existing facilities and services need to be expanded or upgraded, and the requirements for additional facilities and services not currently provided;
- The optimum timing, or trigger events, that would justify provision of additional capacity in airport facilities and services; and
- The timing of capital expenditures.

The main areas for capacity assessment are:

- Airfield system which consists of runway, taxiways and apron areas;
- Passenger Terminal Building which consists of the passenger processing facilities;
- Aviation Support systems such as airport maintenance, emergency response services (fire fighting facilities), cargo facilities, deicing area;
- Groundside systems, including the public access roads and car parks; and
- Airport Utilities.

In all of these functional areas capacity assessment relies on comparing the throughput of aircraft, passengers, and vehicles against level of service measures to define the acceptable operating standards of the Airport.

Airfield Summary

The current runway configuration (Runways 14/32 and 07/25) can accommodate between 57 and 98 operations per hour and has an Annual Service Volume (ASV) ranging between 200,000 and 265,000 movements per year.

The long term forecast of this Master Plan suggests that the total demand will be approximately 210,000 movements (itinerant and local flights) by the end of the planning period considered in this Master Plan, meaning that the airport will have then reached its ultimate capacity, in its present configuration.

Assuming that the airport maintains its current and forecast growth rates, a new runway may be needed at the end of the planning horizon, in order to provide a good level of service to its users while keeping delays due to airport congestion at an acceptable level. However, some mitigating measures could be considered at that time, such as building rapid exits for Runway 14-32 and Runway 25, in order to alleviate congestion during busy hours thereby deferring the significant investment required for the construction of a new runway.

Aircraft Gating Requirements

When the terminal expansion and apron areas are completed in 2008, there will be a total apron capacity of 25 contact apron gate positions around the terminal with the possibility of adding one additional gate at the south end of the terminal.

Based on the forecast apron gate demand, there will be a shortfall of gate positions (both bridged and unbridged) immediately after 2012. By 2017, there will be a shortfall of 5 gate positions and by 2030, a shortfall of 10 gates. Exhibit III-1 presents the forecast gate requirements.

Exhibit III-1. Forecast Aircraft Gates Required by Sector and ICAO Aircraft Code

Year / Code	Minimum Transborder	Transborder / International Gates	Domestic Gates	Total
2007				
Code B	5	5	4	9
Code C	1	2	9	11
Code D	0	2	0	2
Code E	0	0	0	0
Totals	6	9	13	22
2012				
Code B	5	5	2	7
Code C	2	4	10	14
Code D	0	3	1	4
Code E	0	0	0	0
Totals	7	12	13	25
2017				
Code B	7	7	4	11
Code C	3	3	12	15
Code D	0	3	0	3
Code E	0	1	0	1
Totals	10	14	16	30
2030				
Code B	7	8	4	12
Code C	4	4	13	17
Code D	0	1	0	1
Code E	0	3	2	5
Totals	11	16	19	35

Passenger Terminal Demand / Capacity and Requirements Analysis

In analyzing the passenger terminal capacity, the existing and the expanded terminal were considered. The various terminal areas each with their own functions, characteristics and processing rates were analyzed. The primary terminal areas include terminal curb frontage, check-in areas, passenger security points, outbound baggage system, passenger holdrooms, arrivals baggage system and customs and immigration processing areas.

Examination of the existing and future terminal capacity and requirements was conducted using peak hour passenger demand volumes.

Terminal Processing Capability

The passenger terminal is comprised of a number of systems and areas each with their own capacity or processing rate. In simple terms the terminal can be thought of as a series of processors (such as check-in, security, boarding podium) and storage areas (hold rooms etc.). The demand and capacity of processors is evaluated in terms of passengers/hour, while the demand and capacity of storage areas is defined in terms of passengers.

The forecast demand for facilities is created through a model using level of service criteria as defined in the IATA Airport Development Reference Manual 9th Edition, dated January 2004. The guidelines in this manual link specific spatial areas and processor requirements to planning peak hour passengers.

The existing and passenger terminal expansion were examined to compare the capacities to forecast demands in 2012, 2017, and 2030. Exhibit III-2 summarizes the forecast terminal facility requirements. The highlighted areas present the shortfalls in available capacity. Each of the key areas is discussed below.

Curbfront

There will be a shortfall of departures curb front within the next five years (2012). A widening of the existing roadway similar to the arrivals roadway configuration.

Check-in

The current number of domestic check-in counters will be adequate until the very end of the planning period, assuming that common use facilities are implemented. The current number of transborder check-in counters will be adequate only until the last few years of the planning period (2025-2030), again assuming common use kiosks facilities are implemented

Security Points

The domestic security points are at capacity now and will need to be increased shortly, as will the space they occupy. The queuing area, while adequate most of the time, will be insufficient at the peaks and given the position of the escalator, the area will become progressively more congested over the forecast period.

Exhibit III-2. Forecast Terminal Area Requirements

PPHP		2012	2017	2030
Domestic/International Enpl		960	1,040	1,320
Transborder Enpl		380	410	680
Domestic Depl		710	790	900
International/TB Depl		720	800	1,030
Terminal Element	Existing/ Planned	2012	2017	2030
Processors				
Curb Length - departures (m)	135	191	210	277
Curb Length - arrivals (m)	316	191	210	277
Check-ins				
Domestic/International (CUTE)	50	35	38	51
Domestic/International (w/o CUTE)		42	48	62
Transborder (CUTE)	24	17	18	30
Transborder (w/o CUTE)		20	21	36
Security Points - Number				
Domestic/International	7	8	9	12
Transborder	2	3	4	6
US FIS Units				
	6	4	5	8
Hold Room Seating Number				
Domestic/International	1,350	768	832	1,056
Transborder	280	304	328	544
Immigration Units				
	8	10	11	14
Bag Claim Units				
Domestic Units	3	3	4	5
Domestic Display Length	154	144	240	276
International/TB Units	2	3	4	5
International/TB Display Length	254	158	278	278
Spaces (Square Metres)				
Departures Concourse Area				
Domestic/International	1,386	1,223	1,324	1,687
Transborder	683	436	471	781
Check-in Counter Space				
Domestic/International	198	220	237	309
Transborder	100	111	119	198
Security Points Space				
Domestic/International	317	360	405	540
Transborder	160	135	180	270
Hold Room Space				
Domestic/International	4,607	2,152	2,336	2,946
Transborder	572	803	866	1,436
Concessions				
Domestic/International	2,576	2,046	2,345	3,544
Bag Make up area				
Domestic/International	3,020	1,960	3,064	3,478
Transborder	1,365	1,569	1,569	1,983
International Arrivals Hall				
	530	1,378	1,513	2,219
Bag Claim				
Domestic	1,757	1,386	2,310	2,880
International/Transborder	1,411	1,596	2,718	2,904
Customs/Imm. Secondary Area				
	500	279	307	446
Arrivals Lobby Landside				
Domestic	1,078	615	685	780
International/Transborder	800	624	693	893

The transborder security area will need an additional screening point within the next five years. More importantly, the queuing area leading up to the security area is currently congested. This congestion is a function of the proximity of the checked baggage drop off point to the screening points. A project was approved in 2008 to add space to the queuing area, to allow the installation of an additional screening point and to also improve the processing of checked baggage. This project should satisfy the immediate and short term needs of the transborder security area.

US Federal Inspection Services (FIS)

The current number of US Federal Inspection Services (FIS) will be adequate only until 2017. The number of FIS positions will need to be increase to meet demand towards the end of the planning horizon.

Departure Lounges

The domestic departure lounges provide sufficient space through the forecast period. The seating capacity will however fall below the recommended 80% of the planning peak hour standard towards the end of the planning period.

The transborder departure lounge is at capacity today and will need expansion in the next five years.

Concession Areas

Concession space domestically is sufficient for demand levels until approximately 2017. Additional space for concession potential should be identified to meet forecasted demand during the later phases of the planning horizon. In the transborder area concession space is already limited. Additional space for concession potential should be identified at the time the transborder area is expanded.

Canadian Customs and Immigration

The Customs and Immigration processing areas are insufficient for today's planning peak demands. During peak hours, passengers are often queued into the arrival corridor. There are similarly insufficient Primary Inspection Line (PIL) units to meet the peak arrival demand of over 700 per hour. When the PIL counters are not completely staffed during peak periods, the problem is compounded.

Baggage Halls

The domestic baggage claims carousels (2 existing, 1 planned) are sufficient to meet demand until approximately 2012. Two additional carousels are required before the end of the planning period. The international/transborder bag claim units will be adequate until approximately 2017. Although there are only two units, one is very large and the total display length is sufficient until 2017. Three additional carousels are required before the end of the planning period.

Both the domestic/international and transborder outbound baggage areas are adequately sized over the forecast period.

Aviation Support Facilities Demand / Capacity and Requirements Analysis

A review of the Aviation support facilities was also undertaken and includes the following:

- Emergency Response Services and Airport Maintenance Complex
- Deicing Facilities
- Air Cargo Facilities
- Fuel Facilities

It was determined that none of these facilities need to be expanded to accommodate additional capacity, however, additional cargo apron area is recommended to improve operational efficiency.

In addition, the Airport Operating Committee should consider a central management system for the deicing facility, as this has the potential to maximize the use of all the deicing pads during peak periods.

PLH Aviation Services is planning to add a 1 million litre tank to the fuel farm within the next year.

During the next apron expansion, the Airport Authority should give consideration to the installation of an airport fuelling hydrant system to serve all aircraft at the terminal apron area. This would greatly enhance safety at the airport, minimizing vehicle use on the apron and enabling an economic spacing of planned aircraft gates.

Groundside Facilities Demand / Capacity and Requirements Analysis

The groundside facilities include the following:

- Public Parking – both short term and long term parking lots;
- Employee Parking;
- Rental Car Parking Areas;
- Taxi / Limousine Holding Areas;
- Groundside Access Roads (such as Airport Parkway and Canadair Private);
- Main Access road (from Airport Parkway);
- Terminal Approach Roads – Inbound and Outbound;
- Terminal Frontage Roads – including arrivals and departures curbsfronts.

All of the recommendations are based on calculations that use “Rules-of-Thumb”. Overall, it is recommended that any groundside facility size requirements used for design be based on econometric analyses using site specific vehicular and enplaned-deplaned air passenger data. Specific recommendations are summarized in Exhibit III-3.

Exhibit III-3

Facility	Recommendation
Public Parking	Expansion by approximately 1,900 stalls may be required within the next five (5) years.
Rental Car Parking	Move to a remote lot or expand parkade in the 2017 timeframe.
Employee Parking	Expansion may be required in the 2020 timeframe.
Taxi Holding Area	Expansion may be required within the next five (5) years.
Airport Parkway Private (MAR)	Expansion (2 lanes, 1 lane each direction) may be required in the 2015 to 2020 timeframe. The Delta bridge underpass may advance this timeframe.
Inbound Terminal Approach Road	Expansion (1 lane) may be required in the 2012 timeframe.
Outbound Terminal Approach Road	Expansion (1 lane) may be required in the 2012 to 2017 timeframe.
Terminal Frontage Road	Expansion (1 lane) may be required in the 2015 timeframe.

It is recommended that the Airport Authority conduct specific groundside traffic counts and analysis on a regular basis in order to determine the appropriate timing of facility expansions of access roads and parking lots. It is important that facilities are expanded prior to reaching capacities to ensure a good level of service for customers, employees and ground transportation service providers.

IV. AIRPORT DEVELOPMENT PLAN

This Airport Master Plan Update presents the development phases and options for the airport in the short term (2012), medium term (2017) and long term (2030). These phases and options were developed to ultimately meet the forecasted demand and requirements analysis for the following airport operational components:

- Passenger Terminal Facility and Aircraft Gates;
- Groundside Facilities and Access Roads; and
- Airport Support Facilities.

Passenger Terminal Facility and Gate Development Plan

In order to meet the 2030 forecast passenger demand and associated aircraft gate requirements, the terminal and aircraft gates must be expanded. A phased approach to growth is proposed, with expansions occurring within the 5 year timeframe in 2012, 10 year timeframe in 2017 and within the ultimate planning horizon of 2030. Each of the proposed options meets or exceeds the gate requirements over that which was anticipated.

The fundamental principle of the proposed phased development is that terminal expansion occurs at the north end of the existing terminal building. One of the constraints of terminal expansion to the south is the location of Taxiway Bravo and Apron 1, both of which must be maintained for movement of aircraft and remote aircraft parking. Additionally, all apron development options require the Canada Reception Centre to be relocated from its current location just north of the terminal apron.

The following development drawings have been included for illustrative purposes and are concepts for terminal expansion in 2012, 2017 and 2030.

Terminal Development to 2012

The first phase of development in 2012, indicated in Exhibit IV-1 below, includes an expanded terminal to the east to allow for the expansion of international processing (Level 1) and transborder processing (Level 3) facilities. In order to expand the terminal with minimal disruption to operations, affected processing facilities will need to be partially relocated from their existing positions prior to building expansion. The required added processing space is to be constructed over the truck loading area. The addition of a sterile corridor between gates 15 and 16 is necessary to accommodate the required number of transborder gates by 2012.

Terminal Development to 2017

The second phase of development in 2017, indicated in Exhibit IV-2 below, proposes to expand the existing terminal building pier northwards to add both holdroom and concession space and at least 5 more aircraft gates. This development is clearly a linear expansion that builds on the existing structure. Through consultation with airport stakeholders and the evaluation of the development options formulated for consideration, it was concluded that the expansion of the existing building footprint is preferable to construction of a separate transborder terminal facility.

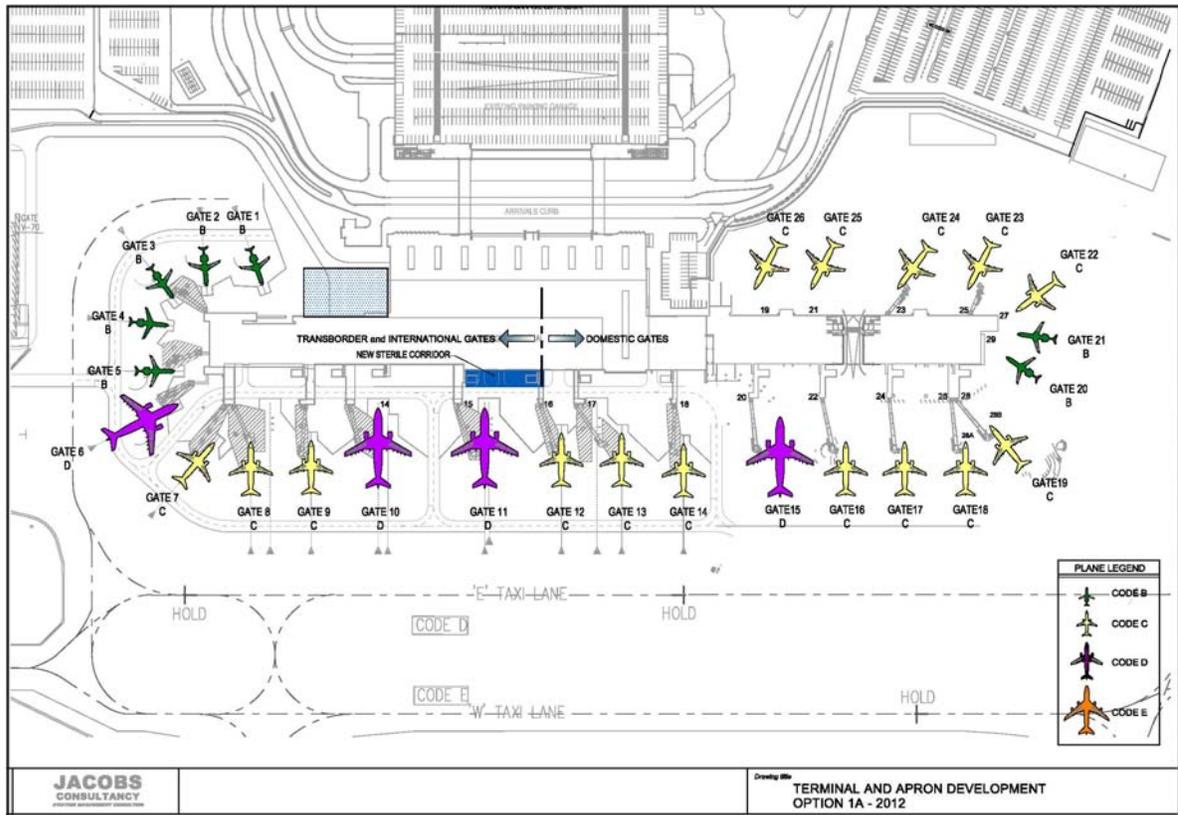


Exhibit IV-1. Terminal Development to 2012

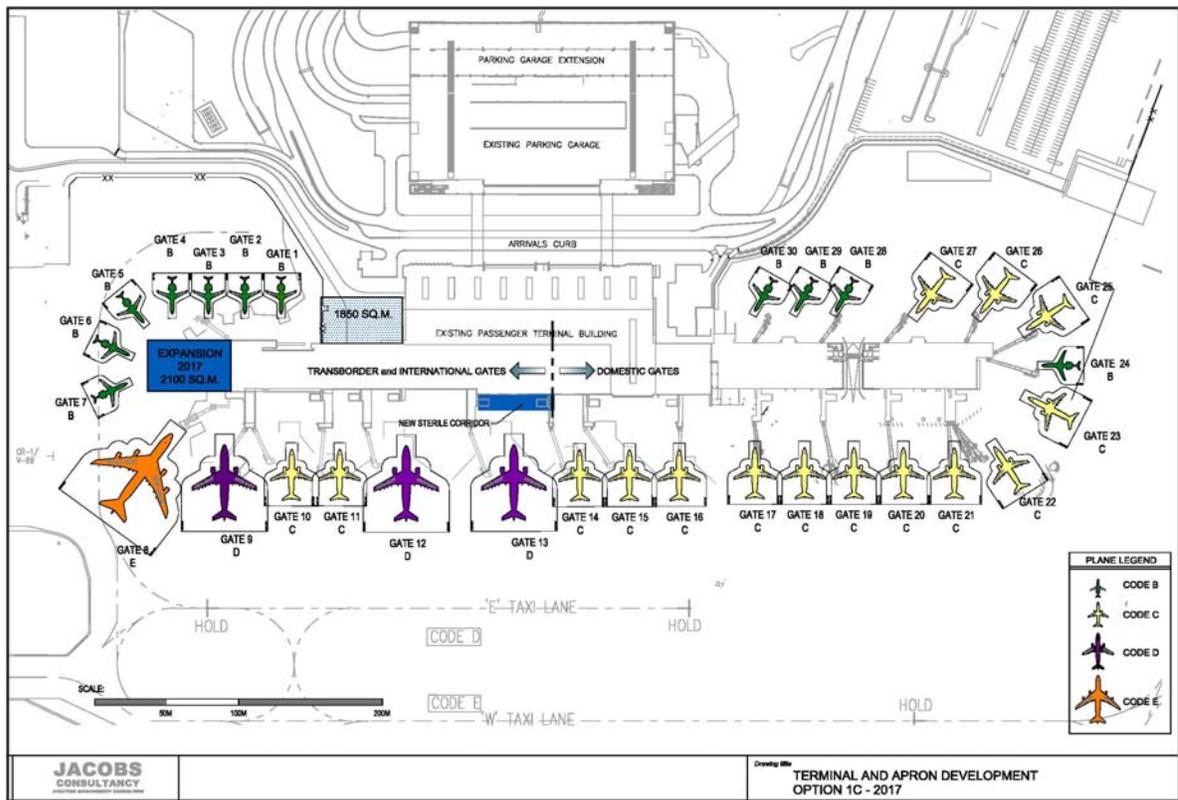


Exhibit IV-2. Terminal Development to 2017

Terminal Development to 2030

This phase of development proposes to continue terminal expansion to the north. This option is based on the assumption that a linear expansion of the existing terminal will proceed in favour of the development of a separate transborder facility. Option 1E proposes a total of 35 aircraft gates. There are 16 transborder / international gates, meeting the following aircraft mix: 8 Code B, 4 Code C, 1 Code D, and 13 Code E aircraft. There are also a total of 19 domestic gates, meeting the following mix of aircraft: 4 Code B, 13 Code C, 0 Code D and 2 Code E aircraft. The third phase of terminal development is depicted in Exhibit IV-3 below.

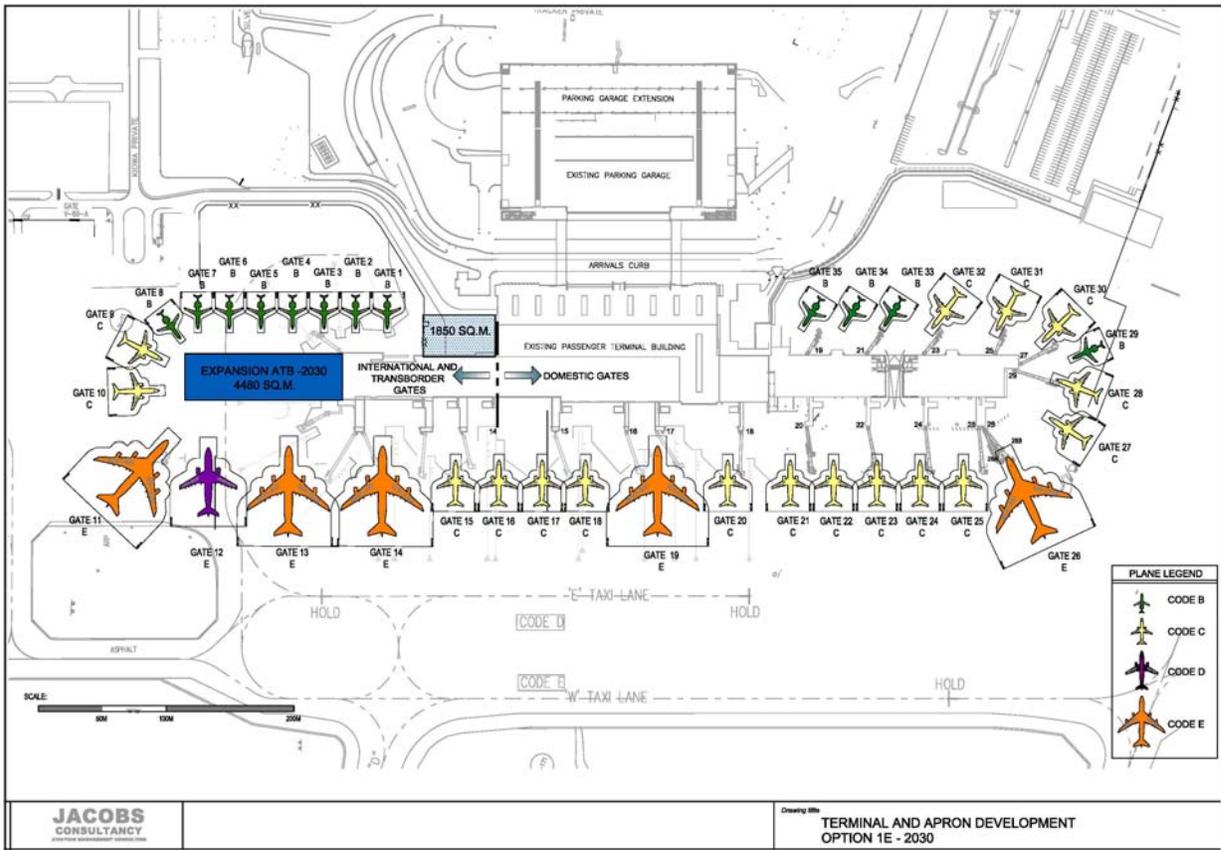


Exhibit IV-3. Terminal Development 2030

Recommended Airport Development Plan

A summary of recommended airport development options is shown below as Exhibit IV-4. The plan illustrates the location of terminal and apron expansions, groundside access modifications, expansions to the parkade, the location of a new remote car park and a place holder for a new attached hotel. These proposed developments are required to meet forecast demand to 2030.

Stakeholder Consultation

The purpose of the communication and consultation strategy was to inform stakeholders about the Airport Master Plan Update initiative and to elicit insight and pertinent information from key stakeholders, agencies and the public. This strategy was intended to motivate public participation

and to capture local interest. The communications and consultation strategy for this Airport Master Plan Update included participation and input from various airport tenants, stakeholders, government agencies, community participants and the public.

The first phase of consultation provided insight into airport operational and growth related issues affecting tenants and stakeholders. Specifically, data collected from tenants and stakeholders with a direct interest in the Ottawa Airport provided a detailed understanding of services offered, forecast traffic demand, facilities utilized and issues and concerns related to operations at the airport. The second phase of consultation was completed in a series of one-on-one meetings with agencies such as the National Capital Commission, Transport Canada and the City of Ottawa, among others. The third phase of consultation involved a review of the draft Airport Master Plan. This was provided through presentations for the City of Ottawa, the National Capital Commission, Transport Canada and airport stakeholders. The tenants, employees and the general public were invited to attend an Open House with display panels and airport / consultant personnel available to answer questions. Comment sheets were made available throughout the consultative and communications process.

The following consultation strategies were employed:

- Telephone and in-person interviews with airport stakeholders, government agencies and tenants;
- Letters to airport stakeholders and tenants requesting information and input with respect to the Airport Master Plan Update;
- Meetings with Airport Authority managers, directors and employees to discuss various aspects and specific characteristics of the airport operation related to the Update;
- Surveys of airport stakeholders, tenants and management employees; the survey forms completed during the interviews were entered into Survey Monkey;
- Meetings between Airport Authority directors and employees to obtain input on the development options and future operations;
- Meetings on specific issues with government agencies such as the City of Ottawa, National Capital Commission, Transport Canada and Public Works and Government Services Canada;
- A Webpage, specific to the Airport Master Plan Update, was posted and provided information on the project; email contacts were available to ensure that the public were provided an opportunity to comment and provide input into the project;
- Open house with the public to obtain input from the community on the airport master planning process, future development requirements and options considered and community concerns.

The following communications tools were employed:

- Webpage; project description, purpose and opportunities to involve stakeholders and the general public to provide comments;
- Letters of Introduction (of the Airport Master Plan Update);
- Presentations to launch the project and to review the draft Airport Master Plan;
- Telephone, facsimile email and regular mailing of invitations to meetings / open house; and
- Face to face meetings with various agencies and stakeholders involved.

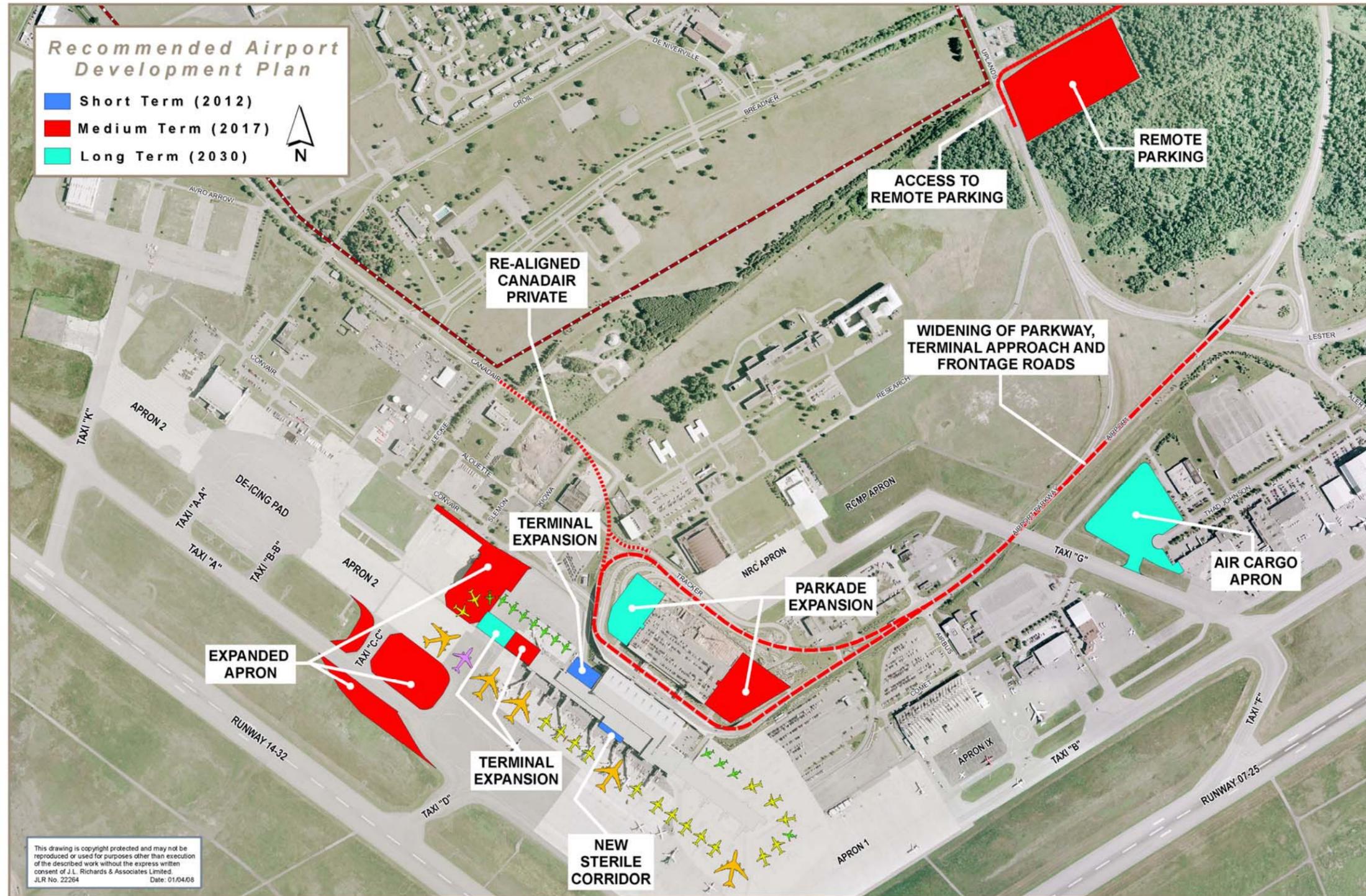


Exhibit IV-4. Recommended Plan of Airport Development to 2030

V. SUMMARY OF MASTER PLAN DEVELOPMENT COSTS

The phased development of the airport master plan program is split into three segments: 2012, 2017 and 2030. Exhibit V-1 below indicates the various program work elements, estimated capital cost and timing. Please note that all costs are in 2008 Canadian dollars and exclude GST. The capital cost estimates are based on implementing the work under a single bid-build contract and include 15% for project management, pre-engineering surveys, architectural/engineering design, construction supervision and inspections as well as a 25% design and construction contingency.

Exhibit V-1. Recommended Future Airport Development Program

<i>Description of Work Element</i>	<i>2012</i>	<i>2017</i>	<i>2030</i>	<i>Totals</i>
Sterile Corridor Addition (Gate 15 to 16)	\$1			\$1
North PTB Processor Addition, Phase 1	\$17			\$17
North Transborder Extension, Phase 1		\$22		\$22
Hangar 11 Demolition and New PLR 10 Pavement		\$4		\$4
Apron Infill Apron 1 to Taxi C-C and Dual Taxilane		\$5		\$5
Parking Structure South Expansion (796 stalls)		\$26		\$26
Long-Term Remote Surface Parking (1000 stalls)		\$5		\$5
Widen Airport Parkway (Alert to Airbus Private - 2-Lane to 4-Lane)		\$2		\$2
Construct New Delta Bridge and Realign Taxiway Delta		\$4		\$4
Widen Airport Approach/Exit Roads (Add 1 Lane Each Direction)		\$1		\$1
Widen Airport Frontage Road (Add of 1 Lane Each Direction)		\$0.5		\$0.5
Realign Canadair Private		\$1		\$1
Parking Structure North Expansion (680 stalls)			\$22	\$22
North Transborder Extension, Phase 2			\$24	\$24
New Canada Reception Centre			\$7	\$7
New Air Cargo Apron Expansion @ Golf Taxiway (Opt. 2)			\$3	\$3
TOTAL PROBABLE PROGRAM COST PER DEVELOPMENT YEAR	\$18	\$70	\$56	\$144

VI. 2008 LAND USE PLAN

The Land Use Plan is an expression of the intent for future growth and development of airport lands over the planning period 2008 to 2030. Its purpose is to ensure that rational and orderly development is achieved through the designation of an appropriate mix and distribution of aviation and non-aviation commercial, industrial and other employment uses. The Plan incorporates the airside system, the terminal, terminal area functions, airside aviation business areas, aviation and non-aviation groundside development, the parkade, carparks, access roads, and the intermodal transportation system. Development on airport lands shall proceed primarily on the basis of urban standards and infrastructure.

The Airport Authority's initial Approved Land Use Plan (ALUP) was formulated in 1998 and later amended in 2003. The 2008 Approved Land Use Plan takes into consideration the land use designations outlined in both these earlier plans and employs forecast demand and capacity requirements to re-designate areas as necessary. Refinements to the plan reflect a review of the suitability of existing designations and include consideration of other government planning objectives such as those articulated by the City of Ottawa and the National Capital Commission in their various planning documents.

The Approved Land Use Plan is a Federal Minister-approved development strategy that guides the future growth of the airport. While not subject to further approvals, the Plan integrates, to the extent practical and appropriate, the policy and regulatory context within which it resides. Planning related documents reviewed and considered in the preparation of the Plan include the City of Ottawa's Official Plan, the National Capital Commission's Plan for Canada's Capital and Greenbelt Master Plan, the Provincial Policy Statement, and the current and draft Ottawa Airport Zoning Regulations.

The 2008 Approved Land Use Plan, indicated as Exhibit VI-1 below, was submitted to Transport Canada for approval early in 2008. This Land Use Plan has been reviewed and commented upon by various agencies, airlines, tenants and levels of government including the City of Ottawa and the National Capital Commission. Comments received, to the extent practical and appropriate, have been reflected in the Airport Master Plan Update.

Employment Sectors Strategy

The purpose of the Employment Sectors Strategy is to identify nine distinctive employment sectors within the 'Commercial Aviation / Non Aviation Employment Area' designation of the Approved Land Use Plan. The Employment Sectors Strategy facilitates growth management and the establishment of development characteristics and standards on a sector-by-sector basis. More detailed planning of the employment sectors will serve to guide the potential phasing of development and the extension of municipal services, utilities and infrastructure.

The Approved Land Use Plan and Employment Sectors Strategy are complementary expressions of the intent for future airport growth and development. The former institutes, on a fundamental level, the land use categories necessary and appropriate to guide the expansion of the airport and the development of airport lands. The Employment sector Strategy lends support to the 2008 ALUP by defining specific areas for which more detailed planning ought to occur prior to development.

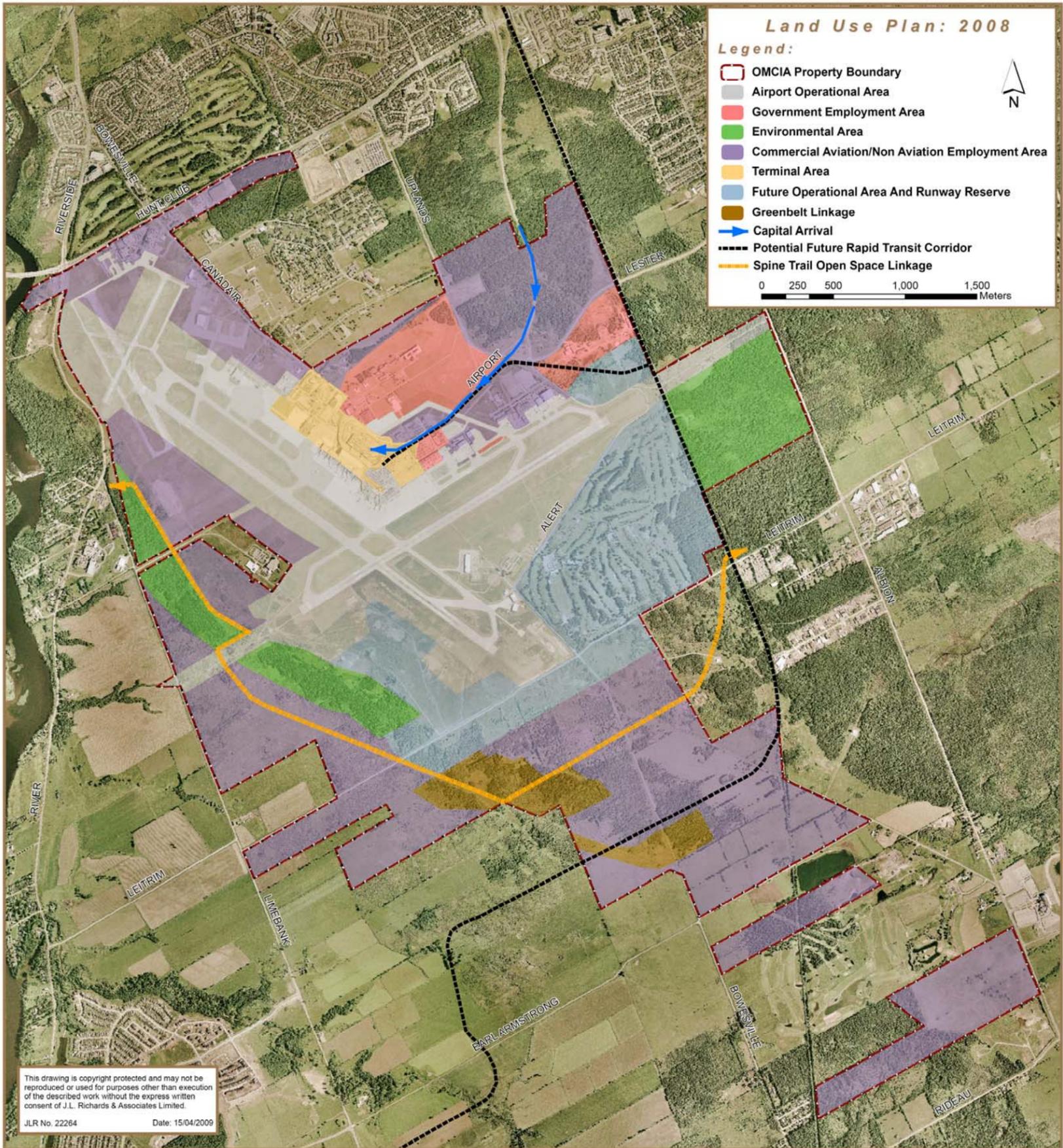


Exhibit VI-1. OMCIAA 2008 Land Use Plan

VII. SUMMARY OF RECOMMENDATIONS

This Airport Master Plan Update offers the following set of recommendations for implementation through to the 2030 planning horizon. The recommendations are based on the analyses undertaken through the course of the project and on the results of airport stakeholder consultation. The recommendations are separated into four main categories: Airside; Terminal; Groundside; and, Other Recommendations.

Airside

- The runway and taxiway system will meet annual forecast demand until the end of the 2030 time horizon. However, there may be times during the latter part of the planning period when delays are experienced during peak hours. It is therefore recommended that the OMCIAA closely monitor these peak periods and manage capacity deficiencies through operational means.
- If a parallel runway is required after 2030. It is recommended that the Airport Authority protect a block of land for this potential future requirement. Depending on the level of activity and aircraft types in future, there may be a need for additional high speed taxiway exits from the runway by 2030.
- There will be a need to add aircraft gate stands at the terminal to accommodate an additional 5 aircraft during the peak hour by 2017 and another 5 gates by 2030 for a total of 35 aircraft gates required by 2030.
- The construction of additional apron pavements should be undertaken to extend dual taxilanes on the apron and to ensure the efficient flow of aircraft around the proposed terminal expansion.
- Although the de-icing facility has the capability to meet demand until the end of the planning horizon, operational improvements should be made to mitigate the delays experienced by air carriers. To this end, a central management system should be put in place to provide de-icing services to all airlines, thereby improving queuing and reducing delays.
- There is an adequate amount of air cargo warehouse and sorting facilities at the airport that are currently provided by various operators. However, additional apron areas should be constructed to ensure the continued growth of this sector and to allow for additional aircraft parking for based and non-based air cargo operators.
- The Canada Reception Centre will need to be relocated to allow terminal expansion to the north of the existing transborder pier (See terminal recommendations below). Discussions regarding a site specific relocation should occur between the Airport Authority and the Government of Canada's Department of Foreign Affairs at the earliest opportunity to ensure that terminal expansion is not delayed.
- Physical and/or operational apron management measures should be considered to mitigate for the loss of direct eye contact and/or line of sight between the control tower and the planned aircraft gates located on the east side of the proposed 2017 terminal pier expansion.

- Additional fuel farm capacity should be considered in the near future to ensure an adequate supply of airplane fuel for air carriers.
- During the next apron expansion, the Airport Authority should give consideration to the installation of an airport fuelling hydrant system to serve all aircraft at the terminal apron area. This would greatly enhance safety and minimize vehicle use around parked aircraft. Consequently, more room would be available for ground handling companies to service aircraft parked on gates.

Terminal

- The terminal building should be expanded to accommodate additional space necessary for transborder and international passenger processing, among various other functions. The first expansion is recommended to occur by 2012, with 3 floors added, (1,850 square metres per floor) for Canada Customs and transborder operations. A sterile corridor between domestic and international / transborder aircraft gates is recommended to enable one additional swing gate to be utilized for domestic, international and/or transborder flights.
- The next expansion phase of the terminal should occur by 2017, when an additional 5 gates will be required to meet air carrier demand. This expansion ought to occur at the north end of the existing terminal thereby adding on to the existing building footprint.
- The last phase of terminal expansion should occur by 2030, with a lengthening of the terminal to the north to provide an additional 5 gates for a total of 35 aircraft gates on terminal. This proposed expansion builds on the previous 2017 planned work.
- Within the terminal, the following improvements are recommended:
 - Additional domestic and transborder security processing points to meet future demand in years 2012, 2017 and 2030;
 - Additional transborder hold room seating as the terminal expands to accommodate the increased number of passengers in future years;
 - Additional domestic and international / transborder check-in counters by 2030;
 - A Common Use Terminal Equipment System within the next 1 to 2 years A future shift to remote check-in may reduce the need for expansion in this area;
 - An expanded outbound baggage make-up processing area by 2030 and additional domestic and international / transborder baggage claim facilities and space;
 - Additional concessions areas, such facilities be built into proposed terminal expansion plans.

Groundside

- The detailed groundside facility size requirements used for design should be based on econometric analyses using site specific vehicular and enplaned-deplaned air passenger data. Ongoing and regular survey work of the groundside facilities is strongly recommended.
- The proposed expansion to public parking facilities includes the expansion of the parkade by approximately 800 parking stalls and the addition of a remote parking lot which would provide an additional 1,000 parking stalls. These expansions should occur in the 2012 to 2017 timeframe. Additional expansion of the parkade may be necessary by the end of the planning horizon.

- The OMCIAA should endeavour to work with the City of Ottawa to widen the Airport Parkway to 4 lanes from 2 lanes (one additional lane in each direction) in the 2017 timeframe.
- The proposed widening of the Airport Parkway will also require the main access road (Airport Parkway Private) to be widened to 4 lanes in the 2017 timeframe.
- To accommodate a widened main access road, it is proposed that the Delta Bridge (Taxiway Golf) be rebuilt prior to 2017, allowing the necessary widening to the main access road into the airport to 4 lanes by 2017.
- The terminal frontage roads, particularly the departures curbside should be widened by 1 lane in order to facilitate demand for passenger drop-off at this location. This will reduce the potential for bottlenecks and allow a smooth flow of traffic from the main access road to the parkade.
- Canadair Private should be re-aligned and widened to allow a better flow of traffic from Hunt Club Road to the terminal area. This would improve airport access and relieve pressure on the main access road.

Other Recommendations

- The proposed employment lands east of Limebank Road and south of Runway 07-25 are currently vacant unserviced lands for which the extension of municipal infrastructure and utilities will be required to enable development. These lands are designated for aviation and non-aviation commercial and industrial purposes in the proposed 2008 Land Use Plan. The Airport Authority should endeavour to work with the City of Ottawa to ensure that an adequate supply of all utilities are available in the future to service all employment areas.
- A new hotel attached to the terminal building should be considered in the future. The potential for a pedestrian connection from the parkade should be contemplated at the time the parkade is expanded.

VIII. ENVIRONMENTAL IMPACT OF RECOMMENDED DEVELOPMENT OPTIONS

All options developed for the purposes of addressing airport capacity and expansion requirements to 2030 have negligible environmental impact. The airport lands affected by the proposed expansion projects and infrastructure works are either brownfield or grayfield in character. Terminal facility and apron expansion is recommended only at the current building location and on adjacent lands. Any land development in other areas of the airport (as discussed in the land use chapter) may require separate environmental studies and/or impact assessments.

