Toronto City Centre Airport

General Aviation & Airport Feasibility Study

Small Footprint – Big Impact

Prepared by:

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Queen's Quay Architects Intl. Inc.
Temple Scott Associates

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Glossary of Terms

Based Carrier: A scheduled carrier that not only provides service to the airport but also undertakes the functions of maintenance, staff training, and all other functions necessary to run the airline at the site.

PPHP: Planning peak hour passengers: A derived number, commonly used in airport planning, developed from observed peak hour traffic and projections of future passenger growth.

Clearway: A defined area on the ground or over water selected or prepared as a suitable area over which an aircraft may make a portion of its initial climb to a specified height.

Stopway: A defined area at the end of a runway prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

PLR: Pavement Load Rating - the ability of the pavement to support a specific load without deformations occurring, which would lead to accelerated deterioration of the surface.

FEC: Field Electrical Centre, a structure that houses all the electrical equipment including stand-by generators for the airfield lighting, visual aids, electronic aids and the control tower.

IFR: Instrument flight rules.

VFR: Visual flight rules.

ISA: standard altitude and temperature used for comparison of aircraft performance and determining runway requirements. It is defined as sea level under standard atmospheric conditions, still air and zero runway slope at 15^{O} C.

Executive Summary

Background

Toronto City Centre Airport (TCCA), operated by the Toronto Port Authority, is located five minutes from the city core of Toronto on an island in Lake Ontario. Access is by ferry. Its location near the city core presents both an opportunity and challenges. The opportunity lies in its proximity to the business centre. The challenges lie in the real and potential obstructions of smoke stacks, buildings and recreational boating; and in noise limitations that its urban environment requires.

The Airport has three runways, an air traffic control tower and suitable navigation aids. All the airfield facilities are in fair to good condition.

In the early 1980's, it was agreed by the City, the Federal Government and the Harbour Commission to develop the Airport for general aviation and limited short take-off and landing (STOL) service (the Tripartite Agreement). The Agreement:

- Prohibited additional runways or extensions to runways;
- Prohibited a bridge or vehicular tunnel to the Island;
- Limited jet operations to medical evacuations and other emergencies and during the period of the Canadian National Exhibition;
- Limited turboprop or commercial aircraft to specific types of aircraft; and
- Identified an overall noise boundary that cannot be exceeded (the NEF 25).

Passenger Traffic

The Airport reached its peak of operations in the late 1980's with two competing scheduled carriers and the continuing popularity of the site for general aviation and light commercial traffic. Scheduled service traffic peaked at 400,000 enplaned/deplaned (E/D) passengers in 1987, and has since declined virtually continuously, reaching 114,500 passengers in 1998. During the Airport's peak traffic years of 1986-1989, it served 13%-20% of the total passenger demand in the markets where services were offered. Since 1991, although the total demand in these markets to Toronto has increased by 15%, the TCCA market share has steadily declined to a level below 5%. The decline is not related to overall demand, but to other factors. Air Ontario has made limited marketing efforts to attract passengers to its service from the Island and

is being driven by Air Canada's objectives of maximizing its use of Pearson (LBPIA) as its hub airport.

General Aviation

The level of general aviation (GA) traffic at TCCA and other airports in the Toronto region has varied significantly over the last 15 years. Overall, GA traffic at Toronto area airports has declined 23% from 1986, but TCCA's market share has increased from 19% to 27%.

Noise

The Noise Exposure Forecast (NEF) is the accepted method in Canada for determining aircraft noise impact. The NEF system provides for a summation of noise from all aircraft types operating at an airport based on actual or forecast aircraft movements. Exhibit 1 compares the NEF 25 boundary established in the Tripartite Agreement with the NEF levels resulting from the actual traffic in 2000. Noise levels are well within the parameters of the Tripartite Agreement.

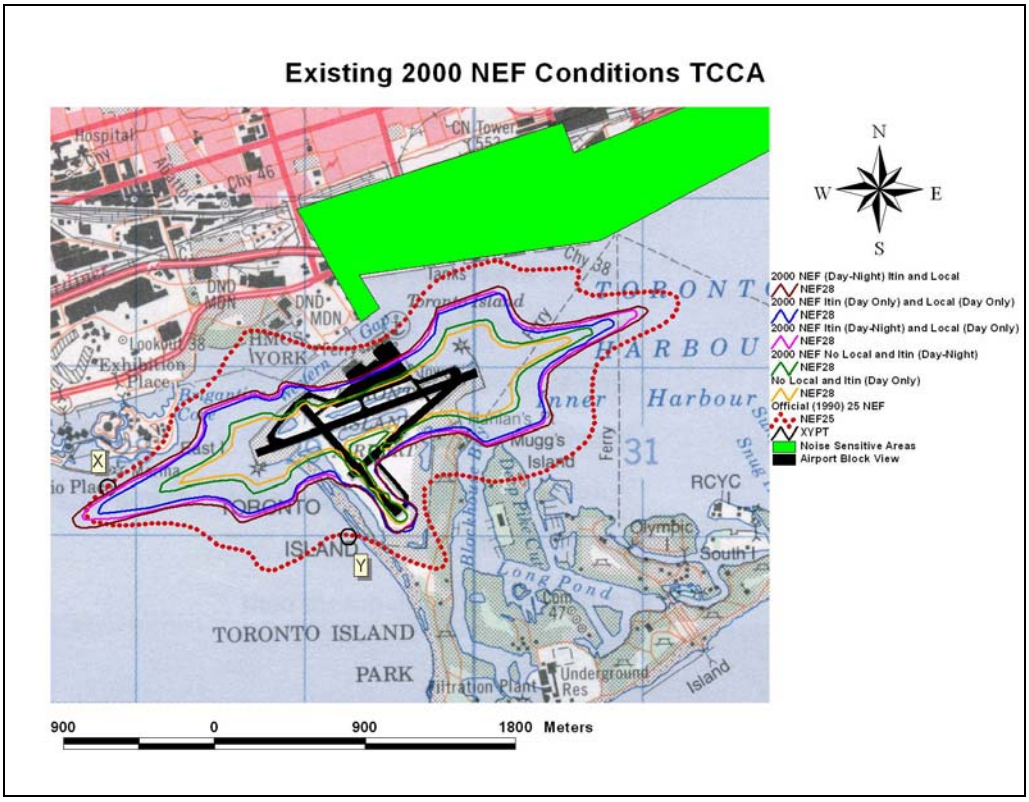

Exhibit 1. Existing 2000 NEF Conditions at TCCA

Other issues that affect the Airport's operation and development are:

- **Usability -** Obstructions on the eastern approach that limit operations in poor weather, and lake fog in the spring and fall that causes poor visibility, combine to reduce the usability of the Airport. Flights are diverted to Pearson when they cannot use the TCCA. Similarly, on occasion the TCCA is accessible when Pearson has weather closures.
- **Capability -** The limited length of the longest runway means that, even without aircraft type limitations in the Tripartite Agreement, there is a limited number of commercial aircraft types that can use the Airport at profitable payloads;
- **Failure to Provide Funding -** The Tripartite Agreement requires the federal Ministry of Transport to fund operating deficits at the Airport, but these have not been provided for some years. Similarly, the City has not honoured financial obligations to the Port Authority, and the Province has ceased to provide ferry subsidies; and
- **Lack of US Preclearance -** Generally, passengers view the availability of US preclearance as an improvement to transborder travel. However, the U.S. Federal Inspection Agencies only provide this service at airports with a high volume of transborder traffic and it is not available at the Airport.

Users

As part of the assessment of issues at the Airport, and of assessing its future, all existing tenants were interviewed, a survey of passengers was undertaken and US regional carriers that could be potential scheduled service operators at the airport were contacted.

Tenant priorities are:

- A bridge to the Airport;
- Longer hours of operation;
- An end to the jet ban;
- A clear vision and investment strategy for the Port Authority; and
- A stronger marketing and service focus for the Airport.

The passenger interviews indicated that the passengers:

- Primarily originate from outside Toronto, and travel to the city for business;
- Are not price sensitive;

- Are service focused;
- Are frequent flyers; and
- Have a strong preference for the convenience of the Airport.

Discussions with US regional carriers showed a low level of awareness and interest in serving the Airport. In part, this may be a result of the alliances that these carriers have with jet carriers serving Pearson.

Economic Impact

The total economic impact for the year 2000 as measured by expenditure or employment is summarized in Exhibit 2. As a result of decreasing activity and employment at the Airport, the economic impact has declined over the past ten years.

Exhibit 2. Total Economic Impact in 2000. Toronto City Centre Airport

	Gross Output	Employment
Direct Impact	$70.4 M	331
Indirect + Induced Impact	$45 M	651
Total Impact	**$115.4 M**	**982**

Other City Centre Airports

The study examined other city centre airports around the world. They can be thought of as falling into two categories – those with scheduled commercial services and those serving business aviation.

Scheduled	Business
London City Centre	Knoxville
Stockholm Bromma	Edmonton City Centre
Belfast	Columbia Owens (SC)
Chicago Midway	Kansas City Downtown
Washington-Reagan	Detroit City Center
	Teterboro
	Chicago Meigs

In examining these airports it was determined that the successful sites had the following common traits:

- Good access to the city centre;
- A customer service focus;
- Limited hours of operation (typically 06:30 to 22:00);

- Community centered (open houses, advisory committees etc.);
- Served by commercial and/or corporate jet aircraft; and
- A noise management program (Chapter 3, abatement procedures, noise monitoring, complaints hot line, strict enforcement).

The Airport shares most of these attributes, except for the access by jet aircraft.

Scenarios for the Future

The Airport is at a crossroads: continuing on the current path will see ongoing deficits and ultimately the cessation of scheduled service at the Airport. Scenarios for the future were selected to represent the widest possible range of realistic outcomes for the Airport:

- **Scenario 1 - Baseline**: A continuation of the status quo. Four variations of this scenario were developed, with differences in traffic growth rates and fee levels;
- **Scenario 2 - Expanded Turboprop Service:** It is assumed for this scenario that the Tripartite Agreement remains unchanged, except with respect to providing a fixed link (or other access improvement). It is also assumed that commuter operations with DHC8 or similar turboprop equipment are provided to a variety of viable transborder and domestic markets. To support the forecast traffic growth, a new terminal ($20 million), improved access ($16 million), and improved approach aids are assumed as capital costs; and
- **Scenario 3 - Jet Service:** This scenario assumes that the Tripartite agreement has been modified or replaced by a regime that permits small commercial and corporate jet aircraft that meet stringent noise criteria and that constrains overall traffic levels so that noise levels are contained within the parameters of the Tripartite Agreement. To support the forecast traffic growth, a new terminal ($20 million), improved access ($16 million), improved approach aids ($1.5 million) and runway strengthening ($2 million) are assumed as capital costs. This scenario includes three variations: scheduled service with 32-seat jets, 50-seat jets and 72-seat jets.

Exhibit 3 illustrates the comparison between the scenarios and the Tripartite Agreement noise constraint (NEF 25). All scenarios meet the noise criteria set out in the Tripartite Agreement. There are small protrusions to the west, but these could be contained within the noise boundary with a noise management program.

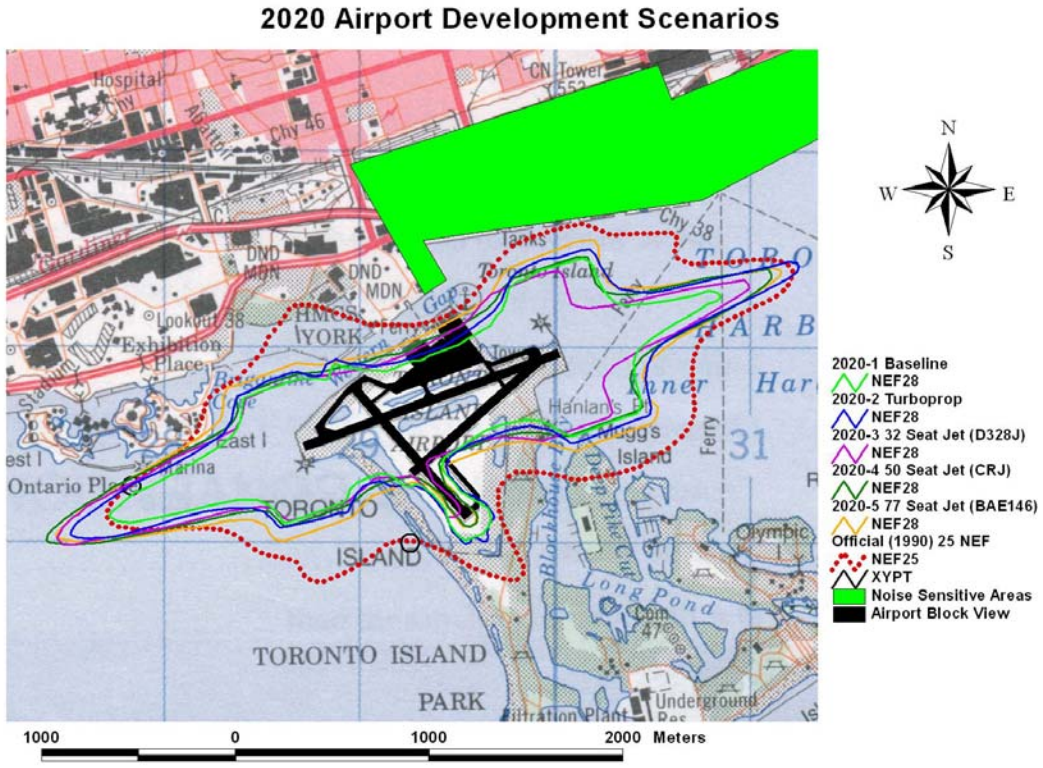

Exhibit 3. Comparison of the Scenarios to the NEF 25 Boundary of the Tripartite Agreement

Exhibits 4 and 5 compare the various scenarios. The traffic levels were forecast on a market-by-market basis, testing that the market share was reasonable and that the traffic levels were sustainable.

An assessment of the scenarios indicates that:

- The status quo is not sustainable, and will likely lead to continued financial losses and a loss of scheduled services;
- Scenarios that see a based carrier operating domestic and transborder services with turboprop or small jet aircraft could provide a valuable service to the Toronto area, serving up to 15% of the key markets;
- Under all scenarios, the Toronto City Centre Airport will be a niche airport, serving less than 900,000 passengers per year over the 20 year horizon of this report, while living within the Tripartite NEF boundaries;

- Total aircraft movement growth under the growth scenarios (Turbo and Jet) is modest (15% over 20 years in the case of the Turbo Scenario) or decreasing (40% for the jet scenario, because of the elimination of local traffic after 2010); and
- With a based carrier developing domestic and transborder markets, the Airport's capital program is financeable. External lenders may want to ensure the viability of a new carrier or to spread the risk or share the cost with the carrier.

Exhibit 4. Summary of Traffic Forecasts to 2020

	2020				
	Baseline 2020	Turboprop 2020	32 Seat Jet 2020	50 Seat Jet 2020	77 Seat Jet 2020
O-D Passengers	183,867	652,574	852,010	874,432	961,532
PPHP	120	350	500	410	450
Percent of O-D Market					
Ottawa/Mont./London	5.2%	6.0%	8.2%	7.6%	8.1%
North	0.0%	12.6%	11.9%	9.8%	10.2%
NY,BOS,CHI,WASH,DET	0.0%	8.4%	11.7%	13.3%	15.0%
Commercial Movements/Day					
Jet	0	0	144	100	78
Turbo Large	34	112	0	6	6
Turbo Small	0	18	16	0	0
Total Level I-III Carrier	34	130	160	106	84
Business Jet	0	0	20	20	20
Piston	390	390	160	160	160
Total	424	520	340	286	264

Exhibit 5. Financial Summary of Scenarios (Constant $. NPV's are for 2003-2020)

	Scenario					
	Baseline Low	Baseline High	Baseline Low Enhanced	Baseline High Enhanced	Turbo	Jet 50
2003 e/d Passengers	85,050	114,213	85,050	114,213	423,951	579,540
2003 Movements	149,534	152,160	149,534	152,160	164,222	162,402
2003 Revenue	$2,423,663	$2,941,346	$2,931,689	$3,300,799	$9,014,119	$11,953,067
2003 Expenses	$3,195,162	$3,195,162	$3,125,162	$3,125,162	$4,897,862	$5,689,441
2003 Cash Flow	($771,499)	($253,816)	($193,473)	$175,637	$4,116,257	$6,263,626
2003 Net	($857,417)	($339,734)	($279,391)	$89,719	$4,030,339	$6,177,708
2003 Cost/pax	$16.90	$16.90	$22.88	$20.05	$18.22	$18.20
NPV AIF	$0	$0	$0	$0	$57,768,023	$78,300,612
Subsidy 2003-2020	($29,759,257)	($2,112,309)	($18,020,055)	($22,593)	$0	$0
NPV Subsidy	($17,617,982)	($1,341,266)	($9,977,147)	($21,517)	$0	$0
NPV Ops (Net of AIF,interest, amortization	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$980,271	$10,669,420
NPV Cash Flow	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$45,196,674	$74,665,544
NPV Net	($18,387,326)	$160,928	($10,746,491)	$5,080,678	$32,761,518	$61,719,093
Capital Program	$0	$0	$0	$0	$36,000,000	$38,000,000
ROI on Capital Program	n/a	n/a	n/a	n/a	10%	33%
2004 Debt Coverage	n/a	n/a	n/a	n/a	1.53	2.19

Economic Impact

In 2001, direct employment at the Airport was 331, with total direct expenditures of over $70 million. Exhibit 6 summarizes the cumulative economic impact of the Airport to 2020.

Exhibit 6. Economic Impact of the Scenarios

	Baseline Low Enhanced	Baseline High Enhanced	Turbo	Jet
Direct Output to 2020	$1,129M	$1,273M	$2,095M	$2,510M
Total Output to 2020	$1,853M	$2,089M	$3,437M	$4,118M
Subsidy to 2020	$18M	$0	$0	$0

Airport Issues

The study has identified key issues, important to the future of the Airport:

- **Access** - If the Airport is to become a viable operation, access must be improved. A decision on improved access is tied directly to the Airport's strategic direction, and they should be considered together.
- **Increased Usability** - Installation of the Local Area Augmentation System (LAAS) will improve the usability of the Airport if development scenarios are selected.
- **Terminal Development** - Under any of the growth scenarios, a new terminal is required almost immediately, and is financeable.
- **Organization** - The current staff level appears to be comparable to other small airports with a mixture of scheduled service and general aviation traffic. The current low level of passenger movements does not appear to warrant duty managers, but if a growth scenario is selected for the future, then staffing levels may need to be increased. More delegation of authority from the Port to the Airport will be needed.
- **Based Carrier** - For growth scenarios, the question was raised if a Canadian carrier, based at the Airport, or a US carrier would be preferable. A Canadian based carrier would potentially serve more US markets (the US carriers want to move traffic to and from their hubs only), and would provide a substantially larger economic benefit to Toronto, because of aircraft maintenance, etc.
- **Marketing** - There appears to have been a shortage of Air Ontario marketing of services from the Airport in the Toronto area. It is recommended that consideration be given to offering $10

inducements to travel agents in the Toronto area for tickets originating from the Airport, paid by the Airport. In addition, a comprehensive marketing plan should be prepared.

- **Finances** - The existing fee structure is different from most airports in that there is no landing fee for the scheduled service carrier, and a relatively high per passenger charge. The Airport is also operating at a deficit, and yet the passenger survey indicates that passengers have little price sensitivity. It is recommended that:
  - The Airport restructure its fees to implement a landing fee comparable to the landing fee structure at Pearson in peak periods;
  - The PUF be changed to a seat based fee, comparable in level and structure to Pearson's General Terminal Fee;
  - A fee and charge study be undertaken to arrive at a cost centred approach to fees, to provide the basis for any public-private partnerships with respect to development on the airport;
  - The overall fee structure be subsequently adjusted to achieve operating breakeven; and
  - Where capital programs are to be undertaken, an Airport Improvement Fee be implemented, specifically dedicated to capital programs.
- **Noise Management** - A more comprehensive, enforced noise management plan to minimize the noise is recommended including:
  - Modification of the existing circuit pattern to move the cross wind leg of the most commonly used circuit further east than the eastern channel;
  - Weekend limitations on traffic;
  - Departure procedures (turn on departure and minimum noise routes);
  - Circuit training flight restrictions (alternating days, time of day restrictions, time of week restrictions);
  - Preferential or rotational runway use;
  - Aircraft power and flap management;
  - In the longer term, consideration be given to requiring a steeper 5.5° approach; and
  - Implementation of a penalty structure for noise abatement procedure violations, and enforcement of the penalties.
- **Emissions and Air Quality** - The Airport is a low source of emissions. Computer modelling of current and forecast emissions from aircraft on approach, taxiing and takeoff, from Airport automobile traffic, and from Airport equipment indicates that these emissions are insignificant in the context of motor vehicle traffic in the downtown core. Studies to date also indicate that there are no unusual risks from air quality around airports;

- **Safety** - For the forecast traffic levels, the probability of a scheduled service aircraft having a fatal accident on or near the Airport is .001 - corresponding in one in a thousand years.
- **Airport Ownership/Management** - For some time, the Greater Toronto Airport Authority has been expressing an interest in operating the Airport. Because the Airport is likely to continue to operate as an airport if the GTAA is involved, the issue becomes what management is most advantageous to Toronto. There are no foreseeable efficiency gains if the GTAA operates the Airport.
- **Airport Capacity in the Greater Toronto Region** - Within a short time frame the Airport may offer the only viable alternative for air passengers that wish to fly to or from Toronto on regional or short-haul transborder flights provided with commuter type aircraft.
- **Land Use Planning** - If the Airport is to continue to operate, a master plan addressing land use planning, access to the south side and a long-term physical plan for the Airport should be completed. The City of Toronto should protect the Airport from encroachment into its approaches in any new City plans.
- **Waterfront Redevelopment** - Continued operation of the Airport appears to be completely consistent with the economic renewal themes of the Fung Report on waterfront development.

Ultimately, the decision on the future direction of the Airport is not an aviation decision: travel is a derived demand from other economic activity. The real considerations with respect to the Airport's future are:

- How will Toronto's aviation needs be met for the next 20 years;
- Is the downtown business community of major corporations and financial institutions well served by the aviation system in Toronto today, with respect to its scheduled service and business jet requirements;
- How important is good air access to economic growth; and
- How important is economic growth to the City.

Continued operation of the Toronto City Centre Airport provides the flexibility to meet transportation demand in the future - demand that will be quieter and cleaner every year. With an air carrier headquartered at the Airport, and undertaking maintenance of its fleet at the Airport, it could be a vibrant part of the economic fabric of the City.

I. INTRODUCTION

A. Background

The Toronto Island Airport had its origins in 1915 when the Curtiss Flying School was located at Hanlan's Point. However, the establishment of the existing airport commenced in the early 1930's when the then Toronto Harbour Commission expressed a desire to build a combined seaplane port and airport on Toronto Island. In 1935 City Council and the Board of Trade favoured building the Airport on the Island linked to the mainland by a tunnel, and a contract for the tunnel was let in September 1935. However, in October 1935 the federal government stopped the contract. The Island site was then further delayed as a new airport site for Toronto was debated and finally a site at Malton was chosen. The federal government contributed funds to the construction of both the Island and Malton Airports. The Airport on the Island was completed in 1939 and had two paved runways, a terminal building (identical to the building constructed at Malton) and a seaplane base. Access to the Island during this period was provided by a cable ferry that could not operate during bad weather.

During World War II the Airport was used as a training base for the Royal Norwegian Air Force. To accommodate this use at "Little Norway", as it was known hangars, dormitories, recreational facilities, drill hall, hospital and messes were built. In 1943, the Norwegian Air force was transferred to Muskoka and the RCAF took over the facility.

The Airport reverted to civilian use after the war and became popular as interest in aviation grew. Air Traffic control facilities were installed in 1953 and, as part of the agreement that transferred Malton to federal ownership in 1957, the government agreed to carry out improvements to the Airport. Consequently the Airport was enlarged and a new 4,000 ft. runway was commissioned in 1961. By 1963 runway lighting had been installed to allow night flying. The cable ferry was replaced in 1963 with a temporary tug service, and in 1964 the current ferry "The Maple City" was put into service.

Throughout the 1970's the future of the Airport was debated and in the early 1980's it was agreed to develop the Airport for general aviation and limited STOL service provided that the City's waterfront interests could be protected. This agreement led to the signing of the 50-year Tripartite Agreement in June of 1983. The agreement was entered into by the Corporation of the City of Toronto, the Toronto Harbour Commission and the federal Ministry of Transport. It replaced several prior agreements between the parties extending back to 1937.

Several clauses of the Agreement have a direct bearing on the course of this study:

- **Article10** restricts the Airport's ability to erect new buildings on the site by requiring that they be approved by the City of Toronto but that such approval would not be unreasonably withheld.
- **Article 14** prohibits several activities or functions at the Airport including:
  - Additional runways or extensions to runways;
  - A bridge or vehicular tunnel to the Island;
  - Expansion to the lands comprising the Airport beyond the present land area;
  - Jet operations except for medical evacuations and other emergencies and during the period of the Canadian National Exhibition; and
  - Turboprop or piston aircraft generating excessive noise. This article defines aircraft generating excessive noise on the basis of noise level on overflight for aircraft less than 5,700 kilograms and for STOL type aircraft over 5,700 kilograms which generate noise in excess of 93 EPNdB on takeoff, 88 EPNdB on sideline at takeoff or 91.5 EPNdB on approach as measured in accordance with ICAO guidelines. Other aircraft that were not specifically listed at the time could also be excluded based on information to be received on the type or at the request of the City of Toronto.

  This article also requires:
  - Regulation of the frequency of aircraft movements such that the noise contours specified in the Agreement were not expanded, except in a generally southwest direction over the lake; and
  - Monthly reporting of traffic to the City of Toronto.
- **Article 18** deals with the original terminal building or what is now known as Terminal A. The Airport has the right to move the building within a confined area surrounding the ferry dock, and cannot materially change the external appearance of the building. The clause also stipulates that any building erected within 15.24 m (50 ft) of this building must be architecturally compatible. In addition, the Minister and the Airport, for reasons of safety, cost effectiveness or operational efficiency, can decide that the building should no longer continue to be used for Airport purposes and can at that point notify the City of such. The City may seek to secure the Minister's agreement to withdraw the notice but failing this it must give notice to take over the building. At this point the Minister can designate a portion of the Airport lands to which the building may be moved and the City shall move it to that location at its own expense. If the City

does not move the building after one year, then the Airport can take whatever action it wishes with respect to the building.

- **Article 27** provides that the Airport shall be in breach of the lease if an expansion of the NEF contours outside the defined limits occurs and has not been corrected after a reasonable period of time.
- **Article 29** gives the Airport the right to remove any buildings or improvements from the site if the lease is terminated.
- **Article 34** deals with the NEF contours and stipulates that:
  - The Minister shall prepare these contours annually; and
  - There are certain exceptions and inclusions of seaplanes in the NEF calculations.
- **Article 35** deals with helicopter movements and specifies how they are to be taken into account in calculating the NEF contours.
- **Article 40** provides that if the Airport is closed pursuant to the lease prior to December 30, 2031, and the lands are not required for a public harbour or airport, then the Minister must convey the federal lands on the Airport site to the City of Toronto for a nominal sum. The Harbour Commission lands on the Airport would be optioned to the City of Toronto at their fair market value.
- **Article 46** requires the Harbour Commission to give notice of its intention not to operate the Airport. At that time, the Minister has one year to either assume operations of the Airport or take steps to close it down.
- **Article 49** replaces the Tripartite Agreement, if the Minister takes over, with another similar agreement.

Following the signing of the Tripartite Agreement, and to accommodate the STOL service, the federal government in 1984 began a program to improve the facilities at the site. This program included: a new air traffic control tower, a microwave landing system and the expansion of the terminal apron. The Tripartite Agreement was amended in 1985 to allow for the operation of Dash-8 aircraft.

In the late 1980's and early 1990's the Airport again became a focus of debate with the release of the report of the Royal Commission on the Future of the Toronto Waterfront. The Airport reached its peak of operations in the late 1980's with two competing scheduled carriers and the continuing popularity of the site for general aviation and light commercial traffic. However commencing in the early 1990's the Airport entered an extended period of decline in terms of both passenger and aircraft traffic.

B. Scheduled Services

Scheduled services at the Airport have had an unusual history. In the early 1980's an independent, low-cost operator (City Express) started services with 19 seat aircraft, and then upgraded to DHC8 commuter aircraft. Traffic developed quickly, peaking at 400,000 originating/destined (O/D) passengers in 1987 (At TCCA O/D passengers and E/D passengers are effectively one and the same, because connections are very limited.) Air Ontario subsequently entered the market, and City Express failed in 1991. Traffic has declined virtually continuously since 1987, reaching 114,500 O/D passengers in 1998, and a forecast 105,000 in 2001. Exhibit I-1 illustrates the traffic history.

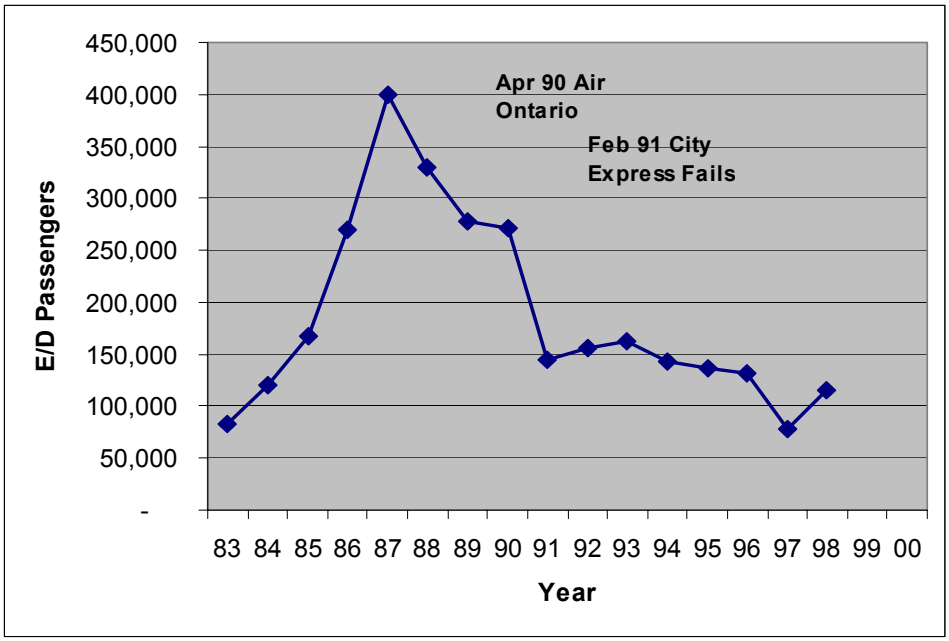

Exhibit I-1. Enplaned/Deplaned Passenger Traffic at Toronto City Centre Airport 1983-1998

During the Airport's peak traffic years of 1986-1989, it served 13%-20% of the total passenger demand in the markets where services were offered - Ottawa, Montreal and London. Since 1991, although the total demand in these markets to Toronto has increased by 15%, the Airport's market share has steadily declined to a level below 5%, as Exhibit I-2 shows.

Exhibit I-2 is significant because it illustrates several points that are important in analyzing the Airport's past and potential:

- During the 1986-1989 period, the presence of a competitive carrier in the Toronto market offering city centre service, not only increased

the Airport's share of the total market substantially, but also appears to have stimulated the whole market. In 1988, total O/D traffic on the markets served by the Airport as well as Pearson reached levels that weren't achieved again for 10 years; and

- There has been anecdotal discussion of the decline of the Airport's traffic primarily as a result of a shrinkage in the demand for federal civil service travel to Toronto. This is not supported by the facts: total Ottawa-Toronto O/D travel increased 11% from 1991 to 1998, while traffic at the Airport declined 21%. Clearly the decline is not related to overall demand, but to other factors.

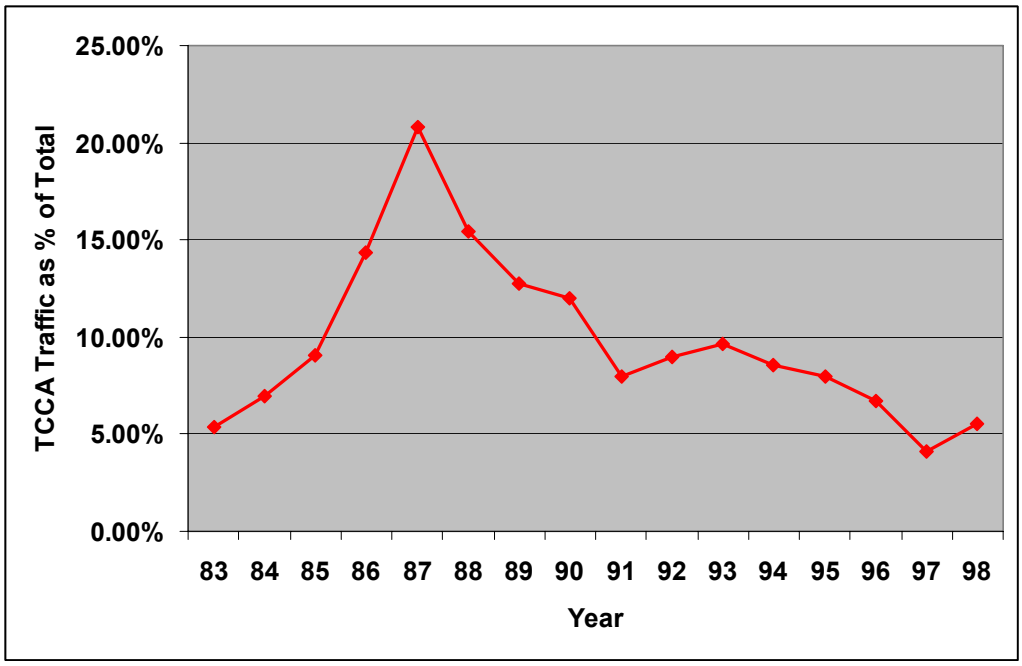

Exhibit I-2. Toronto City Centre Share of the Ottawa-Toronto, Montreal-Toronto, and London-Toronto O/D Traffic, 1983-1998. Excludes Domestic Portions of International or Transborder Travel, and Domestic Connections (Statistics Canada, TCCA)

C. Commercial and General Aviation Traffic

The level of general aviation (GA) traffic at the Airport and other airports in the Toronto region has varied significantly over the last 15 years. The total itinerant and local movements by private aircraft at each of the six Toronto area airports for which movement data is reported by the

Aviation Statistics Centre are shown in Exhibit I-3. GA movements at the Airport decreased significantly during the late 1980's, rebounded in 1990 only to fall again from 1992 to 1994 during the recession, but have increased steadily since then. Apart from the sharp drop in 1990, the trend at other airports in the region has been similar, although the rebound since 1995 has not been nearly as strong at the other airports. Overall, GA traffic at Toronto area airports has declined 23% from 1986. This is clearly shown in Exhibit I-4, which shows the total GA traffic at the six airports and the percentage of that traffic using TCC. Since 1994 the percentage using TCCA has risen from 19% to 27%.

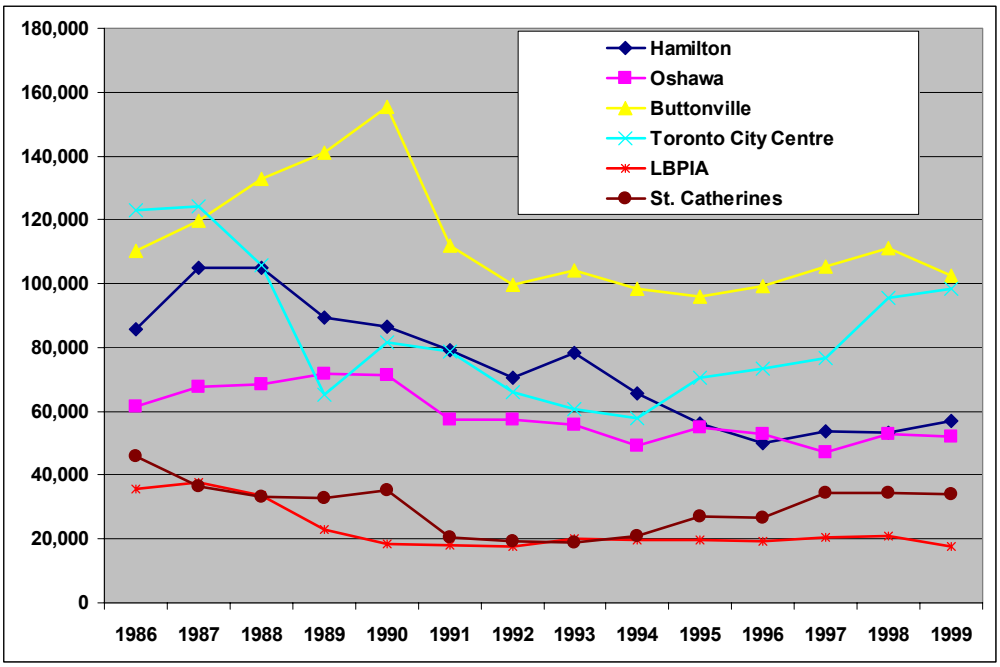

Exhibit I-3. GA Movements at Six Airports in the Toronto Region

GA traffic is made up of both local and itinerant movements. As shown in Exhibit I-5, local movements make up a large percentage of the GA traffic (70%-85%) and are mainly responsible for the large changes in GA movements at the Airport since 1986. However, the number of itinerant movements also changed significantly over the period, decreasing by 50% from 1991 to 1997, then rebounding to 75% of the 1991 value by 1999.

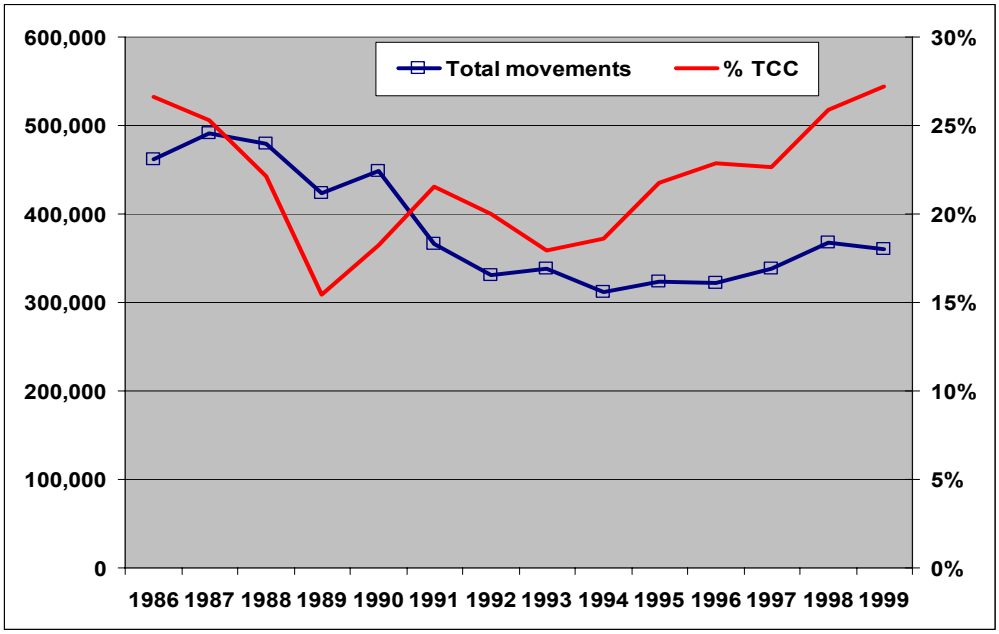

Exhibit I-4. Total GA Movements at Six Airports in the Toronto Region and Percentage Share at TCC Airport

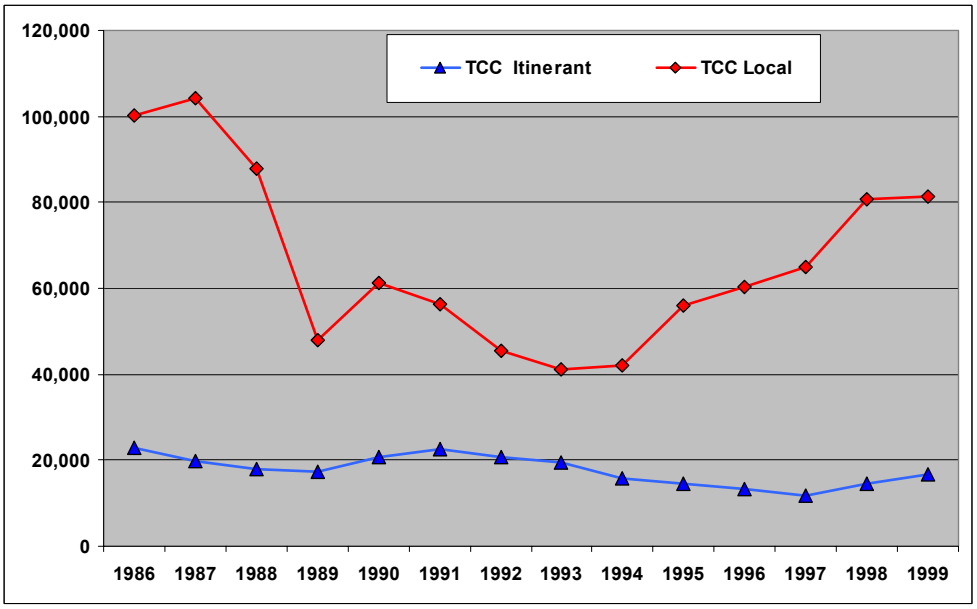

Exhibit I-5. Number of Local and Itinerant GA Movements at TCC Airport

D. The Study

The objective of this study is to provide the Toronto Port Authority with:

- A factual background for decision making;
- A realistic assessment of the options available to the Authority to increase usage of the Airport; and
- Assistance in developing a longer-term business plan for the Airport.

In order to accomplish this, the study was divided into several major tasks. These tasks included:

- Reviewing previous studies that were undertaken on various aspects of the Airport;
- Reviewing other city centre airports and the factors in their success;
- A review of various standards and policies that impact the development and operation of the Airport;
- Assessing the constraints faced by the site in contemplating future development;
- Evaluating the existing facilities;
- Interviewing tenants at the site and passengers utilizing the site services;
- Discussing with Transport Canada their perspective on the regulations and practices that could impact the Airport;
- Assessing the issues after completion of the above tasks to identify constraints to the current and future operation/development of the Airport;
- Identifying the steps necessary to increase utilization of the site;
- Evaluating the economic impact of the site; and
- Developing and evaluating scenarios of several potential future operation configurations for the Airport.

The results of these tasks are presented in the following chapters of this report and a copy of the Terms of Reference is included in Appendix A.

II. THE AIRPORT TODAY

A. Airport Setting

Toronto City Centre Airport is located five minutes from the centre core of Toronto on an island in Lake Ontario. Its location near the city core presents both opportunities and challenges. The opportunity lies in its proximity to the business centre. The challenges lie in the real and potential obstructions of smoke stacks, buildings and recreational boating; and in noise limitations that its urban environment requires.

B. Airfield Facilities

The Toronto Port Authority operates the Airport. The Airport has three runways. The runway orientation (described by standard designation convention as the azimuth in the direction of operation on each end of the runway divided by 10) and the length of each are as follows:

- Runway 08/26 - 1,220 m;
- Runway 06/24 - 915 m; and
- Runway 15/33 - 848 m.

Each runway is 45 m wide and constructed of asphalt. Because of length and orientation, Runway 08/26 is the primary runway for the airfield and is the focus of this analysis.

The Airport has an air traffic control tower (ATCT). The navigational aids in place include:

- A Non-Directional Beacon (NDB);
- Distance Measuring Equipment (DME); and
- An Instrument Landing System (ILS) on Runway 08/26.

C. Aeronautical Zoning

In 1985, the Airport was registered under the Aeronautics Act of Canada. However, Runway 08/26 was the only runway that was registered. With a published length of 1,160 m Runway 08/26 was registered as a Code 2 runway. The take-off/approach surface for Runway 08 was zoned for a 1:50 slope that provided vertical development restrictions for a precision approach. Runway 26 was zoned for a 1:20 slope that provided vertical development restrictions for a visual approach. The airport reference point (ARP) elevation was defined to be 76m above sea level.

The ARP elevation is used as the basis for establishing the aeronautical surfaces for the runway. The outer surface was zoned at a height of 76 m above the reference elevation (152m ASL). Neither runways 06/24 nor 15/33 were zoned. As well, the area to the north of the northern transitional surface for Runway 08/26 was not zoned as part of the outer surface. All other zoning to provide protection of the Airport from encroachment requires the cooperation of the City of Toronto.

D. Airport Certification

The Airport is a certified airport facility meeting the requirements of TP312. Transport Canada defines the criteria by which aircraft operations are deemed to be safely operable. The criteria, contained in Transport Canada publication TP312, include the definition of airfields with differing physical characteristics and types of aircraft that can be accommodated. These criteria identify the imaginary surfaces around a runway that define the height limitations of man-made or natural, temporary or permanent obstructions in order to safely operate aircraft, including:

- Primary surface (at grade centred about the runway centreline);
- Transitional surfaces;
- Horizontal surfaces; and
- Approach surfaces.

In the case of Toronto City Centre Airport, there are man-made structures that pose constraints on the development of approaches to the Airport as well as temporary obstructions in the form of boats that may represent hazards to air navigation.

Transport Canada has certified the runways at the Airport for the following level of operations:

- Runway End 08 - Code 2C, Precision Approach (1:40 approach surface);
- Runway End 26 - Code 2C, Non-precision Approach (1:33 approach surface); and
- Runway Ends 06, 15, 24 and 33 - Code 2C, Non-instrument (1:25 approach surface).

Even though Runway 08/26 has a length of 1,220m and is designated Code 3, Transport Canada has granted a variance to enable the continuance of this runway as a Code 2C runway. Increasing the length of Runway 08/26 should not be considered.

E. Runway Lengths

The length of the runways is a factor in the types and size of aircraft that can be operated at an airport. Site factors related to the amount of area provided at the ends of the runways, as well as the condition of these areas, influence aircraft operations. In most cases, achieving the greatest runway length possible for the aircraft types and stage lengths expected is preferred. The factors related to the runway length definitions at the Airport are discussed in this section.

For each of the three runways at the Airport, the operational distances associated with the physical pavement and runway end characteristics are a key factor in defining the aircraft performance on the runway.

Runway 08/26

Runway 08/26 has a declared distance of 1,220 m, although all data sources provide an actual runway length of 1,218 m. Each end of the runway has a clearway of 106 m. The runway distances are detailed in Exhibit II-2.

Runway 06/24

Runway 06/24 has a declared distance of 914 m. However, the engineering drawings and runway data provided indicate that the actual maximum runway length is 894 m, which is 20 m shorter than that published. This discrepancy should be corrected immediately as it could have an operational impact. Each end of the runway has a clearway of 90 m. If operationally desirable, the clearways could be extended by an additional 20 m for Runway 06 and 90 m for Runway 24. The runway distances are detailed in Exhibit II-3.

Runway 15/33

Runway 15/33 has a declared distance of 847 m. This however, is only the distance from the present displaced threshold to Runway 15 to the threshold of Runway 33. With the present markings, the declared runway length for Runway 33 should be 908 m (a difference of 61 m). Discussions with Airport management and Transport Canada regional staff indicate that there should not be a threshold displacement for Runway 15. The present threshold should be the designated runway end. To accomplish this, the pavement markings prior to the threshold should be changed accordingly. The additional length of 61 m can be designated as a stopway and clearway for Runway 33. The runway distances are detailed in Exhibit II-4.

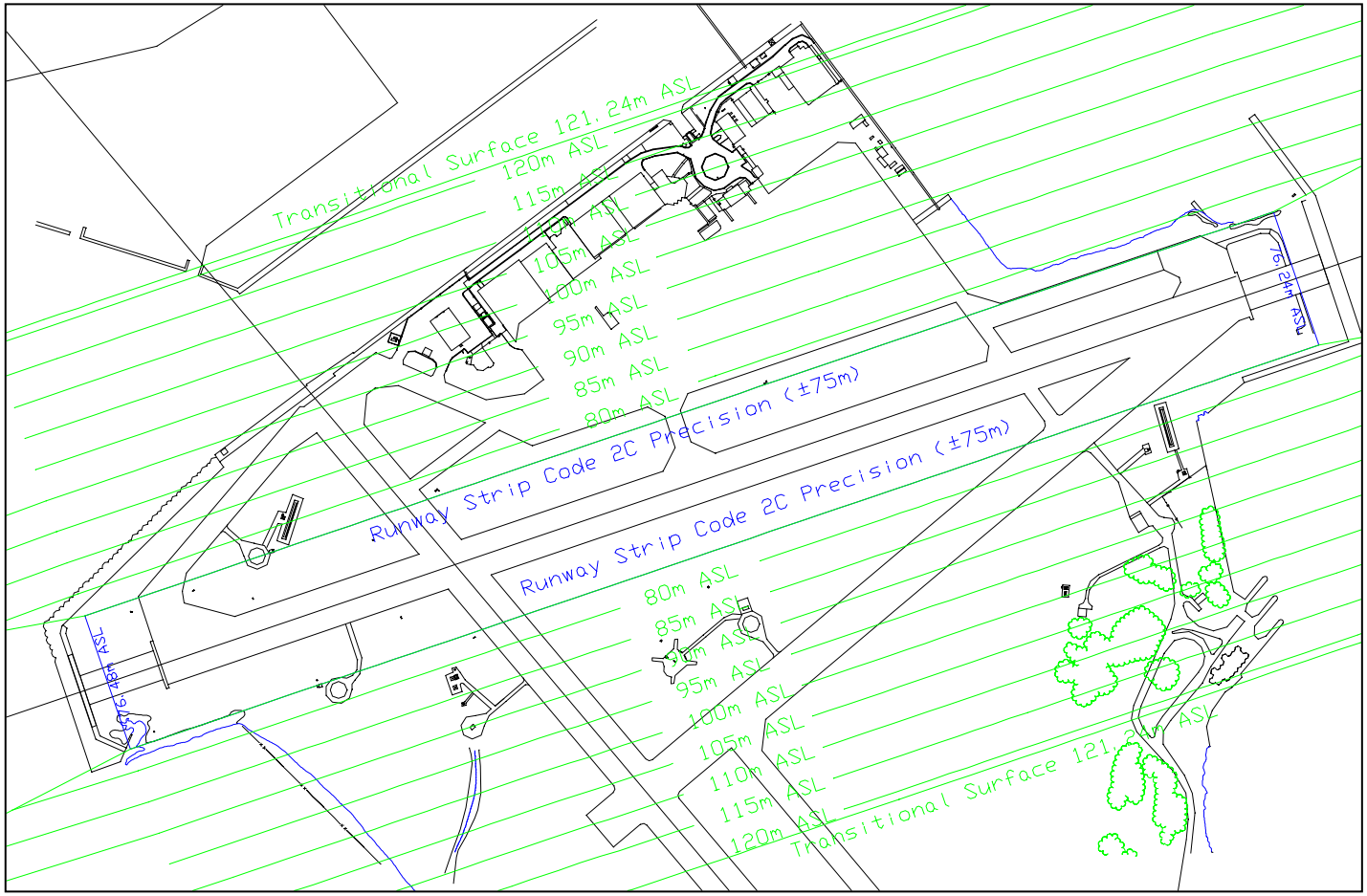

Exhibit II-1. Code 2C Runway Strip and Transitional Surfaces

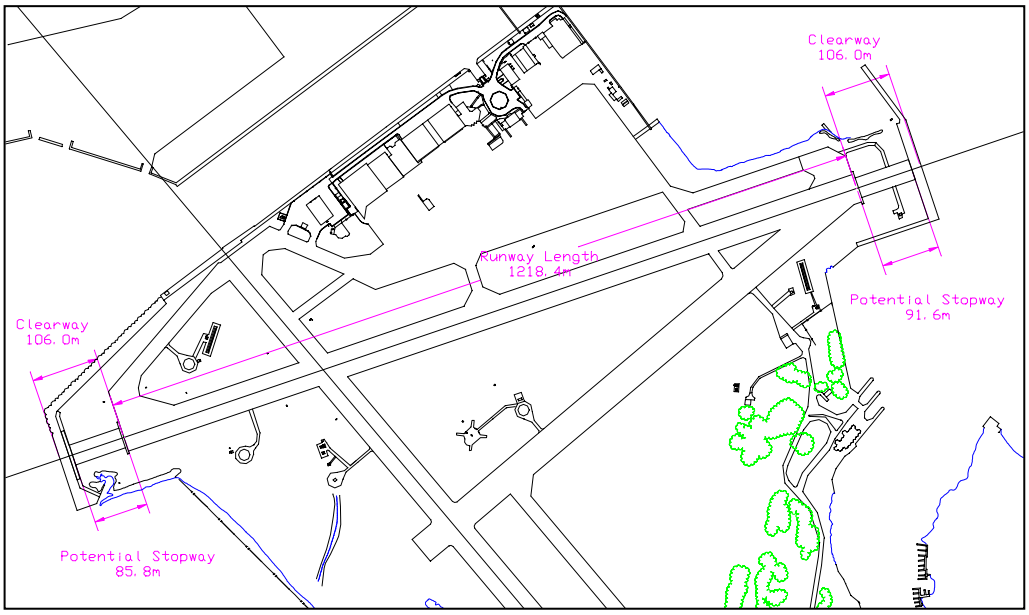

Exhibit II-2. Distances for Runway 08/26

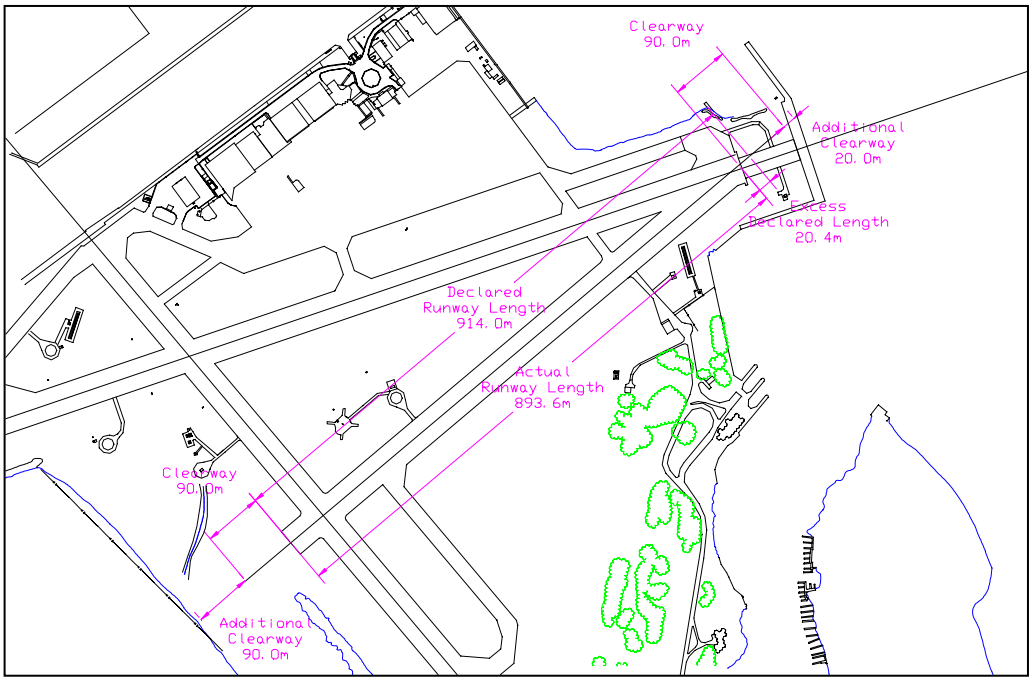

Exhibit II-3. Distances for Runway 06/24

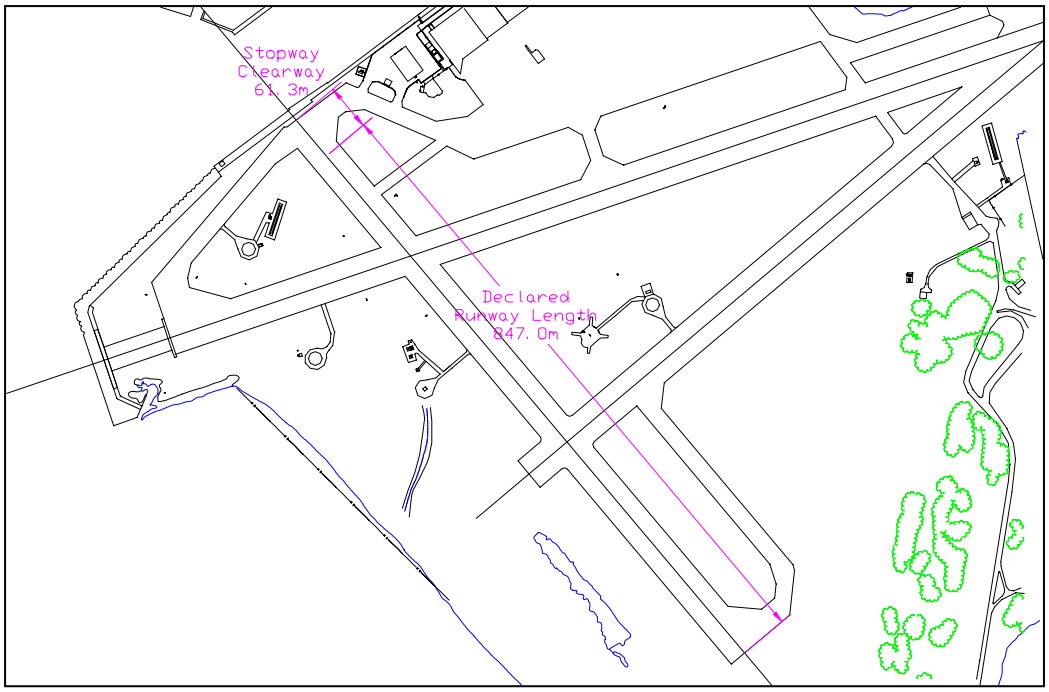

Exhibit II-4. Distances for Runway 15/33

With the correction to the runway length as described above for each runway, the declared distances would be published as detailed in Exhibit II-5.

Exhibit II-5. City Centre Airport Declared Distances (m/ft)

Runway	TORA	TODA	LDA	ASDA
06	894/2993	984/3228	894/2993	894/2993
08	1218/3996	1324/4344	3996	1309/4295
15	847/2779	847/2779	847/2779	847/2779
24	894/2993	984/3228	894/2993	894/2993
26	1218/3996	1314/4344	3996	1303/4275
33	847/2779	908/2979	847/2779	908/2979

TORA = Take-off run available; TODA = Take-off distance available; LDA = Landing distance available; ASDA = Accelerate stop distance available

The Airport is clarifying official distances with Transport Canada and a survey may be required.

F. Approach/Landing Capability

The designated approach/landing capability of a runway is a primary determinant in an airport's use by commercial and/or general aviation users. The most important parameter is the ability to operate in poor weather conditions (referred to as instrument meteorological conditions (IMC) where instrument flight rules (IFR) must be followed). IMC conditions are generally described as those where the ceiling is less than 100 ft and visibility is less than 3 nautical miles. Aircraft operations during IMC are permitted to varying degrees with the appropriate navigational aids and definitions of obstructions. An approach that meets criteria sufficient for operation in IMC is referred to as a "precision approach". Operations in IMC conditions, however, are generally classified into three levels:

- CAT I (greater than 200 ft ceiling and 1.0 NM visibility but less than 1000 ft ceiling and 3.0 NM visibility);
- CAT II (greater than 100 ft ceiling and .5 NM visibility but less than 200 ft ceiling and 1.0 NM visibility); and
- CAT III (less than 100 ft ceiling and .5 NM visibility).

The frequency of CAT III conditions is typically very limited and therefore this level of operational capability is not justifiable at airports other than large commercial airports serving large aircraft. CAT I is an appropriate level of operational capability for airports accommodating some high performance general aviation aircraft as well as limited commercial aircraft operations. CAT II capability is desirable but may not be economically justifiable since the number of aircraft and pilots capable of using this capability diminishes, as does the percent of time that such capability is needed, while the costs for navigational aids and obstruction free area increases. In any event, having the ability to accommodate appropriately instrumented aircraft in the lowest ceiling and visibility conditions on one or more runway ends is preferred.

The Hearn Stack is currently an obstruction to the approach. Ontario Power Generation is no longer using the Hearn Generating Plant, and is considering leasing for other uses. The stack is no longer required and could be demolished.

The present level of landing capability in IFR at the Airport is limited to a CAT I approach to Runway 08 only. Runways 06 and 33 are certified for visual procedures only. Analysis indicated that it would only be feasible to implement lower limits for the approach to Runway 26 if additional constraints to vessel activity in the harbour were implemented.

G. Airspace Environment

The airspace serving Toronto City Centre Airport is referred to as a "control zone". The designated airspace associated with the Airport is a Control Zone D that has a radius of 5 NM from the Airport up to an altitude of 2,500 ft ASL. Portions of the control zone for the City Centre Airport have been subordinated to the airspace associated with Toronto Pearson International Airport (YYZ). The northern boundary of the Toronto City Centre Airport control zone has been truncated along a line approximately 3 NM north of and parallel to Runway 08/26 up to the intersection with the Control Zone F airspace (7 NM from YYZ) defined. The west area of the Airport control zone is truncated along a line roughly parallel to Runway 15/33. The remaining airspace is dedicated to aircraft operations at the Airport.

Because of the close proximity of the Airport to YYZ, there is a degree of interaction between aircraft operating into and from each airport. The interaction is limited in most cases. Typically, aircraft movements at Pearson operate in an east to west direction. This is a compatible with the use of Runway 08/26 at Toronto City Centre Airport so long as the City Centre Airport aircraft operate over the lake and shoreline. On occasion, YYZ operates to the north and the arrival flight path is located about 6.5 NM west of Runway End 08. At the point of intersection of the extended centrelines of Runway 15L/33R at YYZ and Runway 08/25 at the Airport, the YYZ aircraft would be at an altitude of about 2,400 ft (assuming a 3 degree glide slope). All Toronto City Centre Airport aircraft operating within 3 NM of the YYZ Runway 15L/33R flight path are required to operate at an altitude of 1,300 ft or less.

Aircraft operating into and out of the Toronto City Centre Airport are vectored to the Airport control zone by the terminal area air traffic controllers located at YYZ. The Toronto City Centre Airport ATCT handles aircraft operations within the Airport control zone. Based upon current practices, the arrival rate for the Airport is limited to about 10 arrivals per hour in IFR, or about 20 movements (arrivals plus departures) per hour. Over a 16-hour operating day, the IFR operational capacity of the Airport would be about 320 movements. The Southern Ontario Area Airports Study (9) indicated that this could increase if needed through re-sectoring of the airspace.

H. Airfield Condition

This assessment is based upon site investigation, interviews and analysis of available technical data and previous investigations including those undertaken by Transport Canada. Overall, the Airport primary airside pavements and electrical systems are considered to have a general condition rating of 7 to 8 (Fair to Good). The conditions are summarized in Exhibit II-6.

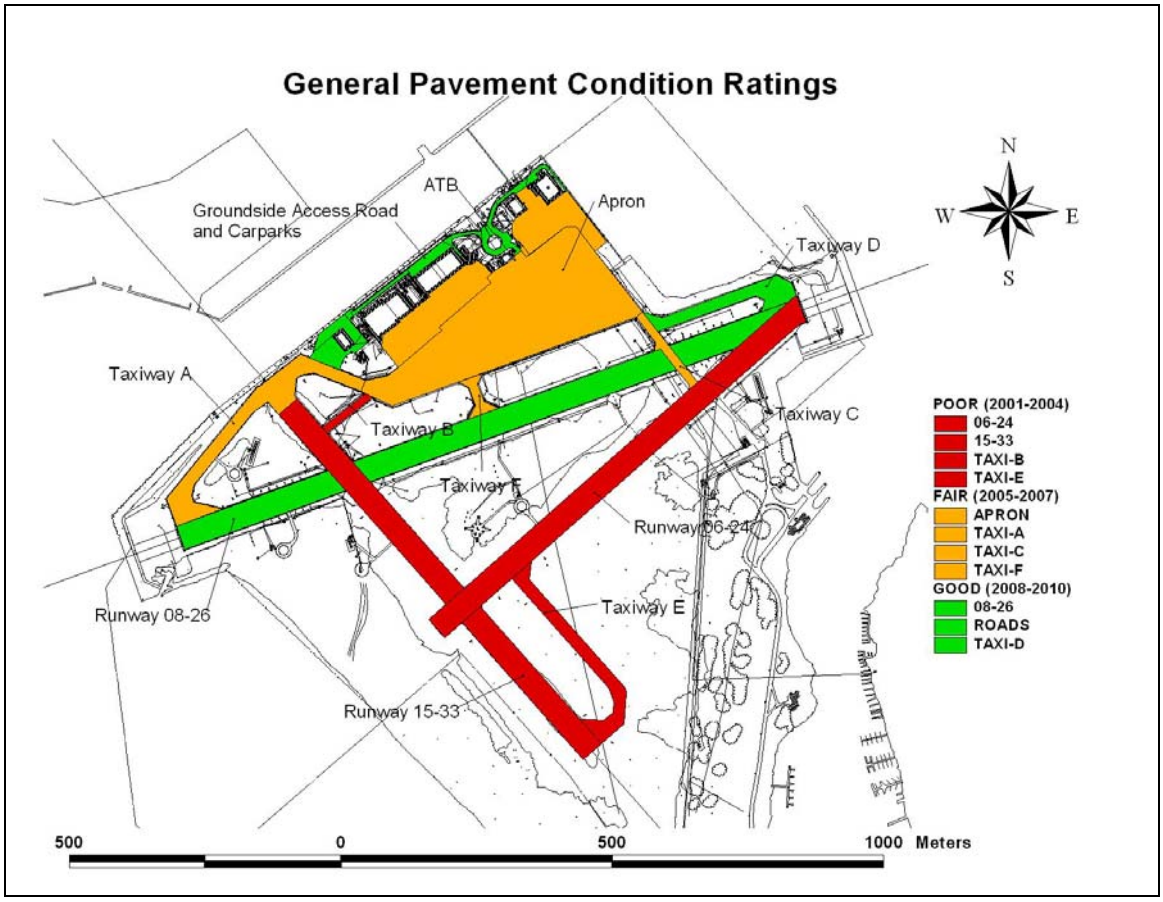

Exhibit II-6. General Pavement Condition Ratings

The most significant areas requiring rehabilitation within the 10-year planning horizon include the airside pavement infrastructure. Some of the key issues are identified below.

Tire Pressure Limitations

The PLR ratings and tire pressure limitations on existing facilities limit the potential opportunities for commercial air traffic development. The

current aircraft traffic mix includes aircraft routinely using the Airport that exceed the pavement tire pressure limitations, (i.e. Dash 8 traffic). The pavements are structurally sound for the current aircraft mix, but in some cases have insufficient asphalt thickness for the tire pressures involved. Tire pressure limitations can be overcome by increasing the thickness of the asphalt. Future rehabilitation options should take the tire pressure limitations into consideration. A typical 50-65 mm asphalt overlay can in most cases resolve the tire pressure limitations at the Airport.

The areas of concern are primarily Runway 15-33, Taxiway C, Runway 06-24, Taxiway E and the apron in front of the ATB. These facilities are used by Dash-8 aircraft, which generally operate with tire pressures in the order of 0.8 to 0.9 MPa. The current limitation is 0.5 MPa. While this does not pose an immediate safety concern, continuing operations under these conditions will accelerate the deterioration of the pavements and may cause premature failures.

General Pavement Conditions

In addition to the tire pressure limitation issue, the surfaces of Runways 15-33 and 06-24 are in poor condition and will require rehabilitation in the short term.

Airside Electrical Systems

The electrical systems at the Airport are in fair to good condition and no major rehabilitation appears necessary within the planning period. It is, however, recommended that a comprehensive preventative maintenance program be implemented.

Groundside Pavements

Groundside pavements are generally in fair to good condition. Some localized short-term repairs are required on the groundside parking area along the breakwall to address sinkholes.

A more detailed review of the infrastructure is presented in Appendix B.

I. Airport Buildings

The buildings on the Airport were constructed at different times, the earliest dating from 1938. The most significant building issues are:

- There is no dedicated terminal building suitable for traffic levels significantly higher than current levels;
- There is a shortage of quality facilities for all uses; and
- Air Ontario staff are scattered among several buildings and are looking for better facilities for their staff.

J. Access

Access to the Airport is by way of the Maple City Ferry, that operates on a 15-minute schedule to provide four roundtrips per hour, 17 hours per day, with the last trip scheduled at 11:07 p.m. This schedule and the physical limitations of the ferry are a concern to the users of the site, including both tenants and passengers, as found in the surveys undertaken during this study. The ferry is also a potential limitation to increased business aviation activity, as it is perceived to offer an extremely low level of service. The ferry versus fixed link issue has also become a test of the Port Authority's commitment to the Airport by the aviation businesses located on the Island and prospective tenants. These businesses have indicated that this level of commitment is needed before they will commit to future investment at the Airport.

The ferry is also a limiting factor to the growth of the Airport. It is expected that, because of its physical limitations, it would only be able to handle approximately 250 one-way passengers in peak hour when employee trips are factored into the mix of ferry users. This is adequate for an airport with an annual capacity in the order of 400,000 passengers per year, but would be inadequate to serve the expected demand under any improved air service scenario. Thus an enhanced passenger ferry, a larger capacity vehicle ferry or a fixed link to the Island would be required if growth beyond 400,000 passengers per year is to be considered.

K. Attitudes

There are several attitudinal issues that have become evident or have been expressed during the course of this study.

The primary issue in this regard is the attitude of Air Canada/ Air Ontario to the provision of service at the Airport. Air Ontario has made limited marketing efforts to attract passengers to its service from the Island and views the site as one with primarily in-bound high yield traffic. It has made no efforts to increase its outbound traffic, as this could prove counter productive to the use of Air Canada services at Pearson to service the same destinations. Air Ontario is being driven by Air Canada's objectives of maximizing its use of LBPIA as its hub airport.

L. Usability

The usability of the Airport for commercial aviation is restricted. The tall smokestack of the Hearn Generating Station, which lies in the approach path of Runway 26, causes one restriction. In addition, low decision heights are precluded during the boating season by the potential of marine traffic in the vicinity of those no entry areas that are currently marked by buoys.

The Airport usability is also affected by the occurrence of ground fog in the late spring/early summer and late fall caused by warm air masses meeting cold lake water, or vice- versa.

These periodic, unscheduled disruptions are of concern for scheduled air service and for the use of the site by corporate aircraft. In the first instance it usually results in the need to transfer passengers to LBPIA.

M. Capability

The capability of the Airport to be used by various types of aircraft is restricted by the length of its runways and the Tripartite Agreement noise limitations. In order to establish the types of aircraft that could be considered for commercial and general aviation service to the Airport several aircraft types were investigated to determine the aircraft that could use the existing runway system at the Airport and still provide an acceptable range and payload. The aircraft chosen are all Chapter 3 noise compliant – currently one of the most restrictive internationally recognized noise emission standards.

The aircraft that were examined for payload/range to New York, Boston, Washington and Chicago in the United States are:

- DHC Dash8-Q400;
- Bombardier CRJ;
- Dornier 328J;
- BAe-146-300;
- Lear 40 and 60;
- Falcon 50 and 900; and
- Bombardier Global Express.

Where the destination city had two airports, the airport at the greater distance from the Toronto City Centre Airport was used. In all cases, IFR airways routings were applied, along with standard fuel reserves for

missed approach, diversion to alternate airports, and/or holding patterns. The distances used in these calculations are shown in Exhibit II-7.

Exhibit II-7. Great Circle Distances from Toronto City Centre

To	Distance (kilometers)	Distance (nautical miles)
Boston	656	410
New York- JFK	500	313
Chicago- O'Hare	638	399
Washington	549	343

The runway conditions considered at the Airport included both a 4,000 ft balanced field condition, and the effects of the addition of the clearway of 350 ft to the runway for take-off purposes.

The analysis of commercial passenger aircraft and business jet aircraft of the type most likely to use the Airport if operations were permitted follows.

Bombardier Dash 8-Q400

This turbo-prop aircraft can carry between 68 and 78 passengers and has a range of 2,522 km. For the distances to the US destinations identified, the aircraft is able to operate at or near maximum payload. The landing distance at maximum landing weight and ISA conditions is 1,114 m (3,654 ft).Under very hot conditions, some payload penalty may be required to meet landing distance requirements.

Bombardier Regional Jet (50 passenger capacity)

Some passenger load restrictions would apply for operations from the 4,000 ft runway at a temperature of 15 degrees Celsius (ISA Conditions). The worst case occurs for the two airports at the longest distances (Boston and Chicago), which would be limited to 43 passengers (86% load factor) on any trip from the Airport.

At the higher temperature of 30 degrees Celsius (ISA+15 Conditions), the load restrictions would be greater. The two furthest destinations would be restricted to 33 passengers (66% load factor). However, Toronto experiences only a limited period of warm weather, with temperatures of 30 degrees Celsius occurring infrequently during the summer months.

With the addition of the clearway providing a 4,350ft take-off distance on an unbalanced field, the situation is improved, with no load restrictions at a temperature of 15 degrees Celsius. At the higher temperature of 30 degrees Celsius a 42 passengers (84% load factor) load restriction would apply for Boston and Chicago.

Dornier 328J (32 Passenger Capacity)

The Dornier 328J would have no load restrictions to any of the four destinations under ISA or ISA+15 conditions.

BAe-146(77-116 Passenger Capacity)

For departures on a 4,000 ft runway at ISA conditions, the BAe-146 would be load restricted to all four destinations noted above, but within acceptable limits. The most restricted cases are Boston and Chicago, for which the aircraft would be limited to 91 passengers (78% load factor). At a temperature of 30°C, this aircraft would obviously have a greater load restriction.

With the additional 350ft of clearway providing a runway with a takeoff distance of 4,350 ft. on an unbalanced field, the load restriction at a temperature of 15°C in the worst case is 108 passengers (93% load factor).

The 300 series is the largest of the BAe-146 models; there are two smaller and lighter models (100 and 200) that are better suited to the short-field situation, albeit their passenger capacity is limited as well. In the forecasts, noise and financial scenarios the aircraft used was the BAe

146-100, which has a maximum passenger capacity of 77 and is proven in STOL type operations at other airports such as London City.

Lear 45 and 60

These two Lear jets have a maximum capacity of 10 passengers (plus 2 crew). There are no load restrictions for the four destinations given in Exhibit II-7 above from either a 4,000 ft or 4,350 ft runway at temperatures of 15°C or 30°C.

Falcon 50 and 900

The maximum passenger capacity of these Falcon models is 8 passengers (plus 2 crew). There are no load restrictions for the four destinations noted above from the 4,000ft or 4,350 ft runway at 15°C and 30°C.

Bombardier Global Express

The maximum passenger capacity of this larger business jet is 19 passengers (plus 2 crews). There are no load restrictions for the four destinations from the 4,000ft or 4,350 ft runway at either 15°C or 30°C.

Conclusion

Commuter aircraft tend to operate successfully at lower load factors than larger aircraft (the average for regional carrier operations in Canada is 55%-60%), so the minor weight restrictions that are discussed for some of the aircraft above, would not unduly affect the viability of services.

Overall, it is clear that many of the newer commuter turboprop, commuter jet and corporate jet aircraft could operate from the Airport, if permitted.

N. Tripartite Agreement and Finances

The 1983 Tripartite Agreement includes an agreement to the effect that the Minister of Transport shall seek funding to offset any operating deficit that might be incurred by the operator of the Airport (Article 44). The funding agreement described in this article is attached as Schedule E to the Tripartite Agreement and includes the following clauses:

- **Clause 2**: This clause and its various sub-clauses require that the Harbour Commission operate the Airport in an efficient and business like manner with an overall objective of cost recovery. It also states that while the Commission is responsible for providing the necessary buildings and related facilities to maintain the Island in a serviceable condition, that the Commission is under no obligation to provide these facilities unless they are constructed or installed pursuant to an agreement with the Minister.
- **Clause 3**: This clause stipulates that the Minister shall grant financial assistance to the site by way of an annual operating subsidy equal to the operating deficit subject to certain provisos re the types of cost that are acceptable to the Minister. The clause also gives the Minister the power in approving the site budget for subsidy purposes to order changes that the Minister may deem necessary to the profitable operation of the Airport.
- **Clause 4(11)**: This sub clause requires the Minister to pay court ordered damages for suits brought against the Commission by tenants of the Airport if the Airport is closed.
- **Clause 5**: This clause requires the Minister to seek appropriate funding for capital costs associated with the continued use of the Airport for general aviation purposes including: site improvements and security including perimeter fencing; runways and taxiways; utilities and drainage; field lighting and terminal buildings.
- **Clause 6**: This clause makes the Minister responsible for the capital and operating and maintenance costs of air navigation systems.
- **Clause 7**: This clause stipulates that the Minister does not have to make payments unless and until the necessary funds are voted by Parliament.
- **Clause 8**: This clause deals with revenue and has several sub clauses including:
  - The City has no rights to any revenue derived from the operation;
  - The establishment of a fund to pay for future operating deficits and capital improvements into which 50% of surplus revenue would be paid;

- If the Commission was ordered to cease paying into the fund by the Minister the 50% of revenue would be paid to the Minister;
- Subsidies paid by the Minister would not be considered revenue for the purposes of this clause; and
- The Commission was entitled to retain the other 50% of surplus revenue for its own use.

Notwithstanding this agreement the site has basically operated in a deficit position for several years without Transport Canada subsidy. If the status quo continues it is expected that these deficits will continue to increase.

O. US Preclearance

It has been suggested that US preclearance service is a requirement to attract transborder passengers to the site. However, these services are governed by a bilateral agreement between the American and Canadian governments and are generally restricted to airports with a large volume of transborder passengers, and are not available to airports that are commencing a transborder service. In the short to medium term these services would not be available to the Toronto City Centre Airport. The lack of this service, however, should not prove a barrier to a transborder service being operated from the Airport as these services are currently severely congested at LBPIA and will remain so until the new terminal is operational.

Furthermore, in the longer term the provision of Canpass and Expedited Passenger Processing Systems (EPPS) will reduce the benefits of preclearence as electronic clearing of frequent US travellers will be available, expediting the customs and immigration procedures in both directions.

III. AIRPORT NOISE AND THE NEF SYSTEM

A. General

The Tripartite Agreement established noise limitations, prohibited commercial and business jet operations and is very specific on how the actual Noise Exposure Forecasts (NEF's) at the Airport must meet certain criteria related to the official NEF contours. The noise exposure forecast calculations must be put into context with the Tripartite Agreement noise constraints.

The official noise exposure forecast method at Canadian airports is the Transport Canada Noise Exposure Forecast (NEF). The NEF system is the accepted method for indicating aircraft noise impact on property surrounding airports. Reaction to noise is subjective and dependent on the number of times the disturbance occurs as well as the daily distribution of these events. The NEF system provides for a summation of noise from all aircraft types operating at an airport based on actual or forecast aircraft movement by runway and the time of day or night the event occurs. The NEF cannot be measured directly and can only be calculated. As a result, Transport Canada has developed computer modelling tools and methods for this purpose. The most recent NEF Software Version 1.8 was used in developing the NEF contours for this study.

Experience at 21 airports with respect to correlations between noise complaints and the NEF contours is presented below in Exhibit III-1.

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

Exhibit III-1. Community Response Prediction and NEF's

Response Area	Response Prediction
>40 NEF	Repeated and vigorous individual complaints are likely. Concerted group and legal action might be expected.
35 – 40	Individual complaints may be vigorous. Possible group action and appeals to authorities.
30 – 35	Sporadic to repeated individual complaints. Group action possible.
< 30	Sporadic complaints may occur. Noise may interfere occasionally with certain activities of the resident.

The series of land use tables shown in Exhibit III-2 are produced by Transport Canada as a guide.

There are three types of noise exposure contours used for airport purposes and these are summarized as follows:

- **Noise Exposure Forecasts (NEF's).** Traffic volume and aircraft type and mix used in calculating the noise contours are normally forecast for a period of between five to ten years into the future. Runway geometry must be the current layout, except that new and approved projects involving changes in the runways may be included when the completion date of the project lies within the forecast period.
- **Noise Exposure Projections (NEP's).** It is recognized that much land use planning involves projections beyond five years into the future, when aircraft fleet mixes and runway configurations are most likely to be different from the known conditions of today. To provide provincial and municipal authorities with long-range guidance in land use planning, Transport Canada introduced the Noise Exposure Projection (NEP). The NEP is based on a projection of aircraft movements for up to 20 years into the future and includes aircraft types and runway configurations that may materialize within this period. NEP's are official contours, and Transport Canada will support them to the level of accuracy of the input data. The information required to produce an NEP must, at least, be contained in an Aviation System or the Airport Master Plan.
- **Planning Contours**. The third type of noise contour is the Planning Contour, which is produced to investigate planning alternates and

must be labelled as such. Any agency may produce these contours, as they do not have an official status.

4-8

TABLE 3
LAND USE TABLES
AIRCRAFT NOISE CONSIDERATIONS ONLY

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

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

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

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

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

(a)

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

(b)

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

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(H) These facilities should not be located near the NEF 30 contour without a detailed noise analysis.

(J) Undesirable if there is spectator involvement.

(K) Recommended that peak noise impacts be analyzed.

Exhibit III-2. Transport Canada Guidelines on Development in Noise Affected Areas

In assessing the impact of any noise generated by the Airport, the fact that the Airport is located in an urban environment must be taken into account. Typically the downtown core of any city is noisier than comparable suburban areas. This urban noise is generally caused by

many diverse sources such as automobile traffic, rail traffic and the general noise associated with construction activity that blends to form the background noise associated with any city.

Typical noise levels that are associated with urban noise are given in Exhibit III-3.

Exhibit III-3. Typical Urban Sound Pressure Levels

Source	Sound Pressure Level (dB)
Pneumatic Hammer	100
Heavy Truck	93
Average Street Traffic	84
Business Office	65
Average Ambient Noise Level (Toronto waterfront)*	56-59
Lakeshore Boulevard West 43 m from road centre line	62
Dash 8-300 Sideline noise at 2,000 ft. from source	70.6

* Dillon Consulting - Fixed Link Environmental Assessment (April, 1998)

An examination of this table indicates that the noise of a turbo-prop aircraft of the type using the Airport, when departing from the runways should not be distinguishable from average street noise along Queen's Quay.

The use of the NEF contours as described in the Tripartite Agreement establishes an airport noise level that is compatible with the surrounding urban area. Noise levels from other sources in the area could frequently be higher.

B. Existing 2000 Noise Exposure Forecast (NEF)

In order to compare the existing NEF to the official 1990 NEF contained within the Tripartite Agreement, it was necessary to establish the location of the actual 28 NEF for the year 2000. In order to produce this contour the existing 2000 conditions were examined. The Canadian NEF system was used to establish the 1990 Official NEF as contained in Schedule "F" of the Tripartite Agreement.

During the course of the study, the team confirmed with Transport Canada that the NEF program used in calculating NEF contours has

received only minor upgrades. It was prudent to ensure that no significant changes in the calculation methodology had occurred which might skew the current NEF calculations. It was concluded that the methodologies had not been significantly altered since 1978 and, as such, the 2000 NEF would be comparable to the official 1990 NEF's.

Actual aircraft movement statistics were used in the development of the existing 2000 NEF. Statistics Canada provided local movement data and the Airport provided data for all itinerant movements.

To establish the official 1990 NEF boundary, two sources were used to electronically digitize the contour. The first source was a figure produced by Transport Canada as part of an NEF Study completed in 1990. These contours were then cross-checked with an official copy of the Tri-Partite Agreement Schedule "F"-CMHC/SCHL- NEF Contours prepared for the Central Mortgage & Housing Corp. by the Ministry of Transport.

Areas under the official 28 and 25 NEF's were taken from a Transport Canada 1989 NEF study (dated October 1990). Discrepancies were noted between these areas and the areas calculated under the digitized contours. The numbers published by Transport Canada rather than the area calculated under the digitized contours were considered in any area comparisons included in this study.

Aircraft Movements

Noise contours are usually based on a peak planning day with the traffic figures representing the 95th percentile day. Exhibit III-4 presents the peak planning day movements for 2000 at the Airport, calculated using the methodology recommended by Transport Canada.

Exhibit III-4. Summary of Actual 2000 NEF Planning Day Statistics

Movement Type	2000 Peak Planning Day	2000 Total Movements
Itinerant	303	62,623
Local	448	74,487
Total	751	137,110

The actual air traffic mix for the existing conditions at the Airport is shown in Exhibits III-5 and III-6.

Exhibit III-5. Actual 2000 NEF Planning Day Fleet Mix

Aircraft Category	Day (%)	Night (%)	Total (%)
Jet	100.0	0.0	100.0
Turboprop	98.2	1.8	100.0
Piston	98.3	1.7	100.0

Exhibit III-6. Actual 2000 NEF Planning Day Fleet Mix - Itinerant/Local

Aircraft Category	Itinerant (%)	Local (%)
Jet	0.04	0.0
Turboprop	26.22	0.0
Piston	73.74	100.0
Total	100.00	100.00

Runway Utilization

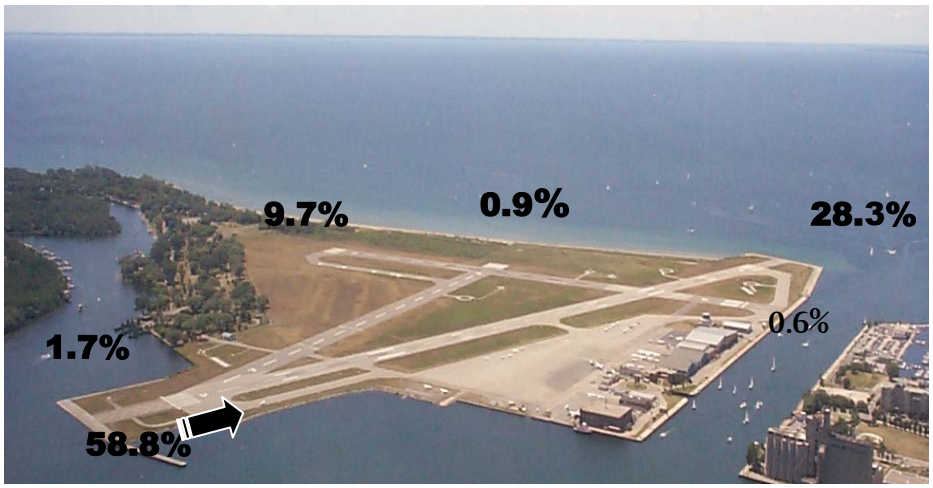
To determine the distribution of aircraft on the runways, an analysis of the actual runway usage was undertaken. Exhibit III-7 summarizes the results of this analysis. Exhibits III-8 and III-9 illustrate the utilization.

Exhibit III-7. Actual 2000 NEF Runway Utilizations (Day/Night)

Runway	% Total (Day and Night)	% of Day	% of Night
08	29.29	29.2	34.5
26	58.99	58.9	65.5
06	0.58	0.89	0
24	3.62	2.98	0
15	0.71	0.42	0
33	6.81	7.61	0
Total	100.00	100.00	100.00

Exhibit III-8. Runway Utilization - Arrivals Day and Night

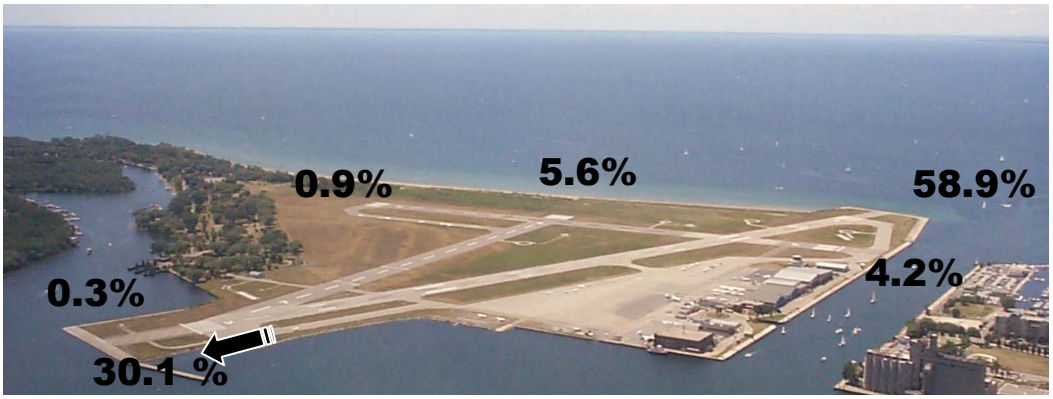
Day



Night

Exhibit III-9. Runway Utilization – Departures Day and Night

Day



Night

Summary of Primary Assumptions

The following summarizes the primary assumptions applied in generating the actual 2000 NEF for the Airport:

- Local traffic may include some simulated IFR traffic. Since the volume is very low, it was assumed to be all local VFR circuit traffic;
- Circuit training may use Runway 06-24 primarily, but the same distribution as itinerant is assumed. This is a more conservative approach for the critical east- west corridor;
- The runway coordinates for the NEF models were compared to the 1990 Transport Canada study. The current coordinates differ at the Runway 15 End. This is likely due to the relocated threshold. The actual 2000 model incorporates the relocated threshold for Runway 15 End;
- Local night traffic is about 1.4% of total local movements. All local night traffic is located on Runway 08-26 only, since it is the only lighted facility;

- The night split was slightly higher in 1989 than in 2000. Local night traffic in 1989 was about 4%;
- The Tripartite criterion for inclusion of seaplanes (Section 31 (2)) was checked. The actual average number of movements calculated in accordance with criteria outlined in the agreement was only about 4-5 versus the trigger criteria of 30;
- Helicopter movements for 2000 were about 5,048. Although this is greater than the 4,000 movements permitted under the Tripartite Agreement, it includes City Police operations, which were exempted from the Tripartite restrictions. Furthermore, there are no defined helicopter flight paths that are the triggers to include helicopters in the NEF calculations. Therefore, helicopters are excluded from the 2000 NEF calculations;
- The planning day calculations for the itinerant traffic excluded seaplanes and helicopters;
- The average Airport mix by engine type was very close to previous years indicating a fairly consistent aircraft mix at the Airport. Only a slight reduction in the number of jets was noted in the comparisons;
- The Dash-8 (DHC8) custom noise profile information from the 1990 Transport Canada report was not used in this study. The source of the information could not be verified. It was surmised that the data may have been specific to the configuration and operating procedures of the Dash-8's used by City Express at that time. The models generated for this study used the NEF model standard noise profile contained within the NEF software.

C. Observations Related to 2000 NEF

The NEF contours for the year 2000 are given in Exhibits III-10 and III-11. Exhibit III-12 summarizes the actual 2000 NEF areas and other statistics as compared to the official 1990 NEF's and a previously completed NEF study prepared by Transport Canada in 1990.

For both the itinerant and local day-night and day-only scenarios, the Actual 28 NEF contour falls within the official 25 NEF (1990). For the day-night contour, a small area extends past the official 25 NEF to the west but falls within the X-Y limits (the area to the southwest of the Airport where the 25 NEF boundary condition does not apply). The Tripartite Agreement permits the 28 NEF contour to extend past the official 25 NEF between these two points since this area falls over water.

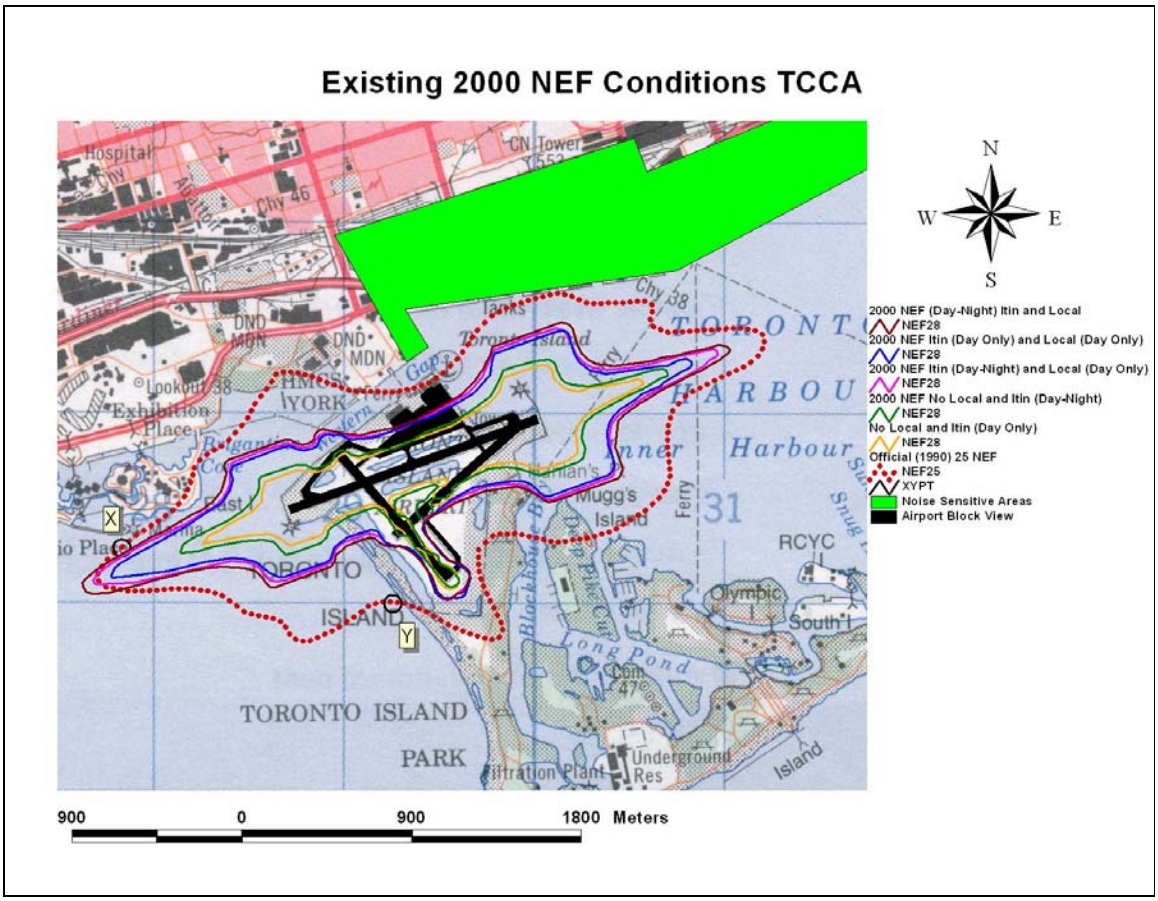


Exhibit III-10. Existing 2000 NEF Conditions TCCA

For the day-only local and itinerant NEF, the actual 28 NEF falls well inside the official 25 NEF. This scenario also demonstrates the sensitivity of the NEF contours to nighttime traffic. In this case, the night activity i.e. between 2200 and 0700 hours, represents only about 1.4% - 1.6% of the total movements, yet the 28 NEF contour expands by about 22% (based on increased area) when the night traffic is considered.

The remaining figures demonstrate the impact on the NEF contours by systematically changing the aircraft mix from day-night, to day only, and to exclude local circuit traffic. The intent was to demonstrate the impact on the Airport's "noise capacity" as a function of the time of day of operations and the type of operations. To this end, it becomes clear that restricting air traffic to daytime hours only (0700 to 2200) will improve the Airport's noise capacity. Furthermore, the removal of circuit activity, which is driven primarily by the local flying schools, would dramatically improve the noise capacity of the Airport.

Exhibit III-11 has also been generated to show the 30 NEF. As noted in earlier sections, the 30 NEF is considered the limit up to which new residential development would be permitted under current land use planning guidelines and policies. From the Exhibit, it can be seen that the limit of the 30 NEF for the most part remains over water.

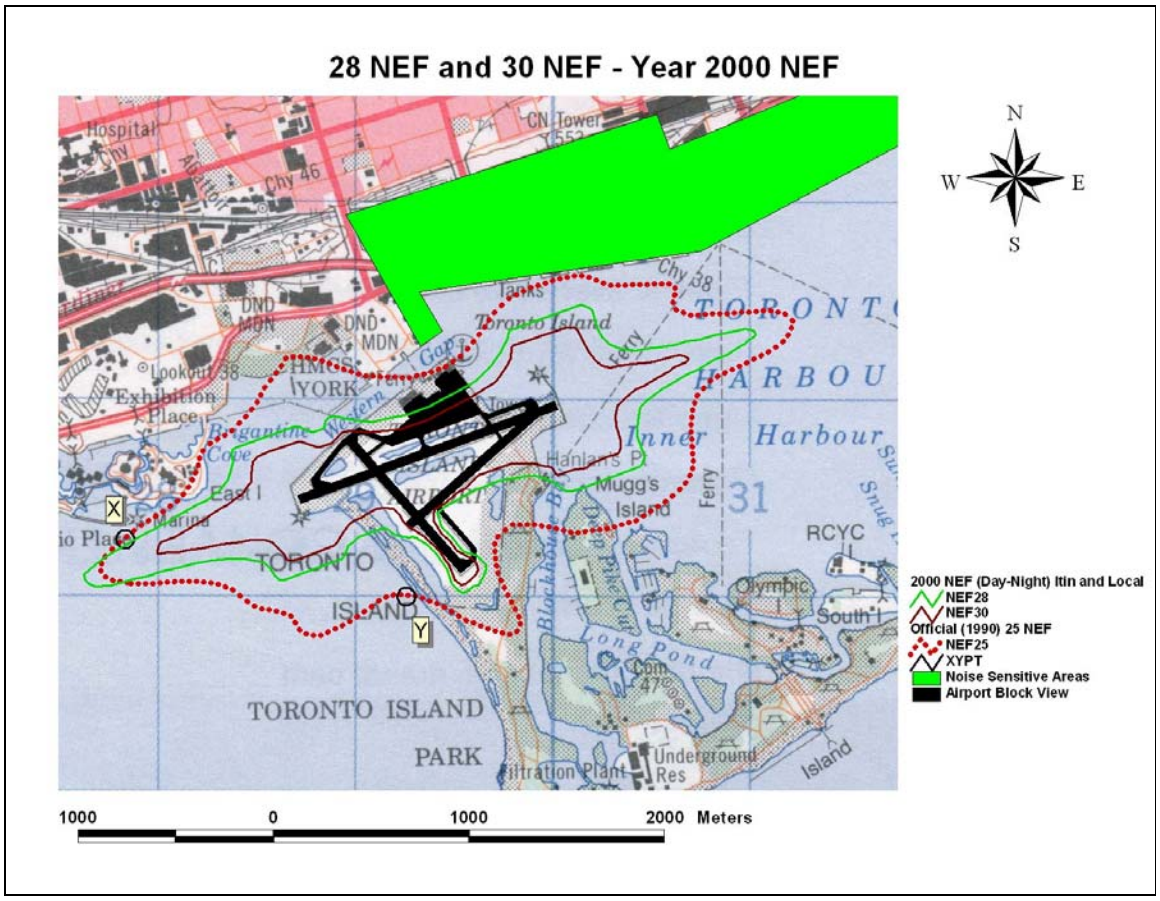


Exhibit III-11. 28 and 30 NEF - Year 2000 NEF

Exhibit III-12. Summary of Existing 2000 NEF Contour Areas Compared to Official (1990) 25 and 28 NEF

NEF Scenario	NEF Description	OFFICIAL 1990 CONTOUR		CALCULATED ACTUALS			Total Itinerant Moves	Total Local Moves	Total Annual Movements	Notes
		25 NEF Area (ha)	28 NEF Area (ha)	28 NEF Area (ha)	% of Official 25 NEF	% of Official 28 NEF				
ACTUAL 1989 NEF		42.5	17.5	10	24%	57%	51,134	48,218	99,352	Based on report completed by Transport Canada dated October 1990.
2000 NEF Scenario 1	Local+Itin (Day/Night)	42.5	17.5	17.9	42%	102%	62623	74,487	137,110	Unofficial statistics. Official publication not available at time of study.
2000 NEF Scenario 2	Local+Itin (Day Only)	42.5	17.5	14.6	34%	83%	62623	74,487	137,110	Assumed night traffic considered daytime movements since very close to 2200 and 0700 cutoffs.
2000 NEF Scenario 3	Local (Day Only)+Itin (Day/Night)	42.5	17.5	16.2	38%	93%	62623	74,487	137,110	Assumed night local traffic considered daytime movements since very close to 2200 and 0700 cutoffs.
2000 NEF Scenario 4	No Local+Itin (Day/Night)	42.5	17.5	8.4	20%	48%	62623	0	62,623	Assume no local circuit training activity.
2000 NEF Scenario 5	Local+Itin (Day Only)	42.5	17.5	6.8	16%	39%	62623	0	62,623	Assumed itin traffic considered daytime movements since very close to 2200 and 0700 cutoffs.

IV. CURRENT AND POTENTIAL AIRPORT USERS

A. Introduction

As part of the assessment of issues at the Airport, and of assessing its future:

- All existing tenants were interviewed to determine economic activity and perspectives on the operation and development of the Airport;
- A survey of passengers was undertaken to determine profile and views;
- US regional carriers that could be potential scheduled service operators at the Airport were contacted; and
- Trends in the commuter and business aviation markets were assessed.

B. Tenant Perspectives

As part of this study, the tenants of the Airport were interviewed. These interviews were used to ascertain information needed in the preparation of the existing economic impact of the Airport and to gather information on the types of aircraft operated, the services provided, the source and location of their customer base, alternatives to the Airport available for their use, benefits of using the Airport and improvements that they would like to see.

The tenants surveyed are summarized in Exhibit IV-1.

Exhibit IV-1. Tenants Surveyed

Air Ontario	Flight Exec
Trans Capital Air	Airborne Sensing
J.A. Spears	City Centre Aviation
Business Wings	Airline Training International
Eagle Aircraft	Island Avionics
Aircraft Electronics	Alliance Air
Black Stallion	Canadian Helicopters
Nav Canada	Resource Protection
Tatham Process Eng.	Cameron Air Service
Min. of Health	Island Flight School
The Helicopter Co.	

A summary of the results of these interviews is shown in Exhibit IV-2. In general the tenants' major concerns focus on the future of the Airport and the level of commitment to its development. They have indicated that the provision of the fixed link would provide them with some assurance of the Airport's future, and as such they would in turn be willing to make commitments once the future was assured. They, however, also questioned the degree of management commitment to the Airport and cited the long delays usually associated with decision-making and the requirement for the Board to rule on even the most mundane of matters.

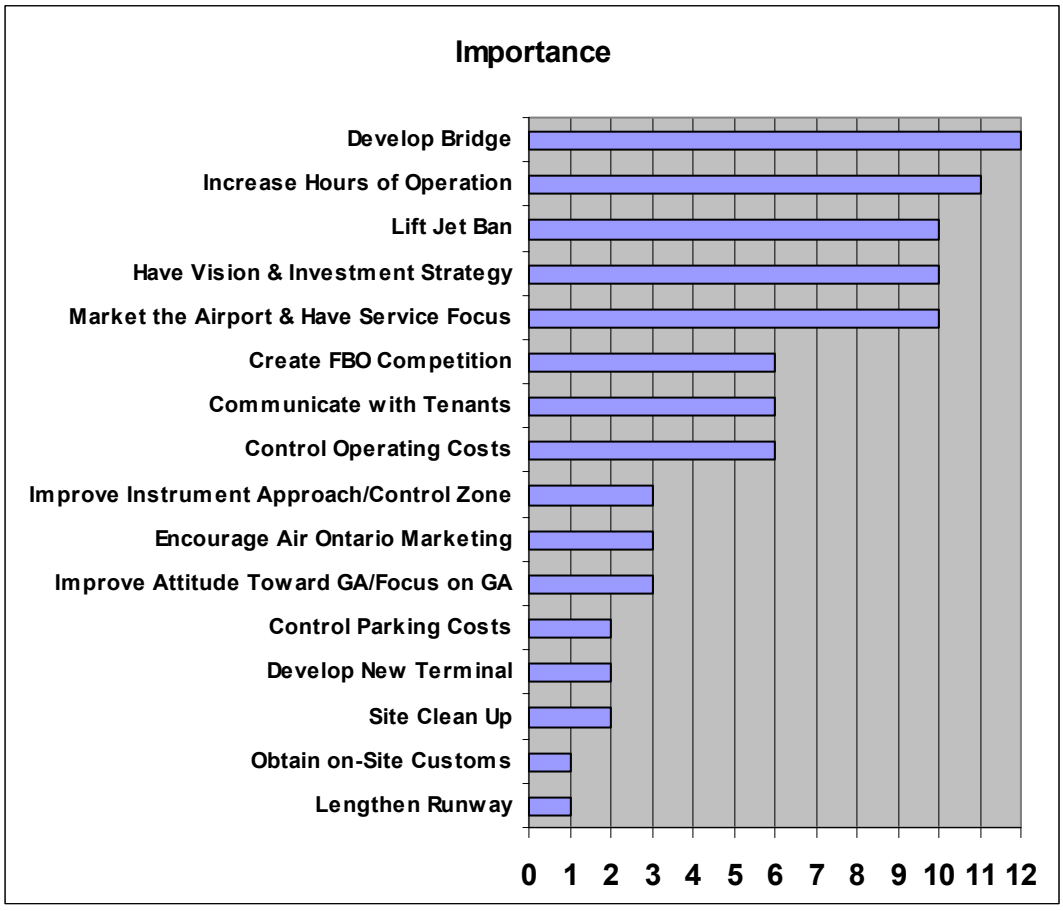


Exhibit IV-2. Tenant Priorities. Source: Tenant Interviews

C. Passenger Perspectives

Passenger surveys were also carried out as part of this study. These interviews were used to gather statistical data on the passengers for use in preparation of the economic impact of the site and to determine their reasons for using the Airport, the frequency of use of the facilities and

those at LBPIA, and the improvements that they would like to see at the Airport.

Passenger surveys were conducted during the periods: May 16-18, 2001 and June 6-7, 2001. The survey was conducted over two periods in order to obtain a representative sample of passengers. During the first period the number of passengers was low because of fog at the Airport. Attempts were also made to carry out surveys of the RapidAir passengers (Montreal and Ottawa) at LBPIA to gather similar type information and to determine how the choice of airport to use for a regional flight was made, but permission was refused by GTAA management.

In all, 188 passengers were surveyed. A summary of residence of the non-GTA passengers (only 27% of the passengers originate in the Toronto area) is presented in Exhibit IV-3.

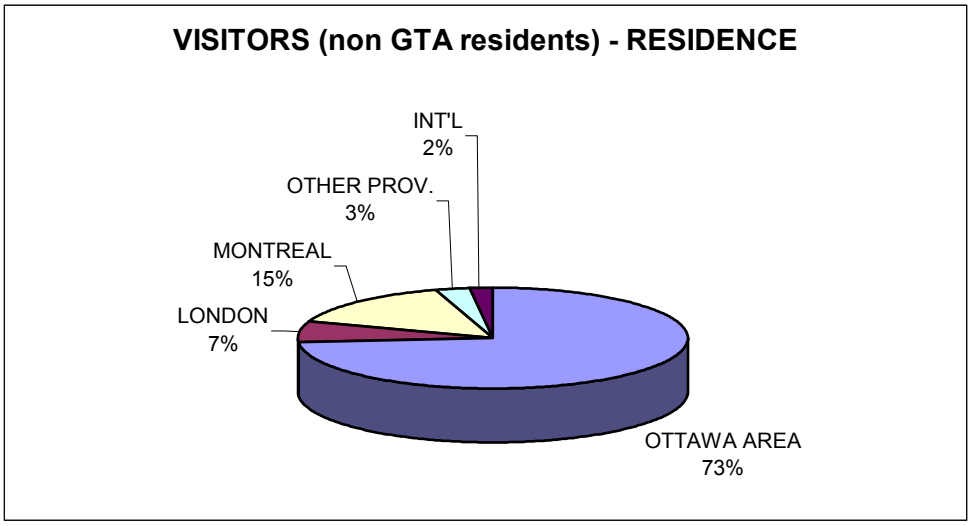


Exhibit IV-3. Residence of Non-GTA Passengers

The survey also yielded:

- **Duration of Stay.** On average, visitors indicated that they spent 2.38 days in Toronto and expended an average of $437.22.
- **Purpose of Trip.** Of the passengers who were visitors to Toronto, 93% indicated that they were travelling for business purposes. If all

passengers were considered: 88% were travelling on business and 6% indicated their trip was for leisure purposes.

- **Airport Improvement Fee (AIF).** When asked what impact the imposition of an Airport Improvement Fee would have on their decision to use the Airport:
  - 82% of respondents said a $10 AIF at Pearson would not affect their decision to use Toronto City Centre Airport;
  - 89% of respondents said that they would continue to use the Airport if there was an AIF at both Pearson and the Airport; and
  - 77% of respondents said they would be willing to pay an AIF, with the average amount approximately $9.15, and 77% willing to pay $10.00.

- **Airport Assessment.** In general, the ferry is not a significant factor in whether or not people use the Airport, but is a level of service issue. Reasons stated for wanting improved access are:
  - Winter weather and the amount of waiting and walking required by the ferry service;
  - Passengers may be carrying heavy luggage from the ferry to the terminal building or vice versa; and
  - The perceived long waiting time for ferry.

- **TCCA versus. Pearson.** Generally passengers flying the short-haul routes want to avoid the hassle of LBPIA. Toronto City Centre Airport users only use LBPIA when they have to such as when they are flying internationally, connecting to long haul domestic flights, when they have need for a late evening flight or on weekends when fewer flights service TCCA. Of the passengers interviewed:
  - They average 10.8 trips/year through TCCA; and
  - They also travel through LBPIA an average of 9.4 times/year.

- **Rail Service to Pearson.** It is noteworthy that 87% of the respondents indicated that rail service to LBPIA would have little impact on their decision to use TCCA.

- **Destinations Requested.** A majority of those surveyed (63%) indicated that they would like to be able to use TCCA for flights to the United States. The preferred destinations included:
  - New York (49% of US; 31% of total requests);
  - Chicago (17% of US; 13% of total requests);
  - Boston (9% of US; 8% of total requests);
  - Northern Ontario (71% of Ontario; 14% of total requests);
  - Timmins, Sudbury, Thunder Bay, North Bay (each at 17% of northern; 2% of total requests);
  - Windsor (24% of Ontario; 4.5% of total requests);
  - Sault Ste. Marie (3% of Ontario; 0.6% of total requests);

- Hamilton (3% of Ontario; 0.6% of total requests); and
- Quebec City (11% of total requests).

✈ **Passenger Suggestions.** When asked how they would improve the Airport, the passengers surveyed indicated that they would like to see the following improvements:

- Build bridge/fixed link (21%);
- Offer basic food service in departure lounge (17%);
- Offer more evening flights (17%);
- Modernize infrastructure - paint, improve weather protection, more parking (15%);
- More taxis and/or a direct line from terminal (5%);
- Lower fares (3%);
- Increased flight reliability in winter (2%);
- Jet service (2%);
- More destinations (2%);
- Provide information about the Airport (e.g., how to get there) in both official languages (5%); and
- Provide other complementary services such as: a bank machine, shorter ferry wait, luggage handling from ferry to terminal (10%).

✈ **Passenger Overview.** In general the passengers surveyed were:

- Not price sensitive;
- Service focused;
- Frequent flyers; and
- Very loyal to the Toronto City Centre Airport.

As a note of caution in reviewing the above data, the passengers surveyed are a residual core that know and appreciate the TCCA service. Their views (e.g. the low importance of jet service) cannot be assumed to be shared by all the existing or potential passengers on the prime routes currently servicing the TCCA.

D. Air Ontario Operations

Scheduled service traffic at the Airport has been continuously declining in a growing market. There are several potential reasons for this:

✈ A declining popularity of turboprop operations among passengers (see Section O below);

✈ A lack of marketing on the part of Air Ontario; and

✈ A Pearson International Airport centric perspective on the part of Air Canada in its control of Air Ontario.

All these reasons appear to be at play here. There is a complete contradiction between the intense loyalty of TCCA users, and the lack of interest in Air Ontario in sustaining or growing this market. This is in keeping with the Air Canada philosophy that sees the regional airlines playing a feeder role to its mainline national, transborder and international operations. In order to accomplish this feed to its service Air Canada seeks to have the regional carriers deliver their passengers to the hub airport, in this case LBPIA. However the role of providing transfer passengers only on the regional services is not viable and thus the regional airlines must mix transfer and origin/destination traffic. The TCCA service reduces demand at LBPIA and is relegated to a lesser status, as it does not feed the operations of Air Canada. Air Canada views the TCCA service as "complementary, not competitive". Thus, the Air Ontario operations at TCCA appear to act as a barrier to market entry by other carriers that could compete for the O/D market and thus erode the service that the regional airline delivers to Air Canada at LBPIA. The Air Canada perspective on its operations at TCCA is contrary to the Port's role as contained in the Canada Marine Act, which requires the Port Authority to foster competition at its facilities.

E. U.S. Regional Air Carriers

As part of this study four US regional airlines were contacted to find out the criteria that they would apply to the Toronto City Centre Airport to determine if they would provide service from the site to their regional route networks in the US.

The four U.S. Regional airlines were:

- Mesaba (Saab 340);
- Comair (ATR 72, RJ);
- American Eagle (ATR 72, CRJ); and
- US Air (Do 328).

These airlines indicated a low level of awareness of the site that led to a low level of interest in serving the Airport. These carriers are regional affiliates of mainline US carriers that already serve Toronto through Pearson. When asked to indicate their requirements to serve the site, the airlines indicated that they would be looking to the following items when and if deciding to provide service:

- Adequate passenger traffic to support three turns/day minimum;
- Strong economic growth in the community;
- An active airport authority;
- On-going community support;

- US pre-clearance (Comair); and
- Market research support and various incentives.

When asked to indicate the incentives that they would be looking for from an airport authority in making their decision the airlines indicated:

- Marketing/advertising of new services (which is generally the single largest airline investment when commencing service to a new community);
- Corporate backing, such as guarantees by local business or business coalitions to support the service with a fixed number of seats utilized per annum. The Toronto business community might be receptive to this approach;
- Travel agent incentives to promote the new services; and
- Relatively low operational costs.

F. The Changing Regional Air Carrier Industry

The regional airline industry has evolved over the past 20 years from small operators of 19-seat and smaller piston and turboprop-powered aircraft into airlines that can carry several million passengers annually operating aircraft seating up to 80 passengers.

Following deregulation of the airline industry, commuter airlines were established and provided short-haul air services (around 140 miles) with small capacity turboprops (15 seats on average) to small and medium-sized communities that were no longer served by the mainline carriers. However, as the industry grew in the 1980's and early 1990's these smaller airlines established and consolidated their position by providing feeder services to national and major airlines, and the number of companies providing service dropped as a consequence of the industry realignment. The average aircraft size increased during this period from 15 seats to 25 seats with the arrival of new 30-50 seat turboprops, and the average route length also grew to approximately 223 miles from 140 miles.

The transition from turboprops to high-productivity regional jets in the U.S., and to some extent in Canada (Air B.C.), revolutionized the commuter industry and radically changed the mindset of airline planners and the traveling public. Expanded market catchment areas, deployment on new long & thin routes, proper matching of aircraft capacity to demand, fortification of hubs, savings in travel time, increased

frequencies, expanding networks, and increased profitability all resulted from the introduction of regional jets.

In addition, regional aircraft operating characteristics changed. By 2000, trip length had grown to 300 miles, the average aircraft size increased to 32 seats and carrier consolidation continued.

Currently the top U.S. regional airlines are moving to all-jet fleets as a result of increasing passenger preference and the operational flexibility that these aircraft can provide. In the last two years, 91% of worldwide regional aircraft orders was for regional jets. The United States regional airline fleet strategies indicate some important trends including:

- Low demand for new turboprop aircraft over the next ten years, as a result of a continuing market preference for jets;
- Regional jet operational flexibility and the ability to allow the exploration of short, medium and long distance markets are driving top U.S. regional airlines towards all-jet fleets. It is expected as a result of this ability that regional jets will ultimately replace most of the existing turboprop fleet;
- Any remaining turboprops will tend to become more concentrated in niche and secondary markets for short-haul services; and
- Regional jets, which already account for 41% of the available seats in the American market, will supply most of the future capacity required to accommodate projected industry growth and to replace existing turboprops.

The shift to jets is currently the most significant trend within the regional airline industry. Turboprop aircraft deliveries will continue, but at significantly lower levels than during past decades. It is anticipated that demand for turboprop aircraft seating 15 to 59 passengers will continue a decline that started around 1996. As shown in Table IV-4 the trend in the US market is quite evidently shifting towards regional jets.

Based on the above trends, it is believed that four key issues will affect the growth of regional airline services at the Airport:

- The extent of turboprop replacement by jet aircraft in air carrier fleets;
- The possible demise of the 19-seat aircraft for scheduled services;
- The extent to which point-to-point service by smaller regional jets will erode the hub-and-spoke service of larger airlines; and

- The effects that infrastructure limitations at LBPIA and some transborder airports are likely to have on the growth of the airlines that could utilize the Airport.

Exhibit IV-4. Passenger Aircraft in Use by US Regional Airlines

Manufacturer	Turbo-prop	Jet
Aerospatiale	152	
Bombardier	232	250
BAe	105	54
Catpass	2	
Cessna	39	
Convair	5	
Embraer	181	233
Fairchild /Dornier	71	21
Fokker	5	22
Grumman	7	
Pilatus	1	
Piper	3	
Raytheon	209	
Saab	247	
Total-2000	**1259**	**580**
Total-1999	**1373**	**394**
Percent Change	(8.3%)	47.2%

Source: Regional Airline Association

It is expected that the number of jet airplanes in the regional airline fleet will expand significantly and this has obvious implications for the future of the Airport. Within 10 to 20 years, it is anticipated that the 50-seat jet will be the backbone of the regional airline fleet in North America. The strong passenger traffic growth foreseen by regional airlines is partly driven by the passenger appeal of these aircraft. Airlines that operate RJ type aircraft report increases in both passenger load factors and average yields (fares) relative to turboprop models.

Parallel to this change will be the elimination of 19-seat aircraft from all but niche markets. The regulatory burden and operating costs, combined with increasing customer expectations for jets, can be expected to all but eliminate these aircraft from major markets.

As the smaller jets proliferate, the question arises whether they will operate in the same hub-and-spoke fashion as the larger jets, or whether they will provide point-to-point service (eroding the hub-and-spoke service of larger airlines). To date, most service has remained hub and spoke. However, as congestion increases at mainline airports, regional carriers will slowly increase point-to-point service that bypasses congested hubs.

This raises the fourth concern, which is the extent to which infrastructure limitations are likely to constrain the growth potential of regional airlines. Airport congestion at major airports is expected to grow, and pressures are expected to continue to favour the larger air carriers and their higher-capacity aircraft at the hub airports. This will be especially true at LBPIA, which is not able to expand its runway capacity beyond what is currently envisioned in its Master Plan. This will tend to force the regional airlines to seek other airports and is part of the GTAA rationale for pursuing the acquisition or development of other airports in the Region such as Buttonville and the Pickering Site.

G. Changing Business Aviation Market

Commercial airline service on U.S. and Canadian domestic routes is currently reporting 70 percent plus load factors, a historically high level. Somewhat anomalous to the rising load factors, fares have also been rising steadily over the past several years. Combined, these influences tend to increase business traveler aversion to commercial airline travel. When these adverse influences are combined with the potential benefits that can be had through utilizing dedicated corporate aircraft, business aviation is seen as an increasingly attractive alternative to commercial air service. Business aircraft provide:

- The ability to fly on short notice;
- The flexibility to fly as business dictates;
- The ability to use general aviation airports which in many cases are closer to the central business district;
- Costs approaching those of Business Class on major airlines when several members of the business are flying to the same destination; and
- The ability to avoid the hassles of major airports including access, check-in, customs queues, etc.

Given these benefits there has been a rapid growth in the use of business aircraft and schemes such as fractional ownership of the aircraft involved have brought the costs of corporate jet ownership within the purview of many medium enterprises. It is expected that this trend of using corporate aircraft for business and related travel will continue. It is noteworthy in this regard that United Airlines has entered the market with the purchase of several hundred corporate jets that it will be offering on the fractional ownership market but that will be managed and flown by United Airlines crews. Bombardier has also had a similar scheme for several years and it is one of the programs that have contributed to the success of its corporate jet program.

It is likely that this trend, coupled with the decreasing capacity of major hub airports, will result in these type of aircraft utilizing general aviation airports and airports that do not have capacity restrictions in the future. Significantly for the TCCA, airports that offer access as well as proximity to the downtown core will be highly sought after by this aviation sector.

V. ECONOMICS

A. Introduction

The Toronto City Centre Airport is located on the doorstep of Toronto's business and financial centre and the city's commercial core. Its proximity to downtown Toronto is the main reason business travellers prefer to fly through the Airport. The Airport is ideally situated to provide quick access to all of Metropolitan Toronto's surrounding area through the transportation links of Via Rail, GO Trains, and the subway and bus system.

In 2000, approximately 115,000 passengers passed through the Airport. It had 150,454 take-offs and landings (movements), ranking it 12th in aircraft movements at Canadian airports with NAV Canada control towers. Through scheduled routes provided by one commercial carrier, the Airport provides direct links to Ottawa, Montreal and London. In addition to the one airline, 23 other businesses operate out of the Airport including fixed base operators, general aviation operators, aircraft maintenance companies, flight schools and charter companies.

Broken down by sector, there is one scheduled service carrier, twelve GA operators, six companies providing aviation services, two providing airport operations services, one company providing air traveller services (restaurant) and one that does not provide any related aviation services.

B. Direct Gross Output (Sales)

Direct gross output at the Airport was tabulated for the components of sales of goods and services. To protect the confidentiality of information provided by private operators, their information was aggregated in the categories of air carrier, GA, aviation/air traveller services, and airport operations.

Exhibit V-1 depicts the distribution of expenditure impact by activity category. Exhibit V-2 reports the direct expenditure impact. In 2000, direct sales were approximately $70 million. The Acres study of 1987 recorded sales of $48 million. Sales increased at an average annual rate of 3% from 1987 to 2000, versus an average inflation rate of 3.5%. This is consistent with the declining business levels at the Airport.

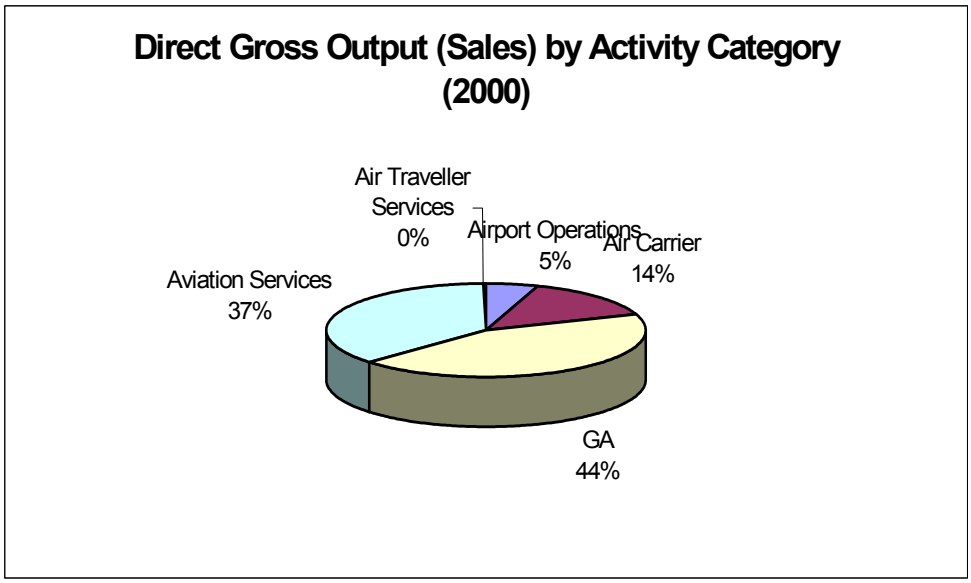


Exhibit V-1. Year 2000 Direct Gross Output

Exhibit V-2. Year 2000 Direct Expenditure Impact

Category	Direct Expenditures
Airport Operations	$3,703,000
Air Carrier	$10,000,000
General Aviation	$30,750,000
Aviation/Traveller Services	$25,950,000
Total	**$70,403,000**

Of the $70.4 million, approximately $27.4 million would be lost completely if the Airport did not exist, as these businesses could not or would not operate at other airports.

C. Direct Employment

Exhibit V-3 reports the employment by activity at the Airport, and Exhibit V-4 illustrates the percentage breakdown of employment. There are currently 331 people employed at the Airport versus 412 in 1987, a decrease of 20%.

Exhibit V-3. Year 2000 Direct Employment Activity

Category	Direct Employment
Airport Operations	52
Air Carrier	30
General Aviation	201
Aviation/Traveller Services	48
Total	**331**

Of the 331 employees, seven are not related to passenger service or general aviation and do not need to be situated at the Airport or any other airport. Of the remaining 324 in direct employment, if the Airport were to close down, 135 full-time equivalents could be employed at other GTA airports, while the remaining 189 employees would need to seek employment in other areas.

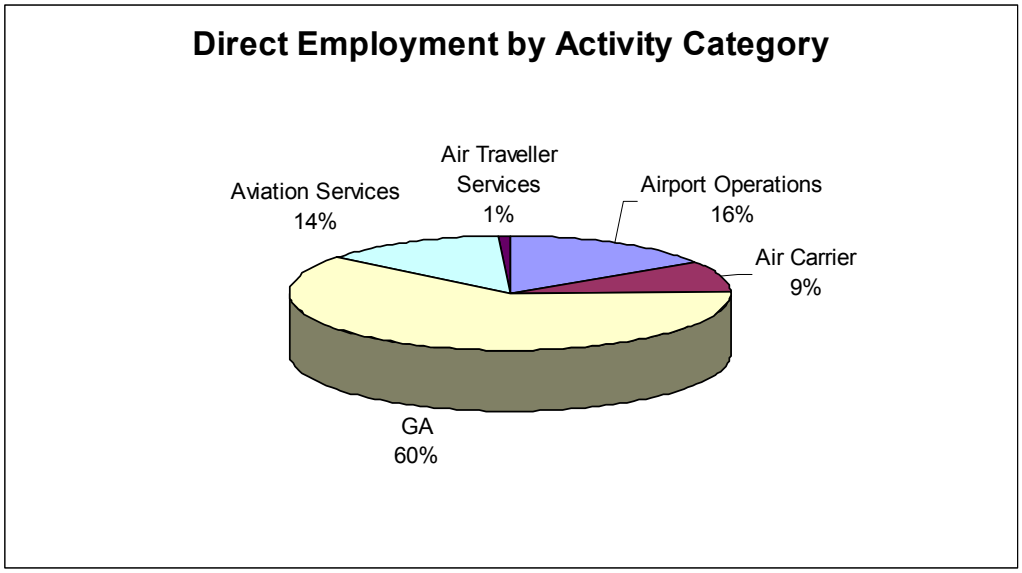


Exhibit V-4. Composition of Employment 2000 Toronto City Centre Airport

D. Indirect and Induced Impacts

The major component of indirect and induced impacts is the spending by visitors on accommodation, food, attractions etc. This indirect output was primarily generated by the business traveller and generally benefits the City of Toronto rather than the regions. Note that 73% of Airport passengers are visitors (outside of the GTA region), and 94% of the Airport's passengers travel for business purposes.

Standard industry multipliers, as provide by Statistics Canada, were used to calculate the indirect and induced economic impact.

E. Total Impact

The total economic impact for the year 2000, as measured by expenditure or employment, is summarized in Exhibit V-5.

Exhibit V-5. Total Economic Impact in 2000 Toronto City Centre Airport

	Gross Output	Employment
Direct Impact	$70.4 M	331
Indirect +Induced Impact	$45 M	651
Total Impact	**$115.4 M**	**982**

F. Other Economic Considerations

Passenger traffic declined by 297,000 or 72% over the 11 year period from 1987 to 1999, from 412,000 E/D passengers to 115,000 E/D passengers. Total air traffic movements fell 25%, with the largest decline being in scheduled movements as a result of the demise of City Express and the slow decline of Air Ontario at the site. Slow erosion in the general aviation traffic was also noted over this period as the total number of based aircraft declined. During this same period, domestic and transborder traffic increased at LBPIA, and it is believed that the declining usage of the Toronto City Centre Airport was primarily associated with:

- The lack of US preclearance as open skies was introduced;
- The preference for jet service; and
- A lack of marketing and development from the incumbent scheduled carrier.

VI. OTHER CITY CENTRE AIRPORTS

A. Introduction

The study examined other city centre airports around the world. They can be thought of as falling into two categories - those with scheduled commercial services, and general aviation airports. Of the airports examined, the following offer scheduled services:

- London City Centre;
- Stockholm Bromma;
- Belfast;
- Midway; and
- Reagan (Washington).

Of the city centre airports that were investigated, the following airports are basically general aviation airports but service a large number of itinerant general aviation movements, most notably business jets:

- Knoxville;
- Edmonton City Centre;
- Columbia Owens (SC);
- Kansas City Downtown;
- Detroit City Center;
- Teterboro; and
- Meigs Field (Chicago)

Each of these airports is discussed below.

B. London City Centre

London City Centre Airport was constructed in 1987 and was designed to serve STOL aircraft that could maintain a 5.5° glide slope on approach to the airport. Initial service was provided with DHC-7 aircraft. The runway was extended in 1992, and the airport is now served by regional jets as well as several types of turboprop aircraft that can fly the steep approaches required and meet strict noise limitation requirements. The single runway is 1,199m long and has precision approaches.

The airport is only open on weekdays from 6:30 a.m. to 10:00 p.m. and advertises itself as the Business person's airport. Usage of the airport has been steadily increasing and aircraft movements are now in the order of 55,000 per year. Passenger utilization was 1.58 million in 2000 a 14% increase over 1999.

The airport has an extensive community relations program that includes a Community Advisory Committee and it holds several open houses a year with various themes for the local community. It is also interesting to note that a school borders the airport, and is located within 500 m of the runway, but the noise level in this school is modulated through the use of hangars as sound barriers.

The airport has built up a loyal following among business travellers and is aiming to handle between 3.5 and 4 million passengers by 2010.

C. Stockholm Bromma

Bromma Airport was originally opened in 1936 as the main airport serving Stockholm and was transformed in 1992 to a city center airport. It is situated approximately 8 km from the city core and is open daily between 6 a.m. and 10 p.m. The airport currently processes approximately 800,000 passengers and 80,000 aircraft movements per year.

Bromma has a single runway (12/30) that is 1,787 m long but is only certified for 1,200 m. In other words the aircraft utilizing the site have to be certified for operations on a 1,200 m runway. The site is used by five scheduled airlines serving both international and domestic destinations.

D. Belfast City

Belfast City Airport was originally opened in 1938 but was only opened to commercial traffic in 1983. The Airport is located within the boundaries of the city of Belfast in a mixed-use neighbourhood that includes industrial, commercial and residential uses. The airport provides a high frequency short-haul point-to-point service within the UK. Aircraft servicing the site include various sizes of regional turbo-prop and jet as well as B-737 and A-320 size aircraft. The site has a precision approach 6,000 ft. runway (04/22) and is operational between the hours of 6:30 a.m. and 9:30 p.m. daily. The airport serves approximately 1.4 million passengers per year and is ISO 9002 certified.

The airport has strict noise regulations that include a requirement that all aircraft using the site meet ICAO Annex16, Chapter 3 requirements at a minimum. The airport also has a dedicated departure procedure that directs aircraft away from noise sensitive areas. The site also has an active airport consultative committee that is composed of local authorities, residents, environmental groups and airlines that examine airport operations and make recommendations to the operator.

E. Midway (Chicago) and Reagan (Washington)

These two airports are considered together as although both are close to the centre core of the cities they serve they cannot be considered as commuter or regional type airports. Midway is a point-to-point airport as opposed to a hub airport, located ten miles from downtown Chicago, while Reagan airport serves domestic points in the US and some Canadian airports and is located just three miles from the White House. Both airports are operational 24 hours per day, although Midway has a voluntary air carrier curfew in place between the hours of midnight and 6 a.m. Midway served 15.6 million passengers in 2000 on 298,000 aircraft movements. Reagan Airport served 16.2 million passengers on 195,000 movements by the 21 airlines operating at the site.

In terms of noise programs, Midway has an extensive noise mitigation program. It includes a Noise Compatibility Commission that is involved in the planning of noise relief measures as well as noise monitoring, composed of representatives from the surrounding communities. It also has a fly quiet program that imposes various noise abatement procedures on the airlines using the airport including: noise abatement flight procedures (i.e. reduced power departures), preferred runway utilization, and departure procedures that turn aircraft away from residential areas where possible.

F. Knoxville

The Knoxville Downtown Island Airport was constructed in the 1940's, and is located less than three miles from downtown Knoxville on an island in the Tennessee River. It is connected to the mainland by a bridge. It is a general aviation airport that is the base for more than 143 private and corporate aircraft that processes approximately 100,000 movements per year. It has a single 3,500 ft. runway (8/26) with a 4°approach and is open from 6 a.m. to 10 p.m. daily. It has a control tower that is staffed by the FAA on an as required basis to service anticipated high traffic demands during special events. There are no

restrictions on the type of aircraft permitted to use the site except those imposed by runway limitations. Noise abatement consists of approved departure procedures that call for aircraft to avoid residential areas.

G. Edmonton City Centre

Edmonton City Centre Airport was constructed in 1928 and is located 10 minutes from downtown Edmonton. Until 1995 it served commercial scheduled service by airlines using B-737's and smaller jet and turbo-prop equipment. In 1995 this traffic was transferred to Edmonton International Airport and this site became a general aviation airport, although it is still listed as a reliever to the international airport. The site can service up to 185,000 aircraft movements a year on its two runways by all types of general aviation and corporate aircraft, including jets, but current usage is in the order of 91,000 movements. The airport is operational 24 hours per day and is leased to the Edmonton Airport Authority.

H. Columbia Owens (South Carolina)

This airport was built in 1929 and is located 1.5 miles from downtown Columbia. It is a general aviation airport with one runway (13/31) and is open daily from 6 a.m. to 10 p.m. It has 121 based private and corporate aircraft, including one jet, and experiences on average 90,000 aircraft movements per year.

Of note with this airport is the level of community involvement it seeks out through the use of open houses, and special events such as air museum shows. It is part of the airport's management philosophy to treat the local community as partners in its operations and to get them involved in the operations of the airport.

I. Kansas City Downtown

Kansas City Downtown Airport was built in 1929 and served as Kansas City's main airport until 1972 when commercial scheduled operations were transferred to the Kansas City International Airport. The site now basically serves private and corporate general aviation, but it is still the primary reliever for the international airport. Unless serving in the reliever role, the airport is closed to aircraft with more than 30 passenger seats. It has 295 based aircraft, including 40 jets, and an average of 140,000 movements per year on its two runways. This airport serves most of the aviation needs of the Kansas City business community.

This airport is also the host of several special events open to the public including vintage aircraft displays and the FAA Aviation Expo.

J. Detroit City Center

This airport was constructed about 1930 and has basically served as a general aviation airport although attempts have been made over the past several years to attract scheduled commercial air service. It has 179 based corporate and private aircraft, including 10 jets, and is served by one scheduled carrier that provided service to 327,000 passengers in 2000.The airport mission statement provides that the airport will serve public and private aviation needs of southwest Michigan.

K. Teterboro

Teterboro Airport was established in 1919 and is currently billed as the Executive Aviation Gateway to New York due to its location less than twelve miles from mid-town Manhattan. It is open 24 hours per day and its two runways service 183,000 aircraft movements per year with published weather minima of 200 ft and ½ mile. Its role in the US aviation system is described as a general aviation reliever airport. The only aircraft restriction on site is that the aircraft must weigh less than 100,000 pounds, and as a result it is served by a broad range of general aviation and corporate aircraft. It has no scheduled commercial aircraft service.

The airport is owned and operated by the Port Authority of New York and New Jersey and is ISO 9002 certified.

In terms of community relations, the airport is a founding member of the Aviation Hall of Fame and Museum of New Jersey, which is located on the airport. The airport also sponsors a scholarship program for local students in aviation related disciplines and holds events such as the “Runway Run” for local charities.

The airport also has a permanent noise monitoring system and an Airport Consultative Committee on Noise (TANACC). This committee, which is composed of various state and local elected officials and airport users, recommends noise mitigation procedures and monitors the noise activity at the site. The airport has designated Runway 1/19 as a preferential noise abatement runway, and avoids flights over published noise sensitive areas. It also has a 24 hour noise hotline to respond to noise complaints.

L. Meigs Airfield

Meigs Field is a general aviation airport with a single runway, located in the heart of Chicago on the edge of Lake Michigan. It is open daily from 6 a.m. to 10 p.m. The airport lies directly in the approach path for Chicago-O'Hare International Airport and thus has restricted airspace: the airspace for the airport is closed from 10p.m. to 6 a.m. The single runway has a visual approach from one end (the shore approach) and a published GPS approach at the other end. The airport also has a small terminal building that serves a regional carrier (United Express) which flies 19-passenger aircraft between Springfield (the state capital) and Chicago four times daily. The airport serves approximately 100,000 annual passengers. The site averages 132 aircraft operations per day that are 90% transient general aviation and 5% commercial carrier.

Meigs Field was temporarily closed in 1996 by the City of Chicago and was reopened in early 1997 as the result of an agreement between the City and State governments. This agreement expires in February, 2002, and at this time the airport is scheduled to be closed and redeveloped by the City into parkland.

M. Summary

In examining these airports it was determined that the successful sites were viewed as economic development tools by their communities and all had the following common traits that were responsible in large measure for their ongoing success:

- Good access to the city centre business, shopping and cultural attractions;
- Customer service focus;
- Limited hours of operation (typically 06:30 to 22:00);
- Community centred (open houses, displays, advisory committees etc.);
- Served by commercial and/or corporate jet aircraft; and
- Noise sensitive (Chapter 3, abatement procedures, noise monitoring, complaints hot line, strict enforcement).

In examining the Toronto City Centre Airport against these criteria it was found that the site had most of the attributes required for success, but is constrained by the Tripartite Agreement and the limitations imposed by ferry access.

VII. SCENARIOS FOR THE FUTURE

A. Introduction

The Toronto City Centre Airport is at a crossroads: continuing on the current path will see ongoing deficits and ultimately the cessation of scheduled service at the Airport, at least for a period until the congestion at Pearson causes a re-evaluation of the role of the Airport in the region.

To examine the full range of possibilities for the Airport, a number of scenarios for the future were developed. The scenarios were selected to represent the widest possible range of realistic outcomes for the Airport and are defined by traffic type. Each scenario includes:

- A description of the scenario, including constraints, infrastructure requirements, and the general type of traffic anticipated;
- A traffic forecast, based on an assessment of potentially viable markets;
- A financial forecast, projecting the capital requirements, and operating impact of the scenario;
- A noise forecast, linking the noise to the traffic forecast, and comparing the noise levels to the boundary conditions established in the Tripartite Agreement;
- A brief discussion of other environmental impacts; and
- An action plan identifying the steps required for the scenario to come to fruition.

The scenarios are:

Scenario 1 - Baseline: This scenario envisions continuation of the status quo. Because an econometric approach cannot be used (historically declining traffic during economic growth), two variations on this scenario were developed: high at about 2.8% growth per year, reflecting overall economic growth; and low, with scheduled passenger traffic continuing the 10% per year decline experienced since 1986.

To answer the question, "can the Airport be financially viable if the current operations and traffic mix continue", changes to the fee structure were developed and tested on the high and low variations of the status quo scenario. These additional variations are called Status Quo Low Enhanced and Status Quo High Enhanced.

Scenario 2 - Expanded Turboprop Service: It is assumed for this scenario that the Tripartite Agreement remains unchanged, except with respect to providing a fixed link (or other access improvement). It is also assumed that commuter operations with DHC8 or similar turboprop equipment are provided to a variety of viable transborder and domestic markets. To support the forecast traffic growth, a new terminal ($20 million), improved access ($16 million), and improved approach aids ($1.5 million) are assumed as capital costs. Traffic levels are tested to ensure that the noise levels are within the parameters established in the Tripartite Agreement.

Scenario 3 - Jet Service: This scenario assumes that the Tripartite Agreement has been modified or replaced by a regime that permits small commercial and corporate jet aircraft that meet stringent noise criteria and that constrains overall traffic levels so that noise levels are contained within the parameters of the Tripartite Agreement. To support the forecast traffic growth, a new terminal ($20 million), improved access ($16 million), improved approach aids ($1.5 million) and runway strengthening ($2 million) are assumed as capital costs. Traffic levels are tested to ensure that the noise levels are within the parameters established in the Tripartite Agreement.

This scenario included three variations. Market viability and traffic volumes were estimated for operations with 32-seat jets (like the Do328J), 50-seat jets (similar to the CRJ), and 72-seat jets (like the BAe 146). These variations were used to assess the impact on traffic levels and noise.

B. Common Assumptions

Traffic Assumptions

- General aviation movements, itinerant and local, are assumed to remain constant at 98,000, except in the Jet Scenario, where local movements are phased out in 2010 to keep total traffic within the noise parameters;
- Small commercial movements, other than scheduled services, are assumed to remain constant;
- For all traffic scenarios, market assessments were prepared for 2003 and 2020. Traffic growth in the intervening years was calculated using compound growth factors; and
- For the Turbo and Jet scenarios, each shorthaul market to domestic and transborder destinations was examined. The total current O-D traffic on the market was considered, a market share estimated for

Toronto City Centre Airport traffic, and the passenger volumes and flight frequencies calculated based on these estimates. Where a minimum of three turns per day is not viable, there is assumed to be no service in the market. The reason for this approach is that it is assumed that the Airport will always serve a niche role. Its landmass and runway length mean that it is unrealistic to think of it growing to serve all markets. Under the most optimistic approach, it will serve primarily business traffic to the financial core of Toronto from the major government and business centres in the East - Montreal, Ottawa, Boston, New York, Washington, Chicago, and possibly a few other centres.

- In determining the number of aircraft movements, two criteria were used. The first criterion was the number of supportable flights within each short-haul market. The total number of flights was then checked against the noise parameters of the Tripartite Agreement. If noise parameters were exceeded, then traffic was reduced in the following order:
  - Local general aviation;
  - Itinerant general aviation; and
  - Scheduled services.

Financial Assumptions

- Many of the revenues vary with movements and passenger traffic and vary by scenario, but for all scenarios:
  - Land rental revenues are left constant in constant dollar terms, even in high growth scenarios. This may understate these revenues;
  - One half of parking revenue is linked to passenger growth;
  - Rentals. Where there is a new terminal, it is assumed that 20,000 sq.ft. of the terminal floorspace is rentable (with pax fees covering hold rooms), at a fully allocated annual cost of $35/sq. ft = $700,000.
- For the Enhanced Baseline, Turbo and Jet scenarios, the revenue assumptions in the financial model also assume changes to the fee structure at the Airport. The changes reflected in the model include:
  - Landing fees for large commercial aircraft are set be equal to those charged at Pearson during peak hours – that is a minimum fee of $120 per landing for aircraft up to 19 tonnes and $13.79 per tonne for aircraft over 19 tonnes;
  - The Passenger Utilization Fee at the Airport would be equivalent to Pearson's General Terminal Fee in structure and level – that is $4.40 per seat for domestic arrivals and $5.50 per seat for international/transborder arrivals; and

- A $10 Airport Improvement Fee dedicated to funding the capital program would be imposed, where a capital program is envisaged.

- Many of the expenses are fixed in constant dollar terms, but the following assumptions were used to vary expenses:
  - Salary and benefits, increase 2% real every five years;
  - Consulting goes to $50,000/year after 2002;
  - Realty taxes increase to reflect the capital program in each scenario - 1% of the capital cost is used as an estimate;
  - Interest and amortization vary in accordance with the investment level for each scenario;
  - Utility costs increase in proportion to passenger traffic;
  - Security costs triple in 2004 for scenarios with fixed link;
  - Insurance costs increase by 10% for high traffic scenarios; and
  - In both the Turbo and Jet scenarios, staffing levels were held constant. It was assumed that ferry staff FTE's would become Airport FTE's. Although a fixed link would eliminate ferry staffing, growth to passenger volumes similar to those experienced in the mid-1980's or higher would require more airport maintenance and operating staff.

C. Scenario 1 - Baseline

Scenario 1 was developed to examine the impacts of a continuation of the status quo. Because traffic at the Airport has been declining while overall traffic in the Toronto-Ottawa, Toronto-Montreal and Toronto-London markets has been growing, two traffic variations were used:

- A low scenario with traffic continuing to decrease at the rate of decrease of the past years; and

- A high scenario, with traffic growing at 2.5% per year, roughly in line with long-term economic growth.

Traffic

Exhibits VII-1 and VII-2 illustrate the traffic forecasts for both scenarios. Appendix C contains the traffic forecasts. In the high scenario, scheduled service movements grow from approximately 11,400 movements in 2001 16,600 movements in 2020. Passenger traffic would increase from 105,000 E/D passengers in 2001 to 143,000 in 2020, a level similar to that in 1994, and about one-third of the level in 1987.

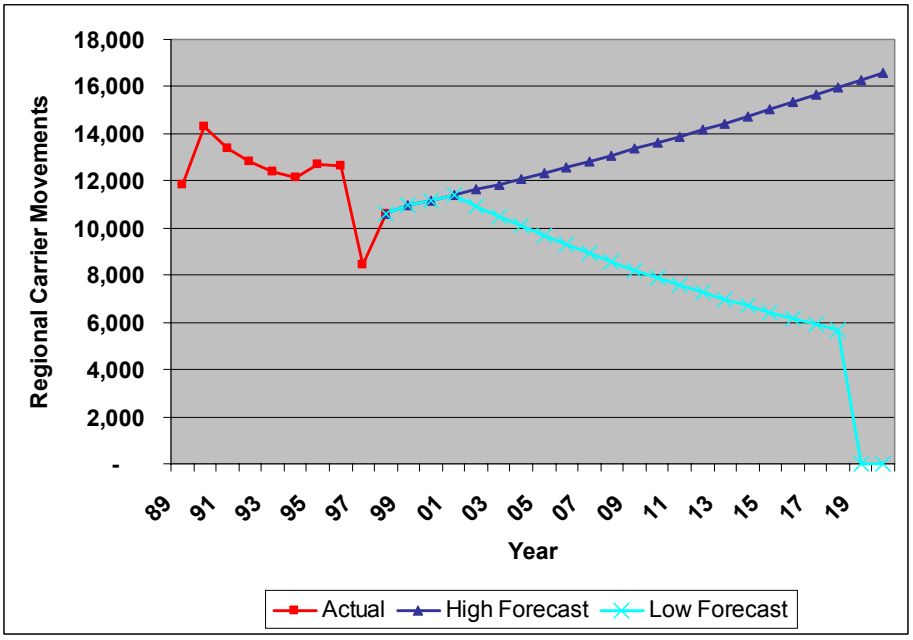


Exhibit VII-1. Baseline Scenarios - High and Low Regional Carrier Movement Forecasts to 2020

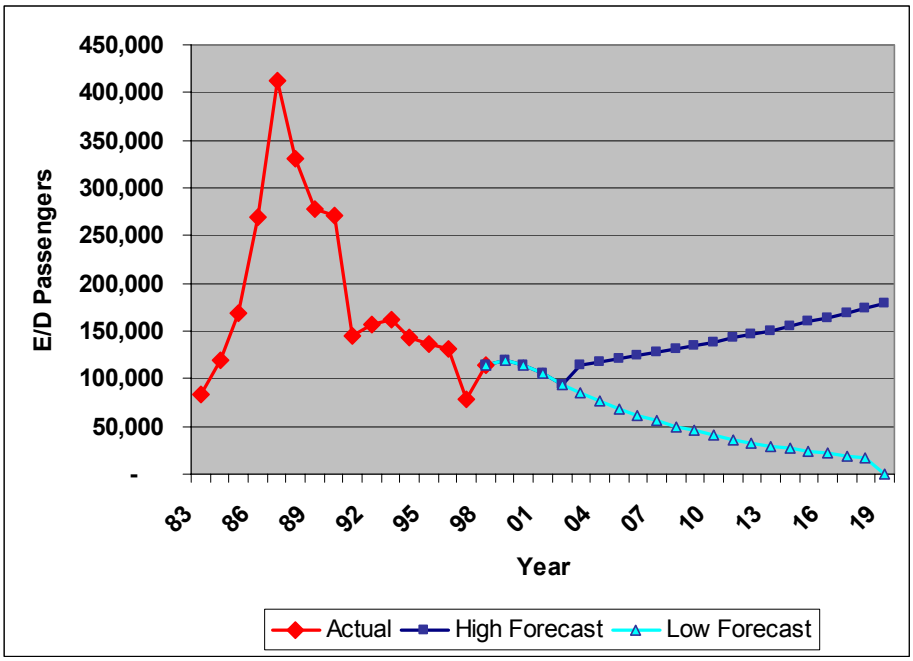


Exhibit VII-2. Baseline Scenarios - High and Low Enplaned/Deplaned Passenger Forecasts to 2020

In the low scenario, passenger traffic decreases to a level of 17,500 in 2018, then collapses as unsustainable. In reality, it is our belief that scheduled services would cease well before this minimum level is reached.

Financial

Financial forecasts for the Airport were prepared for the high and low scenario, and for a scenario with landing fee and passenger fees set equivalent to Pearson. Exhibit VII-3 summarizes the financial results. Appendix D contains the detailed financial forecasts.

Only under the Baseline High Enhanced Scenario is the Airport viable. With the low traffic scenarios and even with the High Baseline Scenario without changes to the fee levels, the Airport shows operating losses throughout the forecast period. Even in the High Enhanced Scenario, the net present value of operating surpluses, discounted at a 5% real discount rate, is insufficient to provide a meaningful capital program for the Airport. Financially, none of the baseline scenarios are attractive.

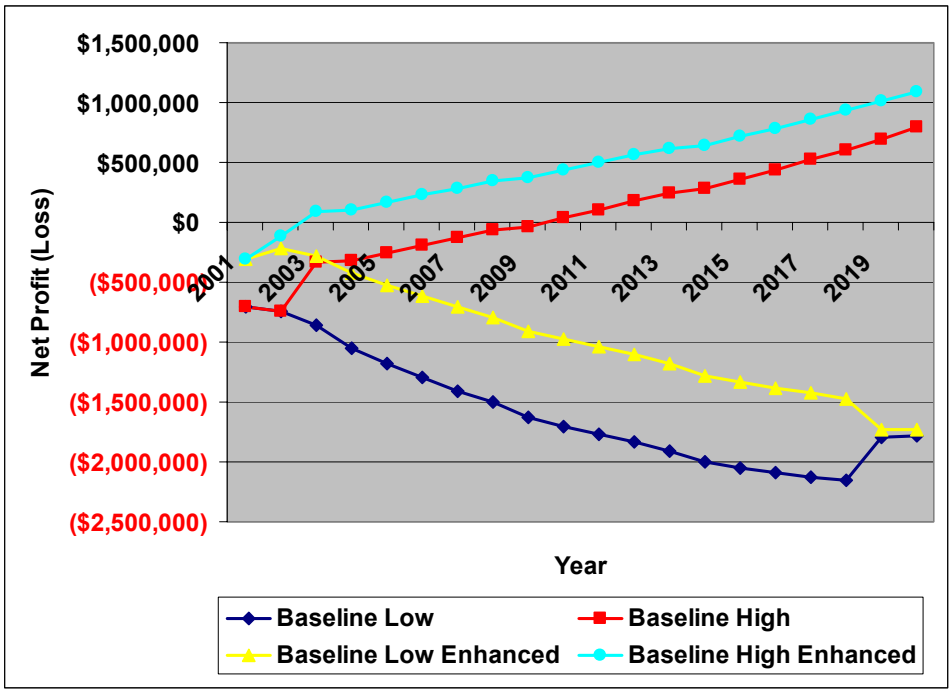


Exhibit VII-3. Baseline Scenarios - Net Profit/Loss Forecasts. Constant 2001 Dollars

Economic

For the Baseline Low Scenario, using year 2000 dollars, the cumulative effect on total gross output over the 17-year period between 2003 and 2020 is $1.8 billion. This is made up of $1.1 billion in direct gross output, and $724 million of indirect and induced gross output. Exhibit VII-4 provides a summary of these outputs.

Exhibit VII-4. Baseline Low Scenario Economic Output to 2020 (Millions 2000 $)

	Direct Output	Indirect+ Induced Output	Total Output
Cumulative	$1,129	$724	$1,853
Annual Average	$63	$40	$103

Of note is that 96% of the direct output is related to non-scheduled activity. This is due to an assumption that scheduled traffic will continuously decrease until it ceases completely by 2018. At that point, the GA community will generate the only economic activity.

For the Baseline Low Scenario, direct employment levels are expected to decline as scheduled services are reduced. A total drop by 10% is expected, for a total employment level of 299. Indirect plus induced employment however is estimated to be 588 FTE's, for a total of 887.

For the Baseline High Scenario, the cumulative effect on total gross output over the 17-year period between 2003 and 2020 is $2.1 billion, composed of $1.3 billion in direct gross output, and $816 million in indirect plus induced gross output. Exhibit VII-5 summarizes the estimated economic impact of this scenario.

Exhibit VII-5. Baseline High Scenario Economic Output to 2020 (Millions 2000$)

	Direct Output	Indirect+ Induced Output	Total Output
Cumulative	$1,273	$816	$2,089
Annual Average	$71	$45	$116

Of the direct output, 85% is related to non-scheduled activity. This is significant in that although passenger traffic is increasing, it is of little relevance with respect to gross output.

Direct employment levels are expected to remain constant at 331 FTE's as most operations are currently underutilized and could handle increased passenger traffic. Indirect plus induced employment, however, is estimated to be 982 FTE's.

Aircraft Noise

Throughout the planning period to 2020, the noise produced by air traffic stays within the Tripartite Agreement parameters. Section F of this chapter summarizes the noise estimates.

Action Plan

There are no actions required of the Port Authority to achieve the Baseline Scenarios. For the Baseline High Scenario to be achieved, there would need to be a significant change in the marketing of the scheduled services, by the carrier or by the Airport and the carrier together.

D. Scenario 2 - Expanded Turboprop Service

This scenario reflects traffic growth of the type already serving the Airport. Scheduled services with DHC8 or equivalent aircraft would increase significantly and quickly with either the arrival of a new, based carrier, or a change in strategy by Air Ontario. All viable short haul domestic and transborder markets would be served. To support the forecast traffic growth, a new terminal, improved access, and improved approach aids would be developed in 2003.

Traffic

With a clear commitment to the Airport's future, it is believed that there are several carriers that would be interested in operating domestic and transborder services from the Airport. The approach taken was to assume start of operations to all viable markets in 2003, and to forecast traffic for 2003 and 2020. Exhibit VII-6 summarizes the forecast viable markets with 38 seat turboprop aircraft on mainline and transborder services, and 19 seat turboprop aircraft on northern services, except where a larger aircraft is supportable by the forecast demand. Appendix C contains the market-by-market assessment.

In this scenario, the market shares of the total O-D market in the domestic and transborder short haul markets are: mainline 6%, north 12.6%, transborder 8.4%. Given the 20% market share of the mainline

routes that the Airport had at one time, these market shares appear to be achievable.

Exhibit VII-7 illustrates the forecast carrier movements on a year-by-year basis and Exhibit VII-8 the forecast total movements at the Airport. Total movements to 2020 are forecast to increase by 17% to approximately 175,000/year.

Exhibit VII-6. Turboprop Scenario - Forecast Viable Markets, Enplaned/Deplaned Passengers and Large Turboprop Movements 2003 and 2020.

Viable Markets	2003	2020
Mainline	Ottawa Montreal	Ottawa Montreal
North	Sault Ste. Marie Thunder Bay Quebec	Sault Ste. Marie Thunder Bay Quebec Timmins Sudbury
Transborder	New York Chicago Boston Washington Philadelphia	New York Chicago Boston Washington Philadelphia
E/D Passengers	423,951	652,574
DHC8 Movements	22,360	29,120
19-Seat Movements	1,560	4,680

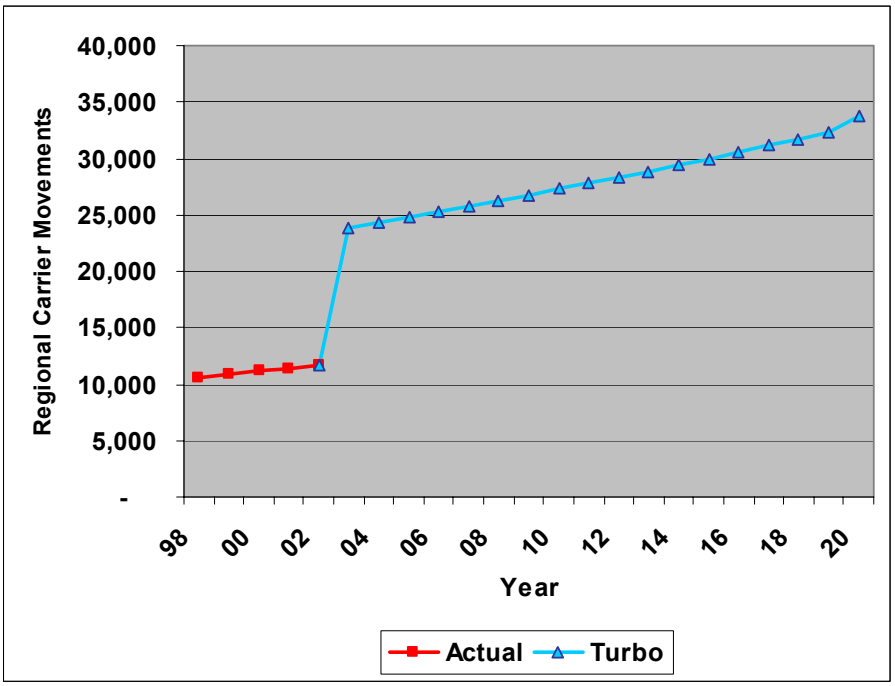


Exhibit VII-7. Turbo Scenario - Actual and Forecast Scheduled Service Movements 1998-2020

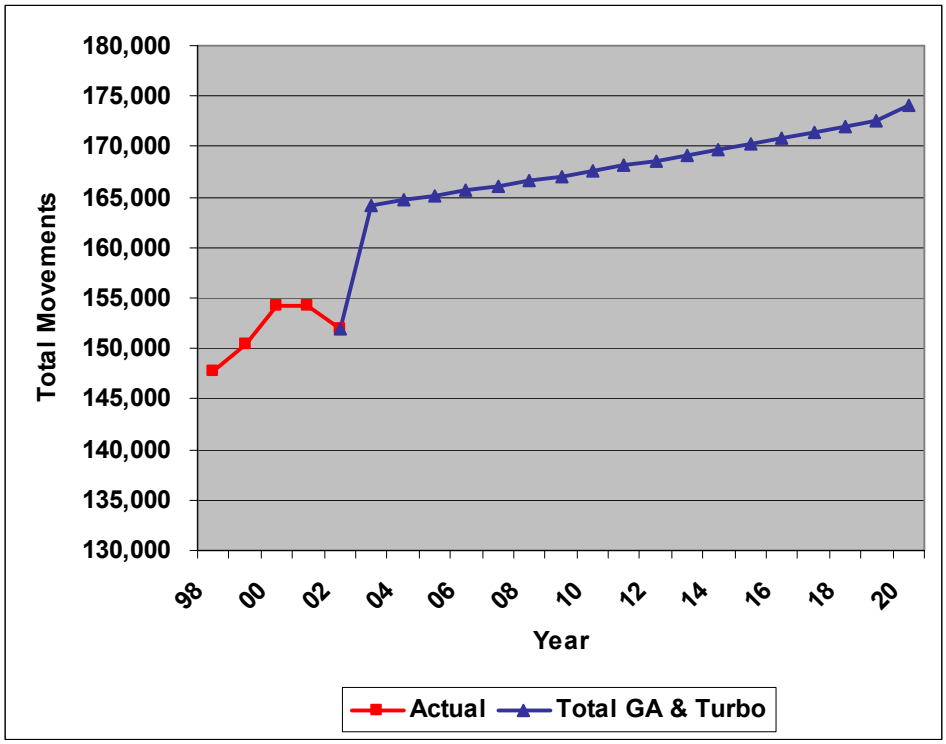


Exhibit VII-8. Turbo Scenario - Total Movements Actual and Forecast 1998-2020

Passenger traffic takes a one time jump as new services are initiated, then grows at 2.5% per year to 2020. Exhibit VII-9 illustrates the forecast passenger traffic growth for this scenario.

Would a new, based carrier be large enough to be viable? There are many examples of viable regional carriers with 10-20 aircraft, and serving primarily a single hub in the US and international markets, including CCAir in Charlotte, Chicago Express in Chicago Midway, Corporate Air in Chicago Midway, Midway Airlines in Raleigh, PSA in Pittsburgh, City Flyer in the UK , Crossair in Switzerland, Eurowings and Malmo Air in Sweden. What several of these carriers share is that they are based in city centre airports and use this to provide a competitive position against the larger carriers in their area.

Financial

Under this scenario, the Airport is profitable, as soon as the expanded services are commenced. As Exhibit VII-10 illustrates, net income increases from approximately $1 million per year in 2004 to $5 million per year in 2020 in constant 2001 dollars. (The spike in 2003 is caused by traffic growth without the annualized costs of the capital program,

which commence in 2004). This result is consistent with expectations - airports tend to have high fixed costs, and revenues variable with traffic, so that changes in traffic levels can dramatically change the financial picture.

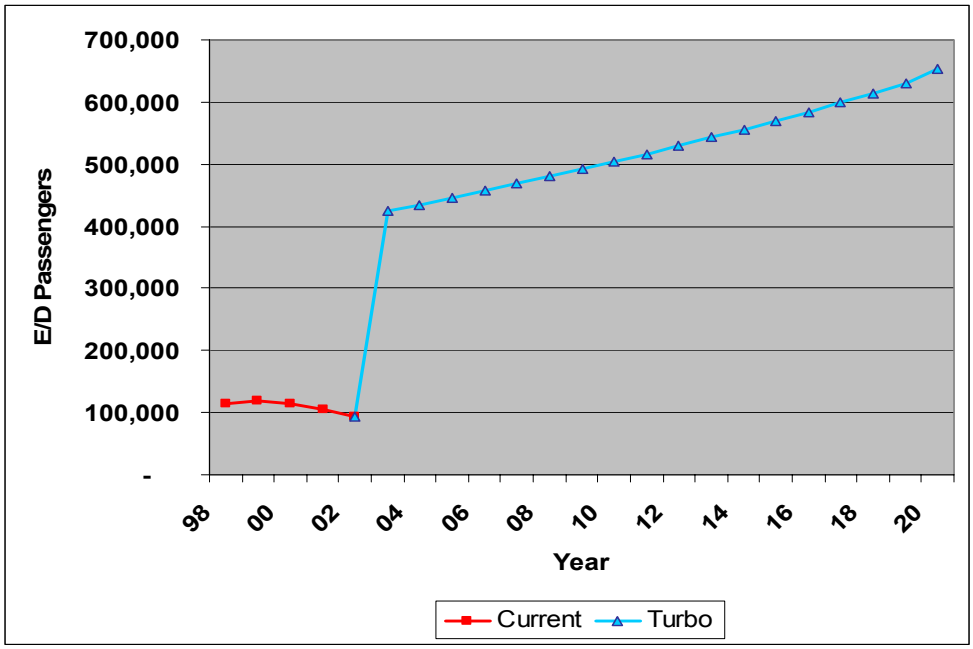


Exhibit VII-9. Turbo Scenario - Enplaned/Deplaned Passenger Forecasts to 2020

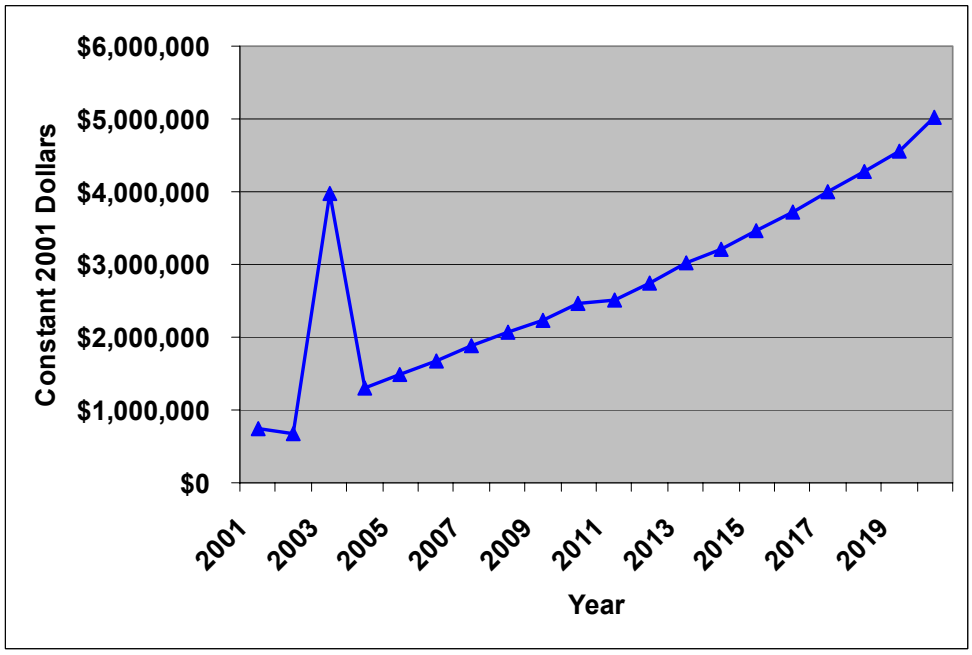


Exhibit VII-10. Turbo Scenario - Forecast Net Profit (Loss) 2001-2020

This scenario shows viability from 2001 in part because an AIF is assumed to be introduced to support the capital program. For this scenario, the net present value of the cash flow 2001-2020 at a 5% real discount rate is $45.2 million, indicating that the assumed $37.5 million capital program is financeable.

Economic

Using year 2000 dollars, the cumulative effect on total gross output for this scenario is summarized in Exhibit VII-11. For the 17-year period between 2003 and 2020, the total is $3.4 billion.

Exhibit VII-11. Turbo Scenario Economic Output to 2020 (Millions 2000$)

	Direct Output	Indirect + Induced Output	Induced Output	Total Output
Cumulative	$2,095	$1,342	$2,833	$3,437
Annual Average	$116	$74	$157	$190

For this scenario, 51% of the direct output is from scheduled passenger service. This is significant increase from the two baseline scenarios: the focus has now changed to scheduled passenger activity.

Direct employment levels are expected to increase by approximately 200 assuming that additional carrier(s) use the Airport as their home base, however local traffic is expected to cease in 2011 whereby 70 FTE's would be unemployed. During the years 2003 - 2010, direct employment levels are estimated to be 531 FTE's, and indirect plus induced at 1,045 for a total of 1,576 FTE's. During the years 2011 - 2020, direct employment is expected to be 461 FTE's, and indirect plus induced at 907 for a total employment level of 1,368.

Aircraft Noise

Throughout the planning period to 2020, the noise produced by air traffic stays within the Tripartite Agreement parameters. Section F of this chapter summarizes the noise estimates.

Action Plan

The action plan to achieve this scenario is:

- To request proposals for a new/expanded carrier operation at the Airport to serve domestic and transborder operations with quiet turboprop aircraft;
- In parallel, to finalize the method of providing improved access, whether it is fixed link or other, to provide a one-way peak hour capacity of 250 passengers at a high level of service, and to obtain tri-party agreement on the method. The current ferry service cannot provide the capacity or level of service to serve passenger traffic above about 400,000/year;
- To renegotiate leases, etc., as needed to provide the improved access;
- To obtain commitments from other tenants (FBO's, etc.) to invest in their facilities, contingent upon improved access and the Port's commitment to the Airport; and
- With a carrier selected and committed, to commit to the improved access plan and to terminal development on a fast track basis. Some risk sharing, cost sharing or deficiency agreements with respect to funding these facilities may be appropriate for current and new carriers.

E. Scenario 3 - Jet Service

Traffic

The basis of this scenario is that the noise parameters of the Tripartite Agreement would be honoured and enforced, but that there would no longer be a ban on quiet jets.

Within 10 to 20 years, it is anticipated that the 50-seat jet will become the backbone of the regional airline fleet in North America. Strong passenger traffic growth is foreseen owing to the passenger appeal of jet aircraft. Airlines that operate regional jet aircraft also report increases in both passenger load factors and average yields (fares) relative to turboprop models making this type of aircraft advantageous in a competitive marketplace. While it is anticipated that the 50-seat jet will be the most popular model, it is expected that all types-both larger and smaller - will be utilized to serve various markets. In this regard this scenario is divided into three sub-scenarios based on differing size jets that could be used from the Airport. These range from the Dornier 328J at 32 seats to the BAe 146-100 at 77 seats.

As was done for the Turbo Scenario, individual markets were assessed and service was provided to viable markets - jet service to mainline and US markets, and turboprop service to the North. In this scenario, movements were reserved for 20 Chapter 3 business jets per day and these were included in the traffic forecasts, the financial forecasts and the noise forecasts.

Exhibit VII-12 summarizes the forecast viable markets. Appendix C contains the market-by-market assessment.

In this scenario, the market share of the total O-D market in the domestic and transborder short haul markets are: mainline 7.6%%, north 9.8%% and transborder 13.3%.

Exhibit VII-12. Jet 50 Scenario - Forecast Viable Markets, Enplaned/Deplaned Passengers and Jet Movements 2003 and 2020.

Viable Markets	2003	2020
Mainline	Ottawa Montreal	Ottawa Montreal
North	Sault Ste. Marie Thunder Bay	Sault Ste. Marie Thunder Bay
Transborder	New York Chicago Boston Washington	New York Chicago Boston Washington Philadelphia
E/D Passengers	579,540	874,432
50-Seat Jet Movements	17,160	26,000
DHC8 Movements*	1,560	1,560
Business Jet Movements	3,380	5,200

* Northern routes cannot support jet service.

Exhibit VII-13 illustrates the forecast carrier movements on a year-by-year basis and Exhibit VII-14 the forecast total movements at the Airport. In this scenario, it is assumed that local GA movements are eliminated in 2010. Total movements to 2020 are forecast to decrease by 40% to approximately 92,000/year.

Passenger traffic takes a one time jump as new services are initiated, then grows at 2.45% per year to 2020. Exhibit VII-15 illustrates the forecast passenger traffic growth for this scenario.

Similar market assessments with 32 seat and 77 seat quiet jets yielded 852,010 and 961,532 E/D passengers, respectively, in 2020. All three

forecasts include 6-12 daily turns to New York and assume that slots at Newark would be available.

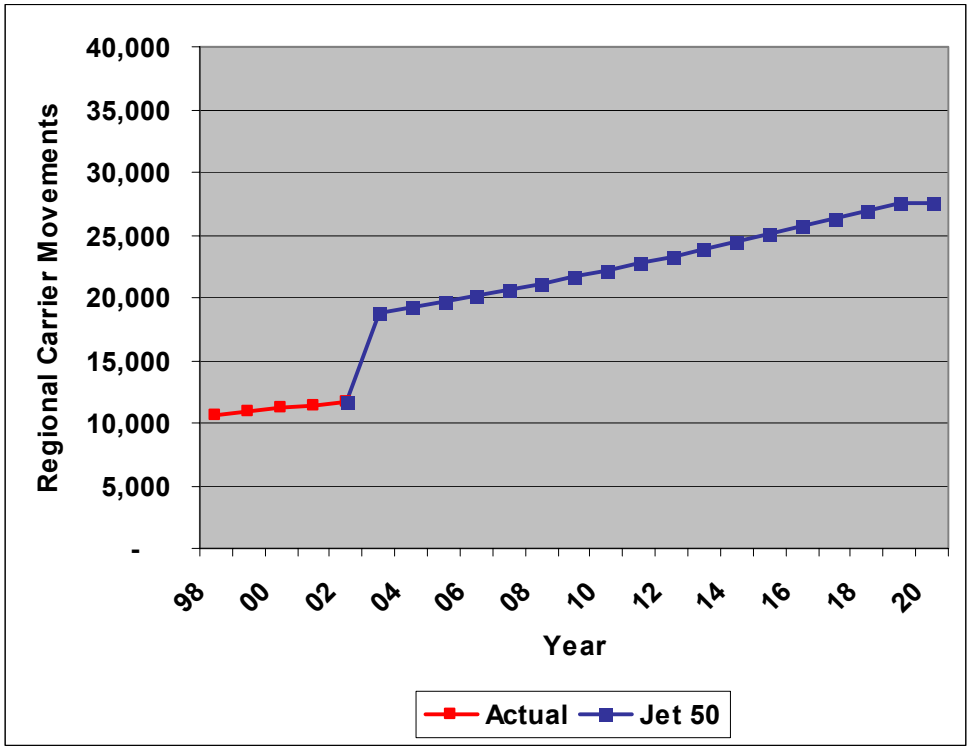


Exhibit VII-13. Jet 50 Scenario - Actual and Forecast Scheduled Service Movements 1998-2020

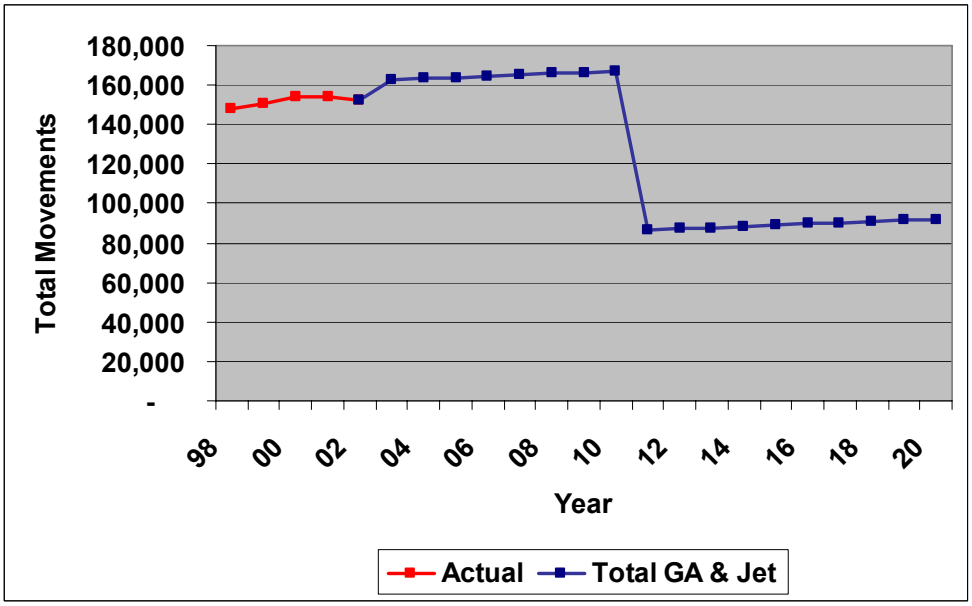


Exhibit VII-14. Jet 50 Scenario - Total Movements Actual and Forecast 1998-2020

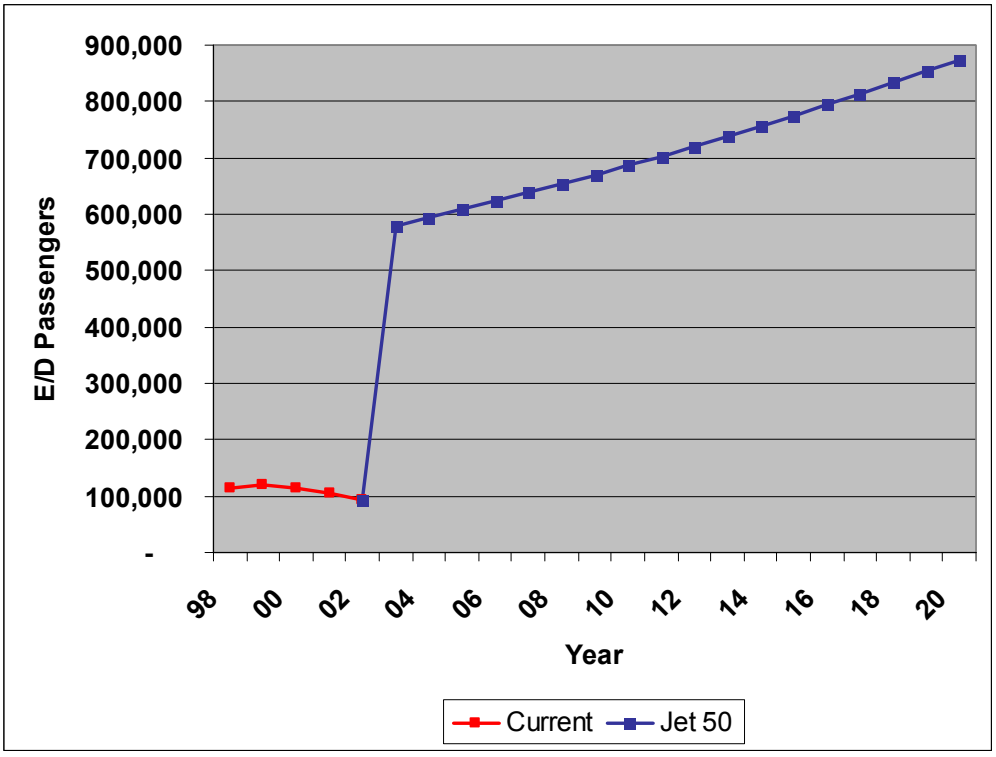


Exhibit VII-15. Jet Scenario - Enplaned/Deplaned Passenger Forecasts to 2020

Financial

Like the Turbo Scenario, this scenario indicates that the Airport would operate at an ever-increasing surplus. Exhibit VII-16 illustrates the forecast net profit or loss.

This scenario shows viability from 2001 in part because an AIF is assumed to be introduced to support the capital program. For this scenario, the net present value of the cash flow 2001-2020 at a 5% real discount rate is $74.7 million, indicating that the assumed $39.5 million capital program is financeable.

Economic

Using year 2000 dollars, the cumulative effect on total gross output over the 17-year period between 2003 and 2020 is $4.1 billion. This is made up of $2.5 billion in direct gross output, and $1.6 billion in indirect and induced gross output. Gross output is also expected to increase even further due to increase in fuel sales by the FBO, higher landing fees for jets, and the expectation that more private owners will fly into or base

their aircraft at the Airport, although this total amount cannot be estimated.

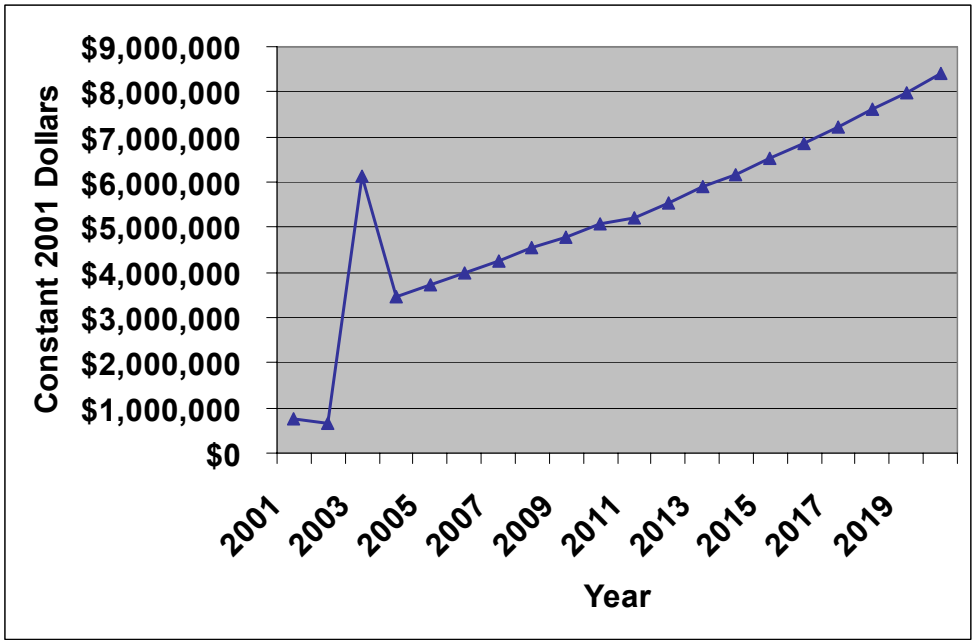


Exhibit VII-16. Jet 50 Scenario - Forecast Net Profit (Loss) 2001-2020

Exhibit VII-17. Jet 50 Scenario - Economic Output to 2020 (Millions 2000$)

	Direct Output	Indirect + Induced Output	Total Output
Cumulative	$2,510	$1,608	$4,118
Annual Average	$140	$90	$230

In this scenario, 58% of the direct output is related to scheduled services.

As with the turbo-prop scenario, direct employment levels are expected to increase by approximately 200 assuming a second carrier uses the Airport as its home base, however local traffic is expected to cease in 2011 whereby 70 FTE's would be unemployed. During the years 2003 – 2010, direct employment levels are estimated to be 531 FTE's, with indirect plus induced at 1,045 for a total of 1,576 FTEs. During the years 2011 - 2020, direct employment is expected to be 461 FTE's, with indirect plus induced at 907 for a total employment level of 1,368.

Aircraft Noise

Throughout the planning period to 2020, the noise produced by air traffic stays within the Tripartite Agreement parameters. Section F of this chapter summarizes the noise estimates.

Action Plan

The action plan to achieve this scenario is:

- To develop the details of an enforceable noise management plan that includes revised circuits, noise abatement procedures, weekend limitations, and an enforcement program;
- To obtain City and Transport Canada support for the use of quiet jets in concert with an enforceable noise management program;
- To tender for a new/expanded carrier operation at the Airport to serve domestic and transborder operations with quiet jet aircraft;
- In parallel, to finalize the method of providing improved access, whether it be fixed link or other, to provide a one-way peak hour capacity of 300 passengers at a high level of service, and to obtain tri-party agreement on the method;
- To renegotiate leases, etc., as needed to provide the improved access;
- To obtain commitments from other tenants (FBO's, etc.) to invest in their facilities, contingent upon improved access and the Port's commitment to the Airport; and
- With a carrier selected and committed, to commit to the improved access plan and to terminal development on a fast-track basis. Some risk sharing, cost sharing or deficiency agreements with respect to funding these facilities may be appropriate for current and new carriers.

F. Noise Summary

Inputs

For each scenario, an analysis was completed to confirm that the projected noise exposure for the Airport would remain within the official (1990) 25 NEF contour to the year 2020. For consistency with the Tripartite Agreement, the term NEF will continue to be used for comparisons, although technically these contours are considered Noise Exposure Projections (NEP's).

The following assumptions were made in modelling future noise:

- The Airport will continue to be operated as a daytime facility. Hours of operation would be from 0700 to 2200;
- Two night movements were included in all models to account for medevac air traffic. As a conservative assumption, it was assumed that arrivals and departures would be on Runway 26;
- The "Piston" reference will also include "Other" itinerant traffic including some turbine itinerant aircraft;
- Representative aircraft used for modelling were:
  - Large turbo = DHC8, NEF equivalent=DHC8
  - Small turbo = B1900, NEF equivalent=DHC6 (19 seats)
  - Jet = 32-Seat (Dornier 328J), NEF equivalent=CL601 (NEF data were not available for the 328J, so CL601 data was used. The CL601 has a louder noise profile),
  - Jet = 50-Seat (CRJ), NEF equivalent=CL601 and
  - Jet = 77-Seat (BAE146), NEF equivalent=BAE146;
- No peaking factors were applied to the scheduled traffic since these are already based on maximum movements. Peaking factors were however applied to the other average movements;
- The business jet movements projected were considered itinerant as such a peaking factor was applied. A Stage 3 business jet was used. In this case the Learjet 35 or 60 was considered (NEF equivalent=LEAR35);
- The runway distribution was based on year 2000 actuals. It was assumed that Runway 08-26 would remain the only lighted facility;
- All jet traffic will only use Runway 08-26;
- Turboprops will use the current runway distribution as per current DHC8 operations, which include Runways 15-33 and 06-24; and
- All scheduled flight destinations are less than 500 nautical miles resulting in an NEF Stage 1 designation for departure modelling.

Results

Exhibit VII-18 illustrates the comparison between the scenarios and the Tripartite constraint. Exhibit VII-19 summarizes the actual 2020 NEF areas and other statistics as compared to the official 1990 NEF's and a previously completed NEF study prepared by Transport Canada in 1990. All scenarios generally meet the noise criteria set out in the Tripartite Agreement. For the Turboprop Scenario in 2020 there is a minor extension of the 28 NEF beyond the official 25 NEF on the east side. For the various jet scenarios there are minor projections of the contours at the west end. Considering

the level of accuracy of the NEF model and the projection period, these minor deviations are not significant. Furthermore, through the implementation of a noise management plan, these deviations could be eliminated, using:

- Departure procedures (turn on departure and minimum noise routes);
- Circuit training flight restrictions (alternating days, time of day restrictions, time of week restrictions);
- Preferential or rotational runway use;
- Airport operating time restrictions;
- Noise budget restrictions (i.e. Stage 3 or 4 aircraft only); and
- Aircraft power and flap management.

Based on the NEF analysis, it was concluded that any one of the future development scenarios could be pursued by the Airport without concern that the noise parameters of the original Tripartite Agreement would be breached.

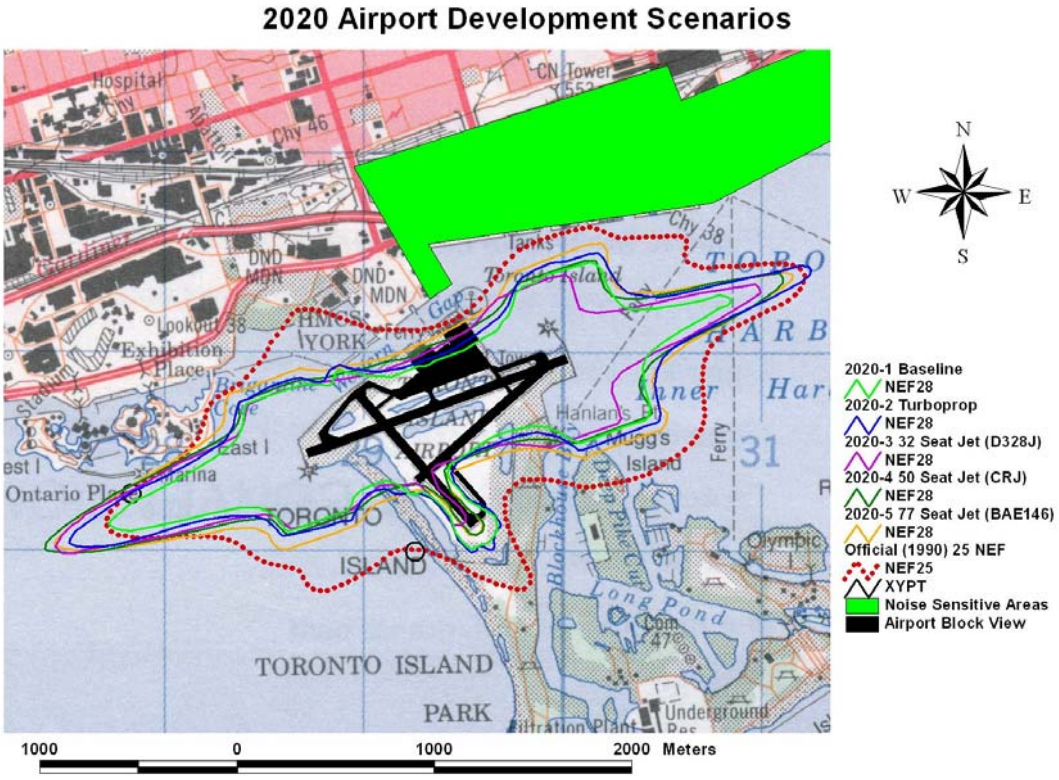


Exhibit VII-18. Comparison of the Scenarios to the NEF 25 Boundary of the Tripartite Agreement

Exhibit VII-19

Toronto City Centre Airport
Summary of Future 2020 NEF Scenario Contour Areas Compared to Official (1990) 25 and 28 NEF

NEF Scenario	NEF Description	OFFICIAL 1990 CONTOUR		CALCULATED ACTUALS			Total Itinerant Moves	Total Local Moves	Total Movements	NOTES
		25 NEF Area (ha)	28 NEF Area (ha)	28 NEF Area (ha)	% of Official 25 NEF	% of Official 28 NEF				
2020-1	Baseline	42.5	17.5	16.2	38%	93%	70,810	83,950	154,760	All models assumed TCCA would operate under daytime hours i.e. 0700 to 2200. Allowances were made for occasional night Medevac flights by twin turbine aircraft
2020-2	Turboprop	42.5	17.5	20.1	47%	115%	105,850	83,950	189,800	
2020-3	32 Seat Jet	42.5	17.5	21.8	51%	125%	124,100	0	124,100	
2020-4	50 Seat Jet	42.5	17.5	19.9	47%	114%	104,390	0	104,390	
2020-5	77 Seat Jet	42.5	17.5	22.8	54%	130%	96,360	0	96,360	

G. Summary

Exhibits VII-20, VII-21, and VII-22 summarize and compare the various scenarios.

In summary:

- The status quo is not sustainable, and will likely lead to continued financial losses and a wind-down of scheduled services;
- Scenarios that see a based carrier operating domestic and transborder services with turboprop or small jet aircraft could provide a valuable service to the Toronto area, serving up to 15% of these markets;
- The Toronto City Centre Airport will be a niche airport, serving 600,000-900,000 passengers under most scenarios in the next 20 years, while living within the Tripartite NEF boundaries;
- Total aircraft movement growth under the growth scenarios (Turbo and Jet) is modest (15% over 20 years in the case of the Turbo Scenario) or decreasing (40% for the Jet Scenario);
- With a based carrier developing domestic and transborder markets, the Airport's capital program is financeable. External lenders may want to ensure the viability of a new carrier or to spread the risk or share the cost with the carrier; and
- Even in the low base case, the economic output of the Airport far exceeds the subsidy, which amounts to about 3% of the economic output. Under the growth scenarios, no subsidy is required.

Exhibit VII-20. Summary of Traffic for the Scenarios

	2003				
	Baseline 2003	Turboprop 2003	32 Seat Jet 2003	50 Seat Jet 2003	77 Seat Jet 2003
O-D Passengers	114,213	423,951	582,894	579,540	618,228
PPHP	75	200	310	310	330
Percent of O-D Market					
Ottawa/Mont./London	4.9%	4.9%		7.9%	9.2%
North	0.0%	13.6%	13.6%	12.1%	5.0%
NY,BOS,CHI,WASH,DET	0.0%	9.0%	12.6%	12.6%	14.7%
Commercial Movements/Day					
Jet	0	0	98	66	48
Turbo Large	32	86	0	6	6
Turbo Small	0	6	6	0	0
Total Level I-III Carrier	32	92	104	72	54
Business Jet	0	0	13	13	13
Piston	390	390	390	390	390
Total	422	482	507	475	457

	2020				
	Baseline 2020	Turboprop 2020	32 Seat Jet 2020	50 Seat Jet 2020	77 Seat Jet 2020
O-D Passengers	183,867	652,574	852,010	874,432	961,532
PPHP	120	350	500	410	450
Percent of O-D Market					
Ottawa/Mont./London	5.2%	6.0%	8.2%	7.6%	8.1%
North	0.0%	12.6%	11.9%	9.8%	10.2%
NY,BOS,CHI,WASH,DET	0.0%	8.4%	11.7%	13.3%	15.0%
Commercial Movements/Day					
Jet	0	0	144	100	78
Turbo Large	34	112	0	6	6
Turbo Small	0	18	16	0	0
Total Level I-III Carrier	34	130	160	106	84
Business Jet	0	0	20	20	20
Piston	390	390	160	160	160
Total	424	520	340	286	264

Exhibit VII-21. Financial Summary of Scenarios

	Scenario					
	Baseline Low	Baseline High	Baseline Low Enhanced	Baseline High Enhanced	Turbo	Jet 50
2003 e/d Passengers	85,050	114,213	85,050	114,213	423,951	579,540
2003 Movements	149,534	152,160	149,534	152,160	164,222	162,402
2003 Revenue	$2,423,663	$2,941,346	$2,931,689	$3,300,799	$9,014,119	$11,953,067
2003 Expenses	$3,195,162	$3,195,162	$3,125,162	$3,125,162	$4,897,862	$5,689,441
2003 Cash Flow	($771,499)	($253,816)	($193,473)	$175,637	$4,116,257	$6,263,626
2003 Net	($857,417)	($339,734)	($279,391)	$89,719	$4,030,339	$6,177,708
2003 Cost/pax	$16.90	$16.90	$22.88	$20.05	$18.22	$18.20
NPV AIF	$0	$0	$0	$0	$57,768,023	$78,300,612
Subsidy 2003-2020	($29,759,257)	($2,112,309)	($18,020,055)	($22,593)	$0	$0
NPV Subsidy	($17,617,982)	($1,341,266)	($9,977,147)	($21,517)	$0	$0
NPV Ops (Net of AIF,interest, amortization	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$980,271	$10,669,420
NPV Cash Flow	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$45,196,674	$74,665,544
NPV Net	($18,387,326)	$160,928	($10,746,491)	$5,080,678	$32,761,518	$61,719,093
Capital Program	$0	$0	$0	$0	$36,000,000	$38,000,000
ROI on Capital Program	n/a	n/a	n/a	n/a	10%	33%
2004 Debt Coverage	n/a	n/a	n/a	n/a	1.53	2.19

Exhibit VII-22. Economic Impact of the Scenarios

	Baseline Low Enhanced	Baseline High Enhanced	Turbo	Jet
Direct Output to 2020	$1,129M	$1,273M	$2,095M	$2,510M
Total Output to 2020	$1,853M	$2,089M	$3,437M	$4,118M
Subsidy to 2020	$18M	$0	$0	$0

VIII. THE WAY AHEAD

A. Airport Issues

Access

For the survival of the Airport, access must be improved. Considerable effort has been expended on the double bascule bridge, including environmental assessment, and City approval. There may be other solutions, but some form of improved access is essential:

- The current ferry service provides a low level of service to passengers, particularly in winter;
- The ferry operation means that everyone must be off the island by 11:07 p.m. While aircraft operations beyond 10:45 p.m. are not envisaged by anyone, businesses on the Airport that maintain commercial aircraft, etc., need the flexibility to work late from time to time;
- The ferry is nearing the end of its useful life and Port studies show that its replacement with a bridge is a good business decision on a life cycle cost basis;
- The ferry capacity is incompatible with the growth scenarios;
- To potential carriers and their financial backers and to current tenants, the bridge has become a symbol of commitment to the Airport's future; and
- A based carrier, if one is successfully attracted, will need night access for aircraft maintenance.

A decision on improved access is tied directly to the Airport's strategic direction, and they should be considered together. If a new, based carrier is prepared to make long term financial commitments, then improved access, appropriate to the needs of that carrier, Air Ontario and other existing tenants should be undertaken at that time. It may be that solutions other than a bridge are possible, particularly if a commitment is made to a new terminal facility to indicate that the Airport will remain in business. The particular approach taken should consider:

- The users' and tenants' perspectives;
- The timeline if new approaches mean that environmental assessments need to be redone; and
- Capital and operating costs.

Increased Usability

Installation of the Local Area Augmentation System (LAAS) will improve the usability of the Airport, and will provide a 350 ft decision height with 3° centreline offset for Runway 08/26 and non-precision approaches to the other runways. However, there will remain days when lake fog will close the Airport. Carriers operating into the Airport will all need to ensure that they have alternative arrangements at Pearson or Buttonville to deal with these diversions. To some degree, the proposed rail link to Pearson will be beneficial - passengers diverted to Pearson will be at Union Station about ½ hour behind schedule.

Terminal and Approach Concepts

Development of terminal concepts was not within the scope of this study, but in discussions, questions were raised about the feasibility of various terminal configurations, including terminals on the mainland, with pedestrian access to the Island for passengers. Two concepts were developed:

- Scheme 1 has a landside terminal with a high level pedestrian bridge. Alternatively, it could have a pedestrian tunnel or an enhanced ferry service with passenger ferries and indoor berths at each end; and
- Scheme 2 has a vehicle bascule bridge with a terminal on the Island.

Appendix E contains descriptions of these schemes.

Organization

The current staff level (full time equivalent - FTE) is 5 management, 24 union, and ¾ casual. Of this total, 11 are dedicated to the ferry. With 19.75 Airport staff, the overall level appears to be comparable to other small airports with a mixture of scheduled service and general aviation traffic. For example, Edmonton City Centre, in 1995, when it still had significant scheduled service, had a staff of 23.

With shrinking traffic, (23% in the past six years), the Airport's organization may nonetheless be slightly too sophisticated for current operations. The current low level of passenger movements does not appear to warrant duty managers.

Tenant interviews indicated that general aviation tenants have a common complaint that their needs are not addressed.

Combining these two issues, there may be an opportunity to re-focus by:

- Eliminating duty manager responsibilities in the evening and on weekends; and
- Designating one of the duty manager positions as Manager General Aviation, with explicit responsibilities to deal with the issues surrounding general aviation. This would free up the Airport Manager to deal with air carrier issues, including marketing, and for planning and land use development. This re-organization may result in cost savings and will yield a product-line focus.

If the Airport moves to a stance where there are periods without duty managers, then there must be:

- A part of the operations manual that clearly defines responsibilities and actions in the event of incidents or emergencies; and
- A clear delineation at all times of the person on duty that is to assume responsibility and to take action in an incident or emergency.

There is no requirement that the responsible individual be management. Many smaller airports operate with a fire crew/airport maintainer as the designated person in-charge in quiet hours.

Specific organization actions should be linked to the strategy determined for the Airport:

- If scenarios involving a new based carrier are selected, then changes and traffic growth may unfold quickly, with significant traffic increases by 2004, and a fixed link (or other form of access improvement) and a new terminal being developed equally quickly. In this case, there will still not likely be a need for a weekend duty manager (because of the nature of the traffic), but maintenance staff levels may need to be revisited. Airports in the 600,000-900,000 passenger range can typically have 20-30 staff, without ferry operations. Also, during terminal construction, management and staff have extra demands placed on them to maintain safety; and
- If the status quo is selected, even for a 2-3 year period, then duty manager responsibilities should be day-time, week-day only.

In the tenant interviews, a common thread was the need for the Airport Manager to have more authority delegated from the Port, and for the delegations to be clear. This would appear to be needed.

Another frequent comment from the tenants was the need for improved information flow from the Airport. As soon as the Board has determined

their strategic direction for the Airport, it is recommended that the tenants be informed in information sessions.

Movement Controls

Because the Tripartite Agreement leads indirectly to a cap on movements, the Airport has dealt with existing and potential new carriers from a perspective of slots. There are risks with this approach, the biggest being that the airlines come to think that they own the slots. For the future, it is recommended that:

- Any dealings with a carrier with respect to limits on movements be carefully documented to explicitly indicate that ownership of movement "slots" belongs to the Airport, and that they are licensed for a specific period, renewable, to a carrier and cannot be traded;
- If a based carrier becomes established and achieves a reasonable level of success, that after a three-five year period, slots controls be reduced until such time that the noise boundary is approached, to encourage new services; and
- If the jet ban is phased out, that a block of the slots (20 was used in our analysis) be set aside for Chapter3/Chapter 4 quiet business jets. The Airport's niche market is the downtown business community, and a combination of scheduled services and business jets would be the optimum level of service.

US Preclearance

In the development of transborder services, the absence of US preclearance could be perceived as somewhat of a barrier. This barrier may be less than in the past, however:

- In the short term, the preclearance at Pearson is so congested that passengers no longer see it as an advantage; and
- Within 3-5 years, it is anticipated that efforts at Expedited Passenger Processing Systems (EPPS) will yield a combined INSPASS/CANPASS approach that will allow frequent travellers easy passage through US and Canadian inspection services. For the business market that the Airport is intended to serve, a significant percentage of travellers may ultimately have this capability.

If a based carrier or a US carrier starts operations at the Airport, the Airport should work closely with the carrier, and with Canada and US inspection services, to stay at the forefront of EPPS trials and installations.

Based Carrier versus US Carrier

For growth scenarios, the question was raised if a Canadian carrier, based at the Airport, or a US carrier would be preferable. The results of our interviews with US carriers indicate a low level of interest and awareness of the Airport. More importantly, a based carrier would potentially serve more US markets (the US carriers tend to want to move traffic to and from their hubs only), and would provide a substantially larger economic benefit to Toronto, because of aircraft maintenance, etc.

The optimum new carrier to operate from the Airport would:

- Have a clear vision for development and the financing to support the vision;
- Have a frequent flyer program linked into one of the major programs, like One World;
- Have code share and schedule coordination with one or more major US carriers so that traffic could be carried beyond the hub (e.g. Toronto City Centre Airport-Boston-Shannon).

Marketing

There appears to have been a shortage of Air Ontario marketing of services from the Airport in the Toronto area. We recommend that consideration be given to offering $10 inducements to travel agents in the Toronto area for tickets originating from Toronto, paid by the Airport. In parallel, we are recommending an increase in fees and charges (see Finances below).

If a decision is made to work with Air Ontario and/or a new based carrier on developing traffic at the Airport. A cooperative advertising campaign should be considered, including a billboard on the Gardiner “You could be flying by now!”

A comprehensive marketing plan should be developed as soon as the future direction of the Airport is determined.

Finances

The existing fee structure is different from most airports in that there is no landing fee for the scheduled service carrier, and a relatively high per passenger charge. The Airport is also operating at a deficit, and yet the passenger survey indicates that for the hard core of passengers that still use the Airport, there is little price sensitivity. With the AIF now in place

at Pearson, tickets through Pearson actually cost $10.00 more than tickets through the Airport.

It is recommended that:

- The Airport restructure its fees to have a landing fee comparable to the landing fee structure at Pearson in peak periods;
- The PUF be changed to a seat based fee, comparable in level and structure to Pearson's General Terminal Fee;
- A fee and charge study be undertaken to arrive at a cost centred approach to fees, to provide the basis for any public-private partnerships with respect to development on the Airport;
- That the overall fee structure be subsequently adjusted to achieve operating breakeven; and
- That where capital programs are to undertaken, an Airport Improvement Fee be implemented, specifically dedicated to capital programs.

The passenger survey determined that the remaining "hard core" of passengers is not price sensitive. A survey was undertaken by the Resource Systems Group Inc. in the late spring/early summer of 2000 to determine the economic value of delays in the US transportation system. Generally this survey found that:

- Business travellers are willing to pay $40 (US). for each hour reduction in travel time;
- Each required connection through an airline hub represented a $36 (US) loss in value for the trip;
- There was a $1 loss in trip value for each 1% drop in airline on-time performance; and
- The most preferred originating Airport was valued at a premium of $39 (US).

B. Public Policy Issues

Economics - The Big Picture

The decision on the future direction of the Airport is not an aviation decision. Travel is a derived demand from other economic activity. The real considerations with respect to the Airport's future are:

- How will Toronto's aviation needs be met for the next 20 years;

- Is the downtown business community of major corporations and financial institutions well served by the aviation system in Toronto today, for their scheduled service and business jet requirements;
- How important is good air access to economic growth; and
- How important is economic growth to the City?

The 30-year-old Briscoe Field in Atlanta, Georgia spans 500 acres alongside Georgia Highway 316 on the northern edge of Atlanta, where the airport is an important tool in the county's pitch to economic development efforts. The county has a number of major assets but a regional airport is the main objective of many firms. There are certain companies that, without the ability to accommodate their corporate jets, wouldn't be interested in coming to this county. More than two-dozen aviation-related companies operate on the premises, where last year 115,345 takeoffs and landings were recorded. Across the street, the Gwinnett Progress Center offers the airport's proximity as a chief selling point to tenants of the 1,500-acre industrial and office park. The park is marketed by extolling the virtues of being adjacent to the airport. A variety of regional and local businesses use the airport for their corporate executives. The county has found that there' is a real marketing advantage for these executives, in terms of time saved as they can land and come across the street to their place of business.

The above noted perspective on regional airports is similar at many regional airports in the US and notably in those locations served by a large hub airport. The congestion of the large hubs is driving time critical transportation to the smaller regional airports were business executives can easily reach their offices within a minimum time after landing or leave the office at the last minute and still catch their flight. This ability has disappeared from the major hubs.

The regional airport in these instances is seen as a critical connection to service the downtown business sector or in some instances the business cluster that has migrated from the central core. The results are not only lower costs but also the avoidance of the transportation hassles. A regional airport is increasingly seen as an important element of the City's strategy to support and attract the various clusters that are developing in the commercial world.

A downtown regional airport offers not only marketing advantages to the business traveller but also to the tourist who might wish to access the downtown's cultural and sporting activities without spending time in a major airport.

The Toronto City Centre Airport possess these attributes as it lies close to the core and the clusters being espoused in the Fung report and would be an added marketing tool to attract the knowledge industries back to the core of Toronto.

It is interesting to note that in the Fung Report it is indicated that "*Almost 90% of all tourism visits to Toronto originate from the U.S. border states*". And that "*Leisure visits to Toronto from the U.S. alone have declined 29.1 per cent since 1996".* A transborder service from the TCCA could serve most of these border state tourists and could aid in the selling of several Toronto attractions that are basically within walking distance of the Airport.

The Fung report also notes that *"Hotel occupancy rates have been on the rise, increasing from 60% in the early 1990's to 75% in 1998. These increases have been due to business trips".* The business traveler that uses the TCCA is one of the staples of this market utilizing approximately 90,000 hotel room days per year at present. This market would grow as the TCCA grows.

The Airport is an important cog in the economic development of the Toronto core as it is well positioned to become the business traveller's point of entry of choice as it avoids the time wasted traveling back and forth to LBPIA and allows for maximizing time on the ground for the executive.

Noise

Noise has been discussed in this report in the context of the Tripartite Agreement. The provisions of this agreement are much more stringent than federal and provincial standards that are applied elsewhere in the Toronto region and the remainder of Ontario. Nonetheless, a formal noise management plan to minimize the noise is recommended including:

- Modification of the existing circuit pattern to move the cross wind leg of the most commonly used circuit further east than the eastern channel to reduce the noise on those inhabited portions of the western island. As well, this modification will eliminate the occurrence of low flying aircraft in this area which is also an issue with the residents.
- Implementation of a penalty structure for noise abatement procedure violations, and enforcement of the penalties;
- Weekend limitations on traffic; and

- In the longer term, consideration be given to requiring a steeper 5.5° approach. The consequence of this would be to eliminate many of the small GA aircraft, so this should only be considered at a time when the noise parameter boundaries are being approached.

Emissions and Air Quality

As a simple assessment of the relative impact of the Airport on air quality, a comparison was made with the regulated emissions generated from traffic on 2 km of the Gardiner Expressway, Lakeshore Boulevard and Queen's Quay. The regulated emissions dealt with in the analysis are:

- Carbon monoxide (CO);
- Hydrocarbons (HC);
- Nitrous oxides (NOx);
- Sulphur oxides(SOx); and
- Particulates (PM10).

The US FAA Emissions and Dispersion Model (EDMS) 4.0 was used. This model generates all emissions from an airport – from aircraft operations on or near the airport, ground support equipment, motor vehicle access and motor vehicle parking. Appendix E contains the assumptions, inputs and model outputs. In general terms:

- Current traffic levels on the highways were used for 2002 and for 2020. This will understate the highway impacts in 2020; and
- Airport traffic levels input to the model were the traffic levels forecast for each scenario. For example, in the Jet Scenario for 2020, there are no local movements of general aviation.

Exhibit VIII-1 summarizes the results.

A review of the different scenarios indicates that:

- Emissions from the Airport at current and forecast traffic levels are insignificant in the context of the overall vehicle emissions in the downtown core. Given that the comparisons were made with only 2 km of the major east-west roads along the waterfront, it is clear that the Airport is not a significant contributor to urban air quality issues today, nor will it be in the future under any scenario; and

Exhibit VIII-1. Emissions from Airport Operations Compared to Current Motor Vehicle Emissions from a 2km Segment of Gardiner, Lakeshore and Queen's Quay. (Tons/year)

Emission	2002 Airport Only	2002 2km Highways	2002 Airport with 2002 Highways	Turbo 2020 with 2002 Highways	Jet 2020 with 2002 Highways
CO	733	2763	3496	4052	3920
HC	40	362	402	413	411
NOx	54	399	453	527	507
SOx	4.4	15.9	20.3	25.1	25
PM10	1.0	19.8	20.8	21.5	21.3

- Traffic growth on the three main waterfront roadways from today to 2020 will contribute substantially more to increases in regulated emissions than growth in operations of the Airport;
- The bulk of the emissions from the Airport are from ground support equipment.
  - CO - approximately 85% of the airport/aircraft emissions;
  - HC - approximately 40% of the airport/aircraft emissions;
  - NOx - approximately 60% of the airport/aircraft emissions;
  - SOx - approximately 40% of the airport/aircraft emissions;
  - PM10 - approximately 90% of the airport/aircraft emissions; and
- The contribution of the ground support equipment to overall Airport emissions, suggests that the provision of fixed ground power and air conditioning to stands if a new terminal is developed, would reduce Airport emissions by one-half.

An additional concern that has been recently expressed with respect to air quality near airports is that there may be an elevated risk of the occurrence of cancer for those residents living in close proximity to the airport. These statements are based on several US studies that have been interpreted in various ways by both proponents and opponents of airport expansion.

In the US, there have been two studies related to the risk of cancer near major airports. One was undertaken at Seattle Sea-Tac Airport by the King County Department of Health and is still ongoing. However, it has been stated by the Medical Officer of Health in several news releases that there have been no definitive findings linking cancer to the operations of the airport. Similarly, the U.S. EPA in Chicago undertook a

study of cancer risk for those living in the vicinity of Midway Airport. In the report of this study entitled "Estimation and Evaluation of Cancer Risks Attributed to Air Pollution in Southwest Chicago Final Summary Report -Prepared for EPA Region 5, Chicago, Illinois, April, 1993" it is stated that "that the average risk [of cancer] across the area due to the emissions from Midway is approximately 2.3×10^{-5}. By comparing to the average cancer risk of 1.9×10^{-4} assessed for all identified sources in the Southwest Chicago area, still average risk is less by roughly 10-fold"

Both of these studies suggest that the risk of cancer from major airports is equal to or less than the risk of cancer attributable to living in a normal urban setting.

In the U.K., a study carried out by Professor Bridges for the University of Surrey (England) in 1998 has specifically concluded that there is no significant difference in the incidence of cancer in communities close to or further from Heathrow Airport. As well, Professor Harrison of the University of Birmingham (England) conducted a major study into respiratory health around Birmingham International Airport and concluded that airport activities have no significant effect on the general or respiratory health of people who live nearby (April 2000).

Studies from Amsterdam Schiphol Airport into health issues affecting residents near the airport in 1999 also concluded that there was no evidence of a relationship between measured cardiovascular disease and proximity to the airport.

Given the findings of these studies and the type and quantity of traffic that is expected to use the Airport (which is much lower than the airports listed above - in the range of 2%-5%) it is not expected that there would be any significant cancer risk associated with the Airport.

Accident Risk

Airline accidents are a relatively infrequent occurrence. Over the last 12 years in Canada there have been, on average, 9 accidents involving major and regional airlines for every million departures, and less than 15% of these have been fatal[1]. Worldwide, approximately 20% of accidents occur en-route away from the airport[2]. Of the 80% of accidents that occur on taxiing/take-off/climb or approach/landing/taxiing, most occur very close

[1] Probability estimated from data on accidents involving airlines published by the Transportation Safety Board (Canada) 1989-2000 and aircraft departures for major and regional scheduled and charter carriers published by Statistics Canada.

[2] Boeing Corporation (for hull loss accidents)

to the taxiway or runway, and almost all (over 95%) occur within 2 km of the airport or 7 km along the take-off and approach paths[3].

Unlike most city centre airports, Toronto City Centre Airport is located on an island with few people on it apart from those involved with the Airport. The main runway is aligned so that the approach and climb paths are primarily over water.

Under the Turboprop or Jet scenarios, there are forecast to be approximately 100,000 movements at the Airport in 2020, of which 30,000 would be scheduled turboprop or jet services. Based on the accident rates above, the probability of a commercial passenger aircraft travelling to or from the Airport crashing in urban Toronto with fatalities involved in any one year is less than 0.001. This corresponds to one accident every 1,000 years. Thus the risk, although present, is very small, especially when compared to other types of accidents.

In any comparison of the risks it should be remembered that the alternative to flying to the City Centre Airport is to fly to LBPIA. Although some of the increase in passengers at LBPIA would be met by increased aircraft size, much would likely be met by increased flight frequency. The additional movements would present similar types of risks to the population around LBPIA.

Airport Ownership/Management

For some time, the Greater Toronto Airport Authority has been expressing an interest in operating the Toronto City Centre Airport. The issue is, would this be advantageous to Toronto?

As discussed earlier in this report, Pearson has a capacity problem pending, so it is safe to assume that the GTAA wants the Airport to continue to operate, and to take as much traffic as possible from Pearson, rather than to shut down a competitor. A fully utilized Toronto City Centre Airport, operating within the noise parameters of the Tripartite Agreement, can handle approximately 1 million E/D passengers, and 20 IFR movements/hour. These traffic levels are consistent with several years of growth at Pearson.

Because the TCCA is likely to continue to operate as an airport if the GTAA is involved, the issue becomes what management is most advantageous to Toronto.

[3] Review of summaries of airline accidents on approach, landing, take-off or climb from TSB

The advantage of GTAA operation is primarily one of cross subsidization - operating losses and capital could be cross-subsidized out of Pearson's cash flow.

On the other hand, there are no foreseeable efficiency gains. The Airport does not have any staff functions such as planning that are duplicated within the GTAA, so GTAA operation of the Airport would not inherently lead to any overhead reductions.

Waterfront Redevelopment

The report entitled "**Our Toronto Waterfront: Gateway to the New Canada**" (the Fung Report) could have a profound effect on the future of the Airport. This report has stated that "*The time constraints and the number and complexity of the issues involved precluded the Task Force from addressing the future of the City Centre Airport. The Task Force did make a point of doing nothing in its Strategic Business Plan that would impact on the airport.*" The report, however, makes several recommendations with respect to development in the area and expresses a desire that whatever the future of the Airport, it be made compatible with the objectives for waterfront development. These comments were noted during the preparation of this study especially as the report recommended several developments that could be enhanced by the revitalization of the Toronto City Centre Airport. In point of fact the report uses the redevelopment of the London Docklands as one example of successful waterfront rehabilitation and this development contains a similar city centre airport. From this example it can be surmised that the development of city centre airports and waterfront development are not incompatible objectives.

The "Fung" revitalization plan outlines several objectives for waterfront redevelopment, including:

- Accommodating a variety of urban uses;
- Creating a large supply of living and working space;
- Creating a place for new industrial and commercial uses;
- Stimulating year round and round-the-clock activity;
- Creation of a public border around the waterfront; and
- Augmenting the success of the National Trade Centre.

Each of these objectives would be enhanced by the presence of a revitalized Airport. The Airport is a vital part of the commercial, transportation and industrial uses envisioned by the plan. It would also provide an incentive to business and commerce to relocate to the urban

core. Airports are an important element of the locational decisions of various business clusters and as Pearson becomes more congested the TCCA may provide a key incentive to business relocation to the downtown core. The Fung Report also recognizes that urban land uses have to be intensive and cannot provide the amenities of suburbia. A niche business airport such as described in this study is compatible with this intensive use. The Airport is also compatible with other waterfront uses suggested in the Fung report including the cruise ship terminal where some synergies could be achieved in attracting users to this facility. The Airport also provides a natural point of entry for users of the enhanced Trade Centre and trade mart areas.

Regional Airport Capacity

The Toronto area airport system is basically composed of three major airports that are in close proximity to the downtown core. These airports are Buttonville, Toronto-LBPIA, and the City Centre Airport. As well, Hamilton Airport could be considered a GTA airport.

Buttonville Airport is the 10th busiest in Canada and basically serves general aviation. Scheduled service has been attempted in the past at this site, but was not viable. The Greater Toronto Airport Authority (GTAA) now financially supports it. It has limited capacity and is landlocked such that expansion possibilities are limited. The airport itself comprises approximately 60 hectares of land and has two paved intersecting runways with the dimensions given in Exhibit VIII-2.

Exhibit VIII-2. Buttonville Runways

Runway	Length/Width (m)	Take-off Distance Available(m)
15/33	1,220/30	1,280/1,280
03/21	785/24	845/909

The site is equipped with instrument approaches on Runways 15 and 21 and there is a VFR control tower operated by Nav Canada. The IFR capacity of the airport's runways is limited to three movements per hour due to airspace limitations.

Lester B. Pearson International Airport is operated by the GTAA and is undergoing a massive redevelopment plan that will see it expanded to its ultimate capacity over the next 10-15 years. In examining the Master Plan for this redevelopment it is obvious that capacity limitations will begin to occur at LBPIA in the not too distant future. The current plan for aircraft gates is shown in Exhibit VIII-3.

Exhibit VIII-3. Forecast LBPIA Gates

Time Period	Passenger Gates Provided	Passenger Gates Required
2000-2005	111	81-103
2005-2015	112	103- 130
2015+	122	130-142

This analysis indicates that a gate shortage at LBPIA will occur in the 2005 to 2010 time frame based on the current passenger processing abilities of gates at LBPIA, and that beyond 2015 there will be insufficient gates for the passengers projected. This implies that LBPIA will be seeking to move regional airlines off-site commencing in around the 2008 time frame so as to preserve their capacity for larger scheduled aircraft. Furthermore, it is expected that as construction continues at LBPIA there will be a shortage of gates at various times during the building cycle and that the regional airlines will be pressured to move or curtail operations during these time periods.

The planned runway capacity and demand at LBPIA over their planning horizon (2020) is given in Exhibit VIII-4.

Exhibit VIII-4. LBPIA Runway Capacity/Demand

Time Frame	No. of Runways	Peak Hour IFR Capacity	Peak Hour Demand
Current	4	92	92
2003-2011	5	106	2003 -104 2011 - 124
2011+	6	120	2010 - 121 2020 - 145

Given this analysis it is evident that the general aviation traffic and the scheduled regional airline traffic will start to encounter peak hour access problems to LBPIA in approximately 2004. The general aviation traffic would than most likely move to airports such as Hamilton (cargo, other commercial operations etc.) but the business aircraft and scheduled regional airlines would be looking for accommodation as close to Toronto as possible. With Buttonville currently being constrained, the choice would be narrowed to the TCCA or Hamilton. The extensive capital investment program at LBPIA will also result in increased user costs, offering cost saving advantages to other airports like the TCCA.

The remaining airport in the region, Hamilton is located approximately 76 km. from Toronto's centre core, and access to the city is via the

Queen Elizabeth Way and the Gardiner Expressway, which is often congested during the peak hours. Business travellers and others seeking to access the centre of Toronto would prefer not to use this airport as it adds a minimum of one-hour travel time to each one-way journey.

Clearly, the capacity of the airport system in the GTA would be severely constrained without the Airport in the near future. This has potentially severe economic consequences as most businesses will seek to locate in an area with adequate airport capacity and the lack of air access may delay the economic benefits that are described in the Fung Report, which are reliant on the relocation of business activity to the central core. As well, given the capacity constraints developing at LBPIA, it is possible to hypothesize a return to the situation in the late 1980's when the tourism and convention sectors suffered a large impact due to the lack of adequate facilities at LBPIA.

In considering the Toronto area aviation system it is evident that within a short time frame the Toronto City Centre Airport may offer the only viable alternative for air passengers that wish to fly to or from Toronto on regional or short-haul transborder flights provided with commuter type aircraft. As well in the future its competition could well be from the Pickering Airport site, which suffers the same access problems to the city core as LBPIA. As such the TCCA could well become the primary airport of choice servicing the "416" area from points within Ontario/Quebec and the northeastern U.S.

The Toronto City Centre Airport is well positioned to accept this role, particularly if rail access to LBPIA is provided from Union Station. In this event, passengers connecting on long haul domestic routes or international flights could utilize this facility to effect a relatively quick transfer between airports. This would also be more acceptable if a bag transfer service between the airports was provided by the airlines. As a corollary to this if weather disruptions occurred at the TCCA, the train would provide for an easy transfer to LBPIA to service departing passengers as well, so that weather induced delays at the Airport would not be as significant as they are now.

Land Use Planning

If the Airport is to continue to operate, a master plan addressing land use planning, access to the south side and a long-term physical plan for the Airport should be prepared.

The 1995 City Plan for the City of Toronto in paragraph 14.48 states:

"*Council will support the continued use, for aviation purposes, of the Airport on the Toronto Island Airport Lands, including protection of existing flight paths to and from the airport, subject to section 14.49 of this plan.*"

The City of Toronto should continue to protect the airport approaches from encroachment as required by the City Plan.

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Appendix A

Terms of Reference

Appendix A
Terms of Reference

Introduction and Background

The Toronto City Centre Airport ("TCCA") is owned and operated by the Toronto Port Authority ("TPA") which is a Canadian Port Authority, established under the Canada Marine Act as the successor to the Toronto Harbour Commissioners ("THC").

The TCCA is operated in accordance with a three-party agreement, (known as the "Tripartite Agreement") made between the Toronto Harbour Commissioners, the City of Toronto and the Federal Government, Department of Transportation (Transport Canada). There are a number of restrictions within the document on the operation of the TCCA, including a ban on jet aircraft, and a ban on a bridge or other fixed link from the mainland to the TCCA. With respect to the bridge, City Council voted in December 1998 to agree to amend the Tripartite Agreement and allow a proposed bridge subject to certain conditions including self-financing of the project.

The Board of Directors of the Toronto Port Authority has been reviewing the Port, Marina and TCCA Operations since July 1999 and is now proposing to engage external consultants to review the current operations and potential for the TCCA.

The Toronto Port Authority is requesting proposals from aviation/airport consultants for a general study that addresses the critical issues surrounding the operating environment of the TCCA, as well as trends in the commercial / general aviation industry.

Project Scope / Terms of Reference

The purpose of the study is to provide the TPA with a current factual background for decision making, a realistic assessment of options available to the TPA to increase usage at the TCCA and informed observations or conclusions with respect to these options, to assist the TPA in developing a longer-term business plan for the TCCA.

Accordingly, knowledge of current trends in the aviation industry as well as airport management will be important. In addition, demonstrated experience in the identification of key operational, political and economic issues relevant to the development of business plans for airports in a North American context will be required.

It is envisioned that the study will be comprised of the following elements:

1. **Comparison of TCCA with other city centre-type airports**. The consultant should compare the operation of the TCCA to the operation of other city centre airports (or secondary airports located near large, urban centres) taking into consideration any economic or political differences. The comparative study should include conclusions as to the feasibility of increasing usage of the TCCA and recommendations for any improvement of services that would promote such increased usage, based on these comparisons.

2. **Review of existing operating parameters and conditions**. In reviewing the current operations of the TCCA, the study should:
    - Consider Transport Canada & Nav Canada standards and policies;
    - Assess the economic benefits the TCCA provides to the City of Toronto in terms of jobs and direct, indirect, and induced economic impact;
    - Identify any critical operational and infrastructure issues necessary to maintain existing operations, including but not limited to airfield and navigational aids, terminal and groundside facilities, and airport safety and certification.
    - Discuss directly with airport commercial users and Transport Canada their views on operating parameters and conditions and what may be done to increase usage at TCCA

3. **Analysis of potential if operating parameters are changed.** The study should examine the potential for increased usage under two scenarios – (1) construction of a bridge and (2) extension of access to commercial and/or corporate turbofan aircraft. In the course of such examination, the study should, as applicable:
    - Assess the potential to increase usage of the airport under the two scenarios and the factors governing the ability to realize such potential, including:
        - ♦ Current aviation industry environment
        - ♦ Infrastructure requirements
        - ♦ Operational improvements
        - ♦ The impact of current proposals for waterfront development if implemented;
    - Discuss the extent to which infrastructure improvements would, by themselves, increase usage of the TCCA or alternatively, would be required to accommodate any projected increased usage under the two scenarios. Specifically, the following infrastructure improvements should be considered:
        - ♦ New terminal
        - ♦ Offsite terminal facility
        - ♦ Southside fixed base operator facilities
        - ♦ Any other improvement recommended by consultant
- Assess the financeability and financing options of any infrastructure improvements including the fixed link;
- Discuss the impact of an Airport Improvement Fee on market share;
- Assess any possible environmental issues associated with increased usage;
- Assess any potential increase in revenues and profitability of the TCCA, specifically pointing out any potential incremental benefits to the City.

Appendix B

Airport Facilities and Equipment Assessment

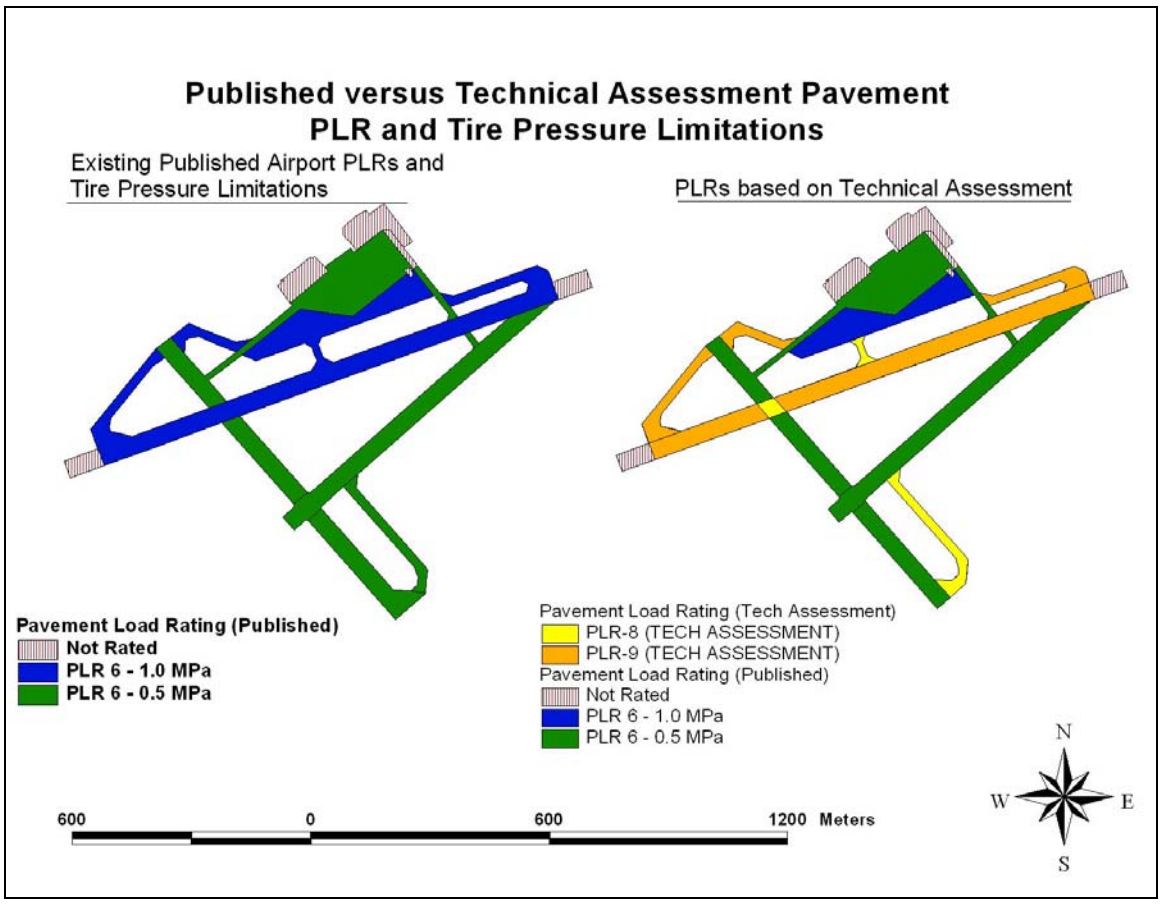
Appendix B
Airport Facilities and Equipment Assessment

Airside

Pavements

The results of the assessment have been summarized for each facility as follows:

Refer to Figure PSMI-2 for the officially published Transport Canada pavement load ratings and tire pressure restrictions at TCCA. Figure PSMI-2 also shows the PLR ratings based on the technical assessment completed as part of this study. It appears that the current PLR ratings may be underestimated. This is an important consideration in developing the future rehabilitation options and is discussed in greater detail later in the report.



Runway 08-26

Based on the available historic information, Runway 08-26 was originally constructed in 1961. The pavement structure, at that time, consisted of 90 mm of asphalt over 230 mm of granular base and 305 mm of granular subbase. In 1984, the portion of Runway west of Runway 15-33 was provided with 150 mm of new granular base and 75 mm of asphalt. In 1995, the balance of the runway (east of runway 15-33) was cold in place recycled 50 mm with the addition of a 20 to 50 mm variable thickness overlay.

The blast pads were constructed in 1996 and consisted of 80 mm of asphalt, 250 mm of granular base and 200 mm of granular subbase. The outer 7.5 m is gravel surfaced primed with asphalt.

The current total pavement thickness on the runway, excluding the blast pads and the intersection with Runway 15-33, is therefore 75 to 140 mm of asphalt over 535 to 685 mm of granulars. The spring-reduced subgrade bearing strength for design purposes is 98 kN for the sand type subgrade. Based on these conditions the pavement is generally capable of supporting an Aircraft Load Rating (ALR) of up to Class 9 with the exception of the intersection with Runway 15-33, which is Class 8.

In general, the pavements are in good condition and are experiencing moderate to major longitudinal and transverse cracking with minor to moderate associated secondary cracking. The cracks have been sealed regularly. We understand that the runway is not experiencing differential frost heaving in the winter months; however the transverse cracking does cause some unevenness of the surface. The blast pads are in very good condition.

Runway 06-24

Based on the available historic information Runway 06-24 was constructed in 1938. The pavement structure, at that time, comprised 25 mm of asphalt surface treatment and 180 mm of granular base. In 1969 the runway was provided with a 40 mm overlay. No work has been done since. The last 87 m of the 24 end of the runway, at Runway 08-26, comprises a thicker pavement structure.

The current total pavement thickness on the runway is therefore 65 mm of asphalt over 180 mm of granulars. The spring-reduced subgrade bearing strength for design purposes is 98 kN for the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 6 as noted on the Airfield Pavement Condition History.

In general, the pavements are in poor condition and are experiencing severe/extreme longitudinal and transverse cracking with major associated secondary cracking as well as map and alligator cracking. The cracks have not been sealed recently. We understand that the runway is not experiencing differential frost heaving in the winter;

however, the runway has experienced significant settlements and is very uneven. Some transverse repairs or trenches have been reinstated with concrete.

Runway 15-33

Based on the available historic information Runway 15-33 was constructed in 1938. The pavement structure, at that time, also comprised 25 mm of asphalt surface treatment over 180 mm of granular base. In 1969 the runway was provided with a 40 mm overlay. No major rehabilitations have been done since, however, the central portion of the runway was provided with a micro-surfacing treatment in the early 1990's. This portion of the runway is not raveling however, the old crack patterns have reflected through the micro-surfacing.

The current total pavement thickness of the runway is therefore 65 mm of asphalt over 180 mm of granulars. The spring-reduced subgrade bearing strength for design purposes is 98 kN for the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 6 as noted on the Airfield Pavement Condition History.

In general, the pavements are in poor condition and are experiencing severe/extreme longitudinal and transverse cracking with moderate associated secondary cracking. The cracks have not been sealed recently. We understand that the runway is not experiencing differential frost heaving in the winter; however, the runway is experiencing some settlements and is somewhat uneven.

Taxiway A and D

Based on the available historic information Taxiways A and D were constructed in 1961. The pavement structure, at that time, comprised 90 mm of asphaltic concrete over 230 mm of granular base and 305 mm of granular subbase. The ends of both taxiways, at Runway 08-26, comprised 230 mm of concrete over 150 mm of granular base and 305 mm of granular subbase. In 1984, the portion of Taxiway A west of Runway 15-33 including the concrete portion was provided with a 150 mm granular cushion and 75 mm of new asphalt. The balance of Taxiway A and D was provided with a 35 to 45 mm overlay in 1995. The overlay on the concrete portion of Taxiway D was thickened to an 80 mm overlay.

The current total pavement thickness of the runway is therefore 75 to 135 mm of asphalt over 535 to 605 mm of granulars. The spring-reduced subgrade bearing strength for design purposes is 98 kN or the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 9.

In general, the pavements on Taxiway A are in fair to good condition and are experiencing moderate to major longitudinal and transverse cracking with minor associated secondary cracking. The pavements on Taxiway D are in good condition with only minor transverse and longitudinal cracking. The cracks on both taxiways

have been sealed recently. We understand that the pavements are not experiencing differential frost heaving in the winter. It is noteworthy that the asphalt overlay of the concrete at the end of Taxiway D was sawcut above the original joints and is performing well.

Taxiway B and C

Based on the available historic information Taxiway B was constructed in 1938. The pavement structure at that time comprised 25 mm of asphalt surface treatment over 180 mm of granular base. In 1961 Taxiway B was provided with a 40 mm overlay. In 1961 and 1969 Taxiway C was provided with a 50 or 90 mm overlay. A portion of Taxiway C at Taxiway D was again resurfaced with 45 mm of asphalt in 1995.

The current total pavement thickness of the runway is therefore 75 to 160 mm of asphalt over 180 mm of granulars. The Spring Reduced subgrade bearing strength for design purposes is 98 kN or the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 6 as noted on the Airfield Pavement Condition History.

In general, the pavements on Taxiway B are in poor condition and are experiencing extreme longitudinal and transverse cracking with major associated secondary cracking as well as map cracking and alligator cracking. The cracks have not been sealed recently; however, the pavement was sealed with micro-surfacing. We understand that the pavement is not experiencing differential frost heaving in the winter.

Taxiway C is in good condition with extreme longitudinal and transverse cracking but with minor secondary cracking and no map or alligator cracking.

Taxiway E and F

Based on the available historic information Taxiways E and F were constructed in 1961 and 1990, respectively the pavement structures, at that time, comprised 90 or 80 mm of asphaltic concrete over 230 mm of granular base and 305 or 200 mm of granular subbase for Taxiway E and F respectively.

The current total pavement thickness of the runway is therefore 80 to 90 mm of asphalt over 430 to 535 mm of granulars. The Spring Reduced subgrade bearing strength for design purposes is 98 kN or the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 8.

In general, the pavements on Taxiway F are in good condition and are experiencing minor longitudinal and transverse cracking with minor associated secondary cracking. However, Taxiway E is in poor condition with moderate longitudinal and transverse cracking as well as map cracking. We understand that the taxiways are not experiencing differential frost heaving in the winter.

Aprons

The aprons have been constructed in various segments over numerous years starting in 1938. Based on the available historic information the pavement structure typically comprises 75 mm of asphaltic concrete over 230 mm of granular base. A small area of concrete existed in front of the air terminal building. The concrete was originally 125 mm thick and was overlaid with 50 mm of asphalt in 1969.

The Spring Reduced subgrade bearing strength for design purposes is 98 kN or the sand type subgrade. Based on these conditions the pavement is capable of supporting an ALR of up to Class 6 as noted on the Airfield Pavement Condition History.

For the most part, the pavements are in fair condition and are experiencing major to extreme longitudinal and transverse cracking with moderate associated secondary cracking. However, portions of the apron are poor (in front of the west side of Hangar 4) and portions are in good condition (in front of Hangar 1 and 2). In general, the cracks in the apron have been sealed recently. In general, we understand that the apron is not experiencing differential frost heaving in the winter.

Airside Electrical

Scope of Work

The purpose of the Airside Electrical Condition Survey was to inspect the Airport's airside electrical systems/equipment, assess the present condition of the infrastructure, record any deficiencies noted and make recommendations regarding rehabilitation/replacement as necessary. An inspection of the airfield lighting and electrical systems was completed on 11 April 2001 in conjunction the Airport's maintenance staff.

Runway 08-26 Approach Slope Indicators

Runway 08 is equipped with a precision approach path indicator (PAPI) system. Runway 26 is equipped with an abbreviated precision approach indicator (APAPI) system. Both systems are installed in accordance with the current (1993) Transport Canada standards. The APAPI on Runway 26 has been noted as a deviation to standard since it should be a PAPI. Spatial limitations have imposed the APAPI configuration.

The light units are manufactured by Siemens, 2-lamp type, current powered and were installed in 1989. The light units are installed on screw anchor footings and are in good to excellent condition. The paint finish on the light units is weathered and peeling - particularly on the 08 PAPI's.

Properly graded, crushed stone aprons have been provided around the PAPI and APAPI units. The associated isolating transformers are installed in nearby pullpits complete

with grounded lids. The light units themselves are grounded. The PAPI and APAPI footings and isolating transformers are all in excellent condition.

Cable insulation tests (megger tests) have not yet been performed on the underground circuits serving the approach slope indicator systems. However, the cables are expected to be in good condition since they are protected in poly tubing and are only 12 years old (installed '89).

Runway 08-26 Identification Lights

The runway identification lights (RIL's) for runways 08 and 26 are ADB-Alnaco (Siemens), Type L849, Style E. The units are still manufactured and new replacement parts are available. The 08-26 RIL systems were installed in 1989.

The flash heads and power/control cabinets for both the 08 and the 26 RIL systems are in good condition. The flash heads are positioned and aimed in accordance with the current (1993) Transport Canada Standards. The cabinet interiors are in good condition as are the wiring terminations and door gaskets.

The RIL units are all frangibly mounted on concrete footings and appear to be properly grounded. The footings are all in good condition although additional backfill is required around the 26 RIL master to ensure the top of the footing is flush with the surrounding grade.

The mini-substations serving the 08 and 26 RIL systems are both in good condition. Each mini-substation consists of a 5kVA, 2400V-120/240V, single phase, dry-type, weatherproof transformer and a weatherproof 240V disconnect switch. Each mini-substation is mounted on a concrete pad, which is flush with surrounding grade. Above grade conduit is rigid steel galvanized, which is rusted but still solid. The mini-substations are each grounded to ground rods in pullpits installed nearby.

The 2400V power cables supplying each RIL system were also installed in 1989. Cable insulation test results are not available but since the cables are only 12 years old and are lightly loaded they can be expected to be in good condition.

Runway 08-26 Edge Lighting

Runway 08-26 is equipped with a high intensity lighting system using newer Siemens 100W, series connected light fixtures installed in 1989. The edge lights are pullpit-lid mounted complete with frangible couplings. In general, the edgelight fixtures were in good condition. They were plumb, vertical, at the correct height and accurately in-line. No broken lenses, missing gaskets or burnt-out lamps were noted and the fixtures have been well maintained.

The lights are generally spaced at 60m intervals except in the area between the 08 threshold and Runway 15-33 and the area between the 26 threshold and Taxiway Charlie. In these areas, the runway edgelights are spaced approximately 20m apart. The 20m edgelight spacing is less than the maximum allowable spacing of 60m but may not comply with Transport Canada Standard TP312, since the lights are not uniformly spaced over the length of the runway (TP312 5.3.10.10). It is understood that this issue is undergoing review by the Airport and Transport Canada Aerodrome Safety inspectors.

The threshold lights for both Runways 08 and 26 are inset type as manufactured by Hughey and Phillips. The inset threshold lights were installed in 1995 and are in good condition.

There is an abandoned pullpit with a damaged lid near the northwest corner of the 08 threshold. The pullpit and the isolating transformer it contains used to serve the SCAPE lights, which have since been removed. It is recommended that this pullpit complete with the transformer and damaged lid also be removed and the resulting excavation backfilled and compacted.

The underground series cabling serving the edgelighting system was installed in 1989. It is in poly tubing and is likely in good condition. Cable insulation test results were not available at the time of this report. The edgelighting is served by two series circuits connected in an alternating or interleaved pattern, which allows the runway perimeter to be partially delineated should one circuit fail.

The isolating transformers were also installed in 1989. They are the modern type with factory moulded leads and connectors and are in good condition. The isolating transformers are installed in PVC pullpits complete with hangers and the pullpit lids are grounded. Pullpit lids are generally level with surrounding grade and accessible.

Runway 08-26 Windcones

Runway 08-26 is equipped with two windcones located as per the current Transport Canada standards. The windcones were installed in 1989 and were manufactured by Westinghouse. The units use a 150W PAR lamp powered by a power adapter fed from the runway edgelighting circuit. The windcone towers, footings and anchor bolts are in good condition. The associated disconnect switches and constant brightness transformers are rusted but otherwise in good working order. The windsock fabrics are also in good condition. In general, the windcones are in good condition and no operating/maintenance problems have been reported.

Runway 15 Approach Slope Indicator

Runway 15 is equipped with an abbreviated precision approach path indicator (APAPI) installed in accordance with the current (1993) Transport Canada standards.

The light units are manufactured by Siemens, 2-lamp type, current powered and were installed in 1997. The light units are installed on screw anchor footings and are in excellent condition.

Properly graded crushed stone aprons have been provided around the APAPI units. The associated isolating transformers are contained in nearby pullpits complete with grounded lids. The light units themselves are grounded. The APAPI footings and isolating transformers are all in excellent condition.

Cable insulation tests (megger tests) have not yet been performed on the underground circuits serving the approach slope indicator system. However, the cables are expected to be in good condition since they are protected in poly tubing and are only 4 years old (installed '97).

Taxiways A, B, C and D Edgelighting

Taxiways A, B, C and D are equipped with a medium intensity lighting system using newer Siemens 45W, series connected light fixtures installed in 1989. The edgelights are pullpit-lid mounted complete with frangible couplings. In general, the edgelight fixtures were in good condition. They were plumb, vertical, at the correct height and accurately in-line. No broken lenses, missing gaskets or burnt-out lamps were noted and the fixtures have been well maintained.

The underground series cabling serving the edgelighting system was installed in 1989. It is in poly tubing and is likely in good condition. Cable insulation test results were not available at the time of this report. The edgelighting is served by two series circuits connected through relays in the field electrical centre to a single current regulator. Taxiways A and B operate together as do Taxiways C and D. The edgelighting for Taxiways A and B can be operated independently of the Taxiway C and D edgelighting. This facilitates troubleshooting and makes locating breaks in the series circuits easier

The isolating transformers were also installed in 1989. They are the modern type with factory moulded leads and connectors and are in good condition. The isolating transformers are installed in PVC pullpits complete with hangers and the pullpit lids are grounded. Pullpit lids are generally level with surrounding grade and accessible.

Taxiway F Edge Lighting

Taxiway F is equipped with medium intensity edgelights installed in 1992. The light fixtures are an older style, Westinghouse type that have been salvaged and re-used. The edgelights are pullpit-lid mounted complete with frangible couplings and are center connected. In general, the edgelight fixtures were in good condition. They were plumb, vertical, at the correct height and accurately in-line. No broken lenses, missing gaskets or burnt-out lamps were noted and the fixtures have been well maintained.

The underground series cabling serving the edgelighting system was installed in 1992. The wiring is in poly tubing and as such, should be in excellent condition.

The isolating transformers were installed in 1992 and are in excellent condition. The transformers are in PVC pullpits and the pullpit lids are grounded. Pullpit lids are generally level with the surrounding grade and are accessible.

Apron Edge Lighting

The apron is equipped with a medium intensity lighting system using newer Siemens 45W, series connected light fixtures installed in 1989. The edgelights are pullpit-lid mounted complete with frangible couplings. In general, the edgelight fixtures were in good condition. They were plumb, vertical, at the correct height and accurately in-line. No broken lenses, missing gaskets or burnt-out lamps were noted and the fixtures have been well maintained.

The underground series cabling serving the edgelighting system was installed in 1989. It is in poly tubing and is likely in good condition. Cable insulation test results were not available at the time of this report.

The isolating transformers were also installed in 1989. They are the modern type with factory moulded leads and connectors and are in good condition. The isolating transformers are installed in PVC pullpits complete with hangers and the pullpit lids are grounded. Pullpit lids are generally level with surrounding grade and accessible.

Aerodrome Beacon

The existing rotating beacon is an ADB Alnaco (Siemens) #44D0793 using 2-1000W, 120V lamps and was installed in 1994. The beacon is mounted on top of the operations station and its support structure is sound. The beacon is in good working order and no operating/maintenance problems have been reported.

Illuminated Guidance Signs

The illuminated guidances are modern, internally lit, series connected type and were manufactured by Siemens. The signs were installed in 1995 and are generally in excellent condition. The sign support legs, couplings, transition plates and housings are all in good condition. New replacement parts are still available for the signs.

The signs are powered from isolating transformers installed in nearby pullpits fed from series edgelighting circuits. The isolating transformers and pullpits are in good condition. The signs and pullpit lids were grounded.

It is understood that as part of recent airport certification audit, some of the sign locations may require revisions. This work is being reviewed by the Airport and aerodrome safety inspectors.

Apron Floodlighting

The floodlights for the apron were installed in 1989 and provide good illumination for apron area. Each pole supports 4 to 8 HPS heavy-duty floodlight fixtures and up to 3 quartz floodlights. The floodlight fixtures, poles, hardware and footings are all in good condition.

The power wiring for the floodlights is installed in poly tubing and is in good condition. Most of the apron floodlighting is connected to the Airport's essential power system and is fed from an electrical room adjacent to Terminal A. The floodlights can be manually controlled from the control tower or from the electrical room beside Terminal A.

Field Electrical Centre and Regulators

The Airport's field electrical centre supplies the power for all the airfield lighting and was constructed in 1988. The FEC is in excellent condition and is typical of a Transport Canada installation. The rooms are well lit; there is ample convenience power and the heating/ventilating is good. There are steel covered floor trenches for incoming/outgoing airfield lighting wiring. There is sufficient floor space for 2 more large regulators.

The constant current regulators and other power distribution equipment supplying the airfield lighting were also installed in 1988. Westinghouse manufactures all the equipment and the current regulators are 20kW, type RSS20. Regulator input voltage is 347V and each is capable of 5 brightness steps. The equipment line-up also contains three 2400V distribution cells for the AWOS, glide path and localizer sites. The current regulators and power distribution equipment is in good condition. No operating/maintenance problems were reported except for the recent failure of an output transformer in the taxiway edgelighting regulator.

The Airport lighting equipment line-up has not yet received any routine service and maintenance such as re-torturing connections, inspection of insulators, cleaning, vacuuming, etc. It is recommended that a service and maintenance operation be arranged with a qualified regulator service company.

Airfield Lighting Control

The airfield lighting can be controlled locally at the FEC or remotely from a control console in the tower. Lighting control is hardwired, relay-based with no programmable logic controller. The tower control console and associated relay control panel are both in good condition.

Essential Power System

The essential power system for the Airport (including all airfield lighting) is located in the field electrical centre. It consists of a 300kW, 600/347V, 3□, 4W diesel driven generator and matching transfer switch. The system has been well maintained and exercised and is in good condition.

The generator set was installed in 1988 and has not even run 300 hours according to the run-time meters. With proper maintenance at the manufacturer's recommended intervals, the generator set should last indefinitely.

The transfer switch was also installed in 1988 and it appears to be in good condition. No operating/maintenance problems have been reported. The unit is rated 400A, 600V and was manufactured by Westinghouse. The transfer switch should also be scheduled for regular servicing and maintenance.

Security Fencing

The Airport meets all Transport Canada security requirements for fencing. The existing 1.8m chain link fence is topped with 3 strands of barbed wire. In general the fence is in fair to good condition.

One motorized gate has being recently replaced. It is anticipate in short-term to replace another motorized gate.

Only routine/preventative maintenance is projected for the fence over the 10-year period.

Equipment

A detailed inspection and review of the Airport operations equipment was undertaken in May 2001. Table INFRAST-1 summarizes the existing conditions of the equipment.

TABLE INFRAST-1
Toronto City Centre Airport

Summary of Airport Operations Equipment and Existing Condition Rating

Year	Vehicle Make	Vehicle I.D	Engine Hours	kilometers	Major Repairs 1999 to 2000	Present Condition (Note 1)
1987	Amerteck	Red 1	1538.9	not available	General maintenance work. Oil changes, tune-up's.	Poor
1984	International	Plow Truck 80	2762	23,162	Re-built wing plow piston.	Fair to Good
1986	International	Plow Truck 81	3415	18,206	Replace plow assembly, rebuilt hydraulic piston, replace hydraulic hoses & couplings.	Good
1988	SMI	Snow Blower	1719	6313	Replace both differentials, rads, clutch, hydraulic hoses, drive shaft, trans. pan, all wheel bolts, new tires.	Good
1973	Tennant	Sweeper 153	1114	not available	General maintenance work. Oil changes, tune-up's.	Fair to Good
1997	Ransomes	Grass Cutter 152	253	not available	General maintenance work. Oil changes, tune-up's.	Good
1980	SMI	Runway Sweeper	1285	not available	New brushes ,fuel pump, replace broom housing, rewireing, painted.	Poor
1985	Massey Ferguson	Cutter 150	2230	not available	Re-built air conditioner.	Fair to Good
1999	Case	Loader 151	706	not available	General maintenance work. Oil changes, tune-up's.	Excellent
1985	GMC Truck	Spreader 82	1626	4884	General maintenance work. Oil changes, tune-up's.	Fair to Good
1985	Sweepster	Sweeper 220	754	not available	Not rated	Not Rated
1998	Ford 4x4	Staff 25	not available	45,367	General maintenance work. Oil changes, tune-up's.	Excellent
1993	GMC Van	Staff 21	9778	68,765	Electrical problems.	Fair
1991	Chev Van	Oscar	4050	33,304	Re-built engine	Fair

TABLE INFRAST-1
Toronto City Centre Airport

Summary of Airport Operations Equipment and Existing Condition Rating

Year	Vehicle Make	Vehicle I.D	Engine Hours	kilometers	Major Repairs 1999 to 2000	Present Condition (Note 1)
Unknown	Sand Spreader	Unknown	not available	not available		Poor

Notes:

1. Present Condition Rating based on equipment inspection of May 29, 2001 completed by Jack Quinn of the TCCA and Brad R. Pryde, P.Eng. of PSMI.
2. Sander Box/Spreader is in poor condition and an ACAP Application is before Transport Canada for a new sander box/spreader.

Groundside

Pavements

No construction history is available for the groundside pavements. In general, the groundside pavements are in good condition with minimal cracking. Only one significant are of distress was noted along the seawall on the west side of the traffic circle. The area has settled and has required continuing repair. These area require short-term attention for rehabilitation

The remainder of the groundside pavements are in fair to good condition.

Site Servicing

In general, the Airport is well serviced. Potable water, fire pumps, sanitary pumping stations, storm drainage, gas, power and communication utilities are all available and are estimated to be sufficient to meet the Airport's requirements within the planning period.
Sanitary sewers collect domestic waste and pump via sewage pumping stations to the Island Sewage Treatment Plant. There have been no noted deficiencies with the existing pumping stations, which appear to be operating satisfactorily. Routine maintenance and possible pump replacements are forecast within the planning period.

As part of any pavement rehabilitation project planned on the groundside, video inspections should be planned for the sanitary and storm sewer lines. This permits an assessment of their condition to determine if replacement is warranted as part of any pavement rehabilitation project.

TEN YEAR CAPITAL PLAN – INFRASTRUCTURE REQUIREMENTS

General

The rehabilitation recommendations made are not expansionary. It is assumed that the existing infrastructure will be maintained. The existing runway lengths will be maintained and only Runway 08-26 and connecting taxiway and apron facilities will remain lighted.

Airport certification rectifications have been considered and separate costs presented. While the costs are nominal, the work is considered a priority to ensure the Airport operates safety and within the standards and recommended practices required for certification under the Federal Aeronautics (CARS).

TP312E Standards and Recommended Practices

Any rehabilitation of airside facilities must comply with the standards applicable at the time of rehabilitation. As such, any certification deviations must be addressed at that time.

The rehabilitation options for Runways 15-33 and 06-24 have taken into consideration a reduced runway width of 30m versus the current 45m. The 30m width would meet the Code C requirements of the design aircraft and permit capital and operational cost savings, while meeting current TP312E standards.

There have been a number of certification deviations noted in recent TC site inspections. These have been identified in our cost projections and were assumed to be undertaken in conjunction with major works on the infrastructure. They may however by completed independently as funds and priorities may dictate.

Rehabilitation Options and Capital Plan

Table INFRAST-2 summarizes the rehabilitation options for the various airport pavement areas.

The recommended rehabilitation options considered both the need to address the existing distresses observed and the future development scenarios. Table INFRAST-3 below outlines the future design aircraft pavement load rating and tire pressure requirements. Table INFRAST-4 then compares the requirements of the design aircraft to the existing facilities and identifies whether pavement strengthening or tire pressure considerations need to be addressed. The recommended rehabilitation is then proposed.

In general, the majority of the upgrade requirements involve improvements related to tire pressure-handling capabilities. In these cases, the rehabilitation option is recommended which involves the application of an asphalt overlay. In some cases, the pavements required additional effort to rehabilitate and the pulverizing and new asphalt is recommended. Refer to Table INFRAST-4 for the recommended rehabilitation methodologies for each airside facility.

Table INFRAST-5 presents the estimated capital requirements for the pavement rehabilitation within the 10-year planning period.

TABLE INFRAST-2
Toronto City Centre Airport
SUMMARY OF PAVEMENT REHABILITATION OPTIONS

FACILITY	YEAR REHABILITATION LIKELY REQUIRED	2 REHABILITATION	LIFE EXPECTANCY OF REHABILIATION OPTION	ADDITIONAL COMMENTS
Runway 08-26 and Taxiway D	2007	• Overlay 100 mm	12	Reflection cracking will occur within 3 to 4 years
		• Overlay 65 mm	8	Reflection cracking will occur within 2 to 3 years
		• Hot or cold in place recycle with overlay	12	Reflection cracking will occur within 3 to 4 years
		• Pulverize and add 100 mm new asphalt	18 to 20	Requires a grade raise No reflection cracks
Runway 06-24	2002	• Reconstruct	18 to 20	No reflection cracks
		• Pulverize and add new granulars and overlay	18 to 20	Requires a grade raise No reflection cracks
Runway 15-33	2002	• Reconstruct	18 to 20	No reflection cracks
		• Pulverize and add new granulars and overlay	18 to 20	Requires a grade raise No reflection cracks
Taxiway A, C, and F	2005	• Overlay 100 mm	12	Reflection cracking will occur within 3 to 4 years
		• Overlay 65 mm	8	Reflection cracking will occur within 2 to 3 years
		• Hot or cold in place recycle with overlay	12	Reflection cracking will occur within 3 to 4 years
		• Pulverize and add 100 mm new asphalt	18 to 20	Requires a grade raise No reflection cracks
Taxiway E and B	2002	• Reconstruct	18 to 20	No reflection cracks
		• Pulverize and add new granulars and overlay	18 to 20	Requires a grade raise No reflection cracks
Apron – General	2005	• Overlay 100 mm	12	Reflection cracking will occur within 3 to 4 years
		• Overlay 65 mm	8	Reflection cracking will occur within 2 to 3 years
		• Hot or cold in place recycle with overlay	12	Reflection cracking will occur within 3 to 4 years
		• Pulverize and add 100 mm new asphalt	18 to 20	Requires a grade raise No reflection cracks
Apron in front of ATB and Hangar 4	2002	• Reconstruct	18 to 20	No reflection cracks
		• Pulverize and add new granulars and overlay	18 to 20	Requires a grade raise No reflection cracks Concrete may be encountered
Groundside excluding parking area along seawall	2008	• Overlay 100 mm	12	Reflection cracking will occur within 3 to 4 years
		• Overlay 65 mm	8	Reflection cracking will occur within 2 to 3 years
		• Hot or cold in place recycle with overlay	12	Reflection cracking will occur within 3 to 4 years
		• Pulverize and add 100 mm new asphalt	18 to 20	Requires a grade raise No reflection cracks
Parking area along seawall	2002	• Reconstruct	18 to 20	Need filter materials to stop loss of ground

Table INFRAST-3
Toronto City Centre Airport

Aircraft Load Rating Assessment for Future Design Aircraft

Aircraft Type	Future Airport Development Design Aircraft	Load Restriction (%)	Max ALR	Adjusted ALR	Design Tire Pressure (MPa)	Airside Facilities Routinely Used
Jet	**BAE 146-100**	83%	7	5.8	1.0	- 08-26 - Taxi A - Taxi D - Apron
Jet	**BAE 146-200**	83%	7.9	6.6	1.0	- 08-26 - Taxi A - Taxi D - Apron
Jet	**BAE 146-300**	83%	8.3	6.9	1.0	- 08-26 - Taxi A - Taxi D - Apron
Turboprop	**Dash-8**	N/A	5	5	0.9	- 08-26 - 06-24 - Taxi A - Taxi B - Taxi C - Taxi D - Taxi E - Taxi F - Apron - 15-33
Jet	**Canadian Regional Jet**	72%	6.6	4.8	1.16	- 08-26 - Taxi A - Taxi D - Apron
Jet	**Dornier 328J**	No	5.4	5.4	1.13	- 08-26 - Taxi A - Taxi D - Apron
Jet	**Learjet 25**	No	3	3	0.79	- 08-26 - Taxi A - Taxi D - Apron
Turboprop	**Beech 1900**	No	3	3	0.62	- 08-26 - 06-24 - Taxi A - Taxi B - Taxi C - Taxi D - Taxi E - Taxi F - Apron - 15-33
Jet	**Falcon 50/9000**	No	6.6	6.6	1.3	- 08-26 - Taxi A - Taxi D - Apron

Table INFRAST-4
Toronto City Centre Airport

Airport Pavement Rehabilitation PLR and Tire Pressure Upgrade Requirements

Airside Facility	Existing PLR	Existing Tire Pressure Limitation (MPa)	Proposed PLR	Upgrade Required For PLR	Proposed Tire Pressure (MPa)	Upgrade Required For Tire Pressure	Proposed Min. Rehab Required
08-26	9/8	< 1.0	7	No	> 1.0	Yes	65mm Overlay
06-24	6	< 0.5	5	No	< 1.0	Yes	Pulverize and add 80mm HMAC
15-33	6	< 0.5	5	No	< 1.0	Yes	Pulverize and add 80mm HMAC
Taxiway A	9	< 1.0	7	No	> 1.0	Yes	65mm Overlay
Taxiway B	6	< 0.5	5	No	< 1.0	Yes	Pulverize and add 80mm HMAC
Taxiway C	6	< 0.5	5	No	< 1.0	Yes	65mm Overlay
Taxiway D	9	< 1.0	7	No	> 1.0	Yes	65mm Overlay
Taxiway E	8	< 0.5	5	No	< 1.0	Yes	Pulverize and add 80mm HMAC
Taxiway F	8	< 0.5	5	No	< 1.0	Yes	65mm Overlay
Apron (Front of ATB)	6	< 1.0	7	Yes	> 1.0	Yes	100mm Overlay
Apron (General)	6	< 1.0	7	Yes	> 1.0	Yes	100mm Overlay

Table INFRAST-5

Toronto City Centre Airport
10 Year Capital Program
Summary of Costs of Capital Works for the Period 2001-2010

Item	Description	General Condition Rating	Potential ACAP Grant Percentage	Estimated Capital Costs			Total Estimated Capital Costs	TCCA Share of Capital Costs (If ACAP Funding Secured)
				Short- Term Needs (2001 - 2004)	Medium-Term Needs (2005 – 2007)	Long-Term Needs (2008 - 2010)		
1.0	**AIRSIDE**							
1.1	**Runways**							
	Runway 08-26 (Including Intersections)	Good	90%		$1,406,438		$1,406,438	$140,644
	Runway 06-24 (Including Intersections)	Poor	90%	$1,055,908			$1,055,908	$105,591
	Runway 15-33 (Including Intersections)	Poor to Fair	90%	$999,841			$999,841	$99,984
1.2	**Taxiways**							
	Taxiway A (From Run 08-26 to Apron)	Fair to Good	90%		$415,840		$415,840	$41,584
	Taxiway B (From Apron to Run 15-33)	Poor to Fair	90%	$59,788			$59,788	$5,979
	Taxiway C (From Apron to Run 06-24)	Fair to Good	90%		$70,446		$70,446	$7,045
	Taxiway D (From Tax C to End Run 08-26)	Good	90%		$201,719		$201,719	$20,172
	Taxiway E	Poor to Fair	90%	$214,191			$214,191	$21,419
	Taxiway F	Fair to Good	90%		$50,475		$50,475	$5,047
1.3	**Apron**							
	Apron in front of ATB	Fair	90%	$2,027,445			$2,027,445	$202,745

Table INFRAST-5

Toronto City Centre Airport
10 Year Capital Program
Summary of Costs of Capital Works for the Period 2001-2010

Item	Description	General Condition Rating	Potential ACAP Grant Percentage	Estimated Capital Costs			Total Estimated Capital Costs	TCCA Share of Capital Costs (If ACAP Funding Secured)
				Short- Term Needs (2001 - 2004)	Medium-Term Needs (2005 – 2007)	Long-Term Needs (2008 - 2010)		
	Apron General	Fair	90%		$1,278,750		$1,278,750	$127,875
1.4	**Runway Lighting**	Fair to Good	90%				$0	$0
1.5	**Approach Lighting**	Not Applicable	90%				$0	$0
1.6	**Taxiway Lighting**	Fair to Good	90%				$0	$0
1.7	**Apron Lighting**	Fair to Good	90%				$0	$0
1.8	**Airside Guidance Signs**	Fair to Good	90%				$0	$0
1.9	**Security Fencing**	Fair	90%	$5,000	$5,000		$10,000	$1,000
2.0	**GROUNDSIDE**							
2.1	**Roads**	Good	0%			$243,361	$243,361	$243,361
2.3	**Public Parking Lot**	Very Poor	0%	$199,750			$199,750	$199,750
2.4	**Street and Parking Lot Lighting**	Fair	0%				$0	$0
2.5	**Drainage**	Fair	0%				$0	$0
2.6	**Servicing**	Fair	0%				$0	$0
3.0	**EQUIPMENT**							
3.1	1987 Amerteck Red 1	Poor	90%	$450,000			$450,000	$45,000
3.2	1984 International Plow Truck 80	Fair to Good	90%	$160,000			$160,000	$16,000
3.3	1986 International Plow Truck 81	Good	90%		$160,000		$160,000	$16,000
3.4	1988 SMI Snow Blower	Good	90%			$300,000	$300,000	$30,000
3.5	1973 Tennant Sweeper 153	Fair to Good	0%			$35,000	$35,000	$35,000

Table INFRAST-5

Toronto City Centre Airport
10 Year Capital Program
Summary of Costs of Capital Works for the Period 2001-2010

Item	Description	General Condition Rating	Potential ACAP Grant Percentage	Estimated Capital Costs			Total Estimated Capital Costs	TCCA Share of Capital Costs (If ACAP Funding Secured)
				Short- Term Needs (2001 - 2004)	Medium-Term Needs (2005 – 2007)	Long-Term Needs (2008 - 2010)		
3.6	1997 Ransomes Grass Cutter 152	Good	0%		$30,000		$30,000	$30,000
3.7	1980 SMI Runway Sweeper	Poor	90%	$170,000			$170,000	$17,000
3.8	1985 Massey Ferguson Cutter 150	Fair to Good	0%		$80,000		$80,000	$80,000
3.9	1999 Case Loader 151	Excellent	90%			$156,000	$156,000	$15,600
3.10	1985 GMC Truck Spreader 82	Fair to Good	90%		$75,000		$75,000	$7,500
3.11	1985 Sweepster Sweeper 220	Not Rated	0%				$0	$0
3.12	1998 Ford 4x4 Staff 25	Excellent	0%			$35,000	$35,000	$35,000
3.13	1993 GMC Van Staff 21	Fair	0%		$25,000		$25,000	$25,000
3.14	1991 Chev Van Oscar	Fair	0%		$25,000		$25,000	$25,000
3.15	Sand Spreader	Poor	90%	$100,000			$100,000	$10,000
4.0	**CERTIFICATION ISSUES**							
4.1	PAPI 26	Not applicable	90%	$35,000			$35,000	$3,500
4.2	Pavement Marking Updates	Not applicable	90%	Included as part of major pavement rehabilitation works noted above				
4.3	Airfield Signage Relocations	Not applicable	90%	$20,000			$20,000	$2,000
4.4	Lighting Geometric Adjustments	Not applicable	90%	$10,000			$10,000	$1,000
		TOTAL ANNUAL CAPITAL COSTS		**$5,506,923**	**$3,823,667**	**$769,361**	**$10,099,952**	

Table INFRAST-5

Toronto City Centre Airport
10 Year Capital Program
Summary of Costs of Capital Works for the Period 2001-2010

Item	Description	General Condition Rating	Potential ACAP Grant Percentage	Estimated Capital Costs			Total Estimated Capital Costs	TCCA Share of Capital Costs (If ACAP Funding Secured)
				Short- Term Needs (2001 - 2004)	Medium-Term Needs (2005 – 2007)	Long-Term Needs (2008 - 2010)		
		TCCA SHARE OF CAPITAL COSTS (If ACAP Funding Secured)		$730,467 (13.3%)	$526,367 (13.8%)	$358,961 (46.7%)		$1,615,795 (16.0%)

Notes:

1. Cost estimates are preliminary. Preliminary design should be completed prior to any requests for funding to ensure costs are accurate.
2. All estimated capital costs have been completed using 2001 dollars.
3. All estimated capital costs are total costs including engineering and contingencies but excluding GST.
4. General Aviation/Commercial access roads are presently not eligible for ACAP funding.
5. Presently only Heavy Airside Mobile Equipment is eligible for ACAP funding.
6. ACAP funding opportunities and percentage grant available is the opinion of Pryde Schropp McComb Inc. Consultation with Transport Canada is recommended during annual budget deliberations to confirm project eligibility and grant percentages.

AIRPORTS CAPITAL ASSISTANCE PROGRAM (ACAP)

The primary funding program for airports, similar to TCCA, is the Airports Capital Assistance Program (ACAP). Following is a brief description of the ACAP Funding Program as it would apply to the TCCA based on the present ACAP eligibility criteria/rules.

Transport Canada will consider contributions for the following types of projects in descending order of priority:

First priority projects include safety-related airside projects, such as the rehabilitation of runways, taxiways, aprons, associated lighting, visual aids, sand storage sheds and utilities to service eligible items. This category also includes related site-preparation costs (including associated environmental costs), and aircraft firefighting specialized vehicles and ancillary equipment and equipment shelters, which are necessary to maintain the regulated level of protection at an airport
.

Second priority projects include safety-related heavy airside mobile equipment, such as runway snowblowers, runway snowplows, runway sweepers, spreaders, and winter friction testing devices.

Third priority projects include safety-related air terminal building/groundside projects, such as sprinkler systems, asbestos removal and barrier-free access.

Fourth priority projects include asset protection or refurbishing, or operating cost reduction related to the air terminal building or groundside access and heavy airside mobile equipment shelters.

Within this Ten Year Capital Program, estimation has been made on the probability of receiving ACAP funding from Transport Canada for the various projects. It is recommended that Transport Canada be contacted at an early stage to determine whether or not the project contemplated is indeed eligible for ACAP funding.

Based on the present rules of ACAP, all Priority 1, 2 and 3 Type Projects that are approved by Transport Canada, would be **eligible for 90%** funding from Transport Canada. Any Priority 4 Type Projects would be eligible for 50% funding.

It is very important that a comprehensive maintenance plan is in place and carried out on the airport infrastructure. As part of the ACAP evaluation process, it is incumbent upon the airport owner to demonstrate due regard for prolonging the life of their infrastructure.

Appendix C

Traffic Forecasts

Sypher

Traffic Forecast Assumptions

The baseline low scenario reflects a continuation of the trend 91-99, that is a 10% decline annually. When traffic reaches a level that three turns per day to YOW cannot be sustained, then all service is assumed to be terminated
The baseline high scenario assumes that TCCA scheduled services grow at the same long term rate as long term GDP Growth - 2.5%/year
General aviation movements, itinerant and local, are assumed to remain constant at 98,000, except in the jet scenario, where local movements are phased out in 2010 to keep total traffic within the noise parameters
For all jet scenarios, 20 daily movements are assumed to be business jets
Scenarios include for 2003 and 2020

- Baseline Low
- Baseline High
- Turbo - a continuation of the jet ban, but with a second commercial carrier focused on growth
- Jet 50 - a lifting of the jet ban, but continuation of the Tripartite NEF limits. Jets include Stage3/4 small commercial (50 seat) and business Jets
- Jet 32 - as above, but with 32 seat commercial jets to examine the impact on number of movements, viable markets
- Jet 72 - as above, but with 72 seat commercial jets

For the growth scenarios, each shorthaul market to domestic and transborder destinations is examined. The total current O-D traffic on the market is considered, a market share estimated for TCCA traffic, and the passenger volumes and flight frequencies calculated based on these estimates. Where a minimum of three turns per day is not viable, there is assumed to be no service in the market.

Definitions

PPHP - Planning Peak Hour Passengers - a derived forecast, estimating the 90th percentile peak hour passengers - used for facility planning
O-D Passengers - origin/destination passengers. Passengers whose trip starts or ends at the airport under study. Where there are no transfer/connecting passengers O-D passengers are equal to enplaned/deplaned passengers
Level I-III Carriers - the largest three classes of air carriers -encompasses virtually all scheduled services
Pax - passengers
LF - Load Factor - the percentage of seats occupied by revenue passengers

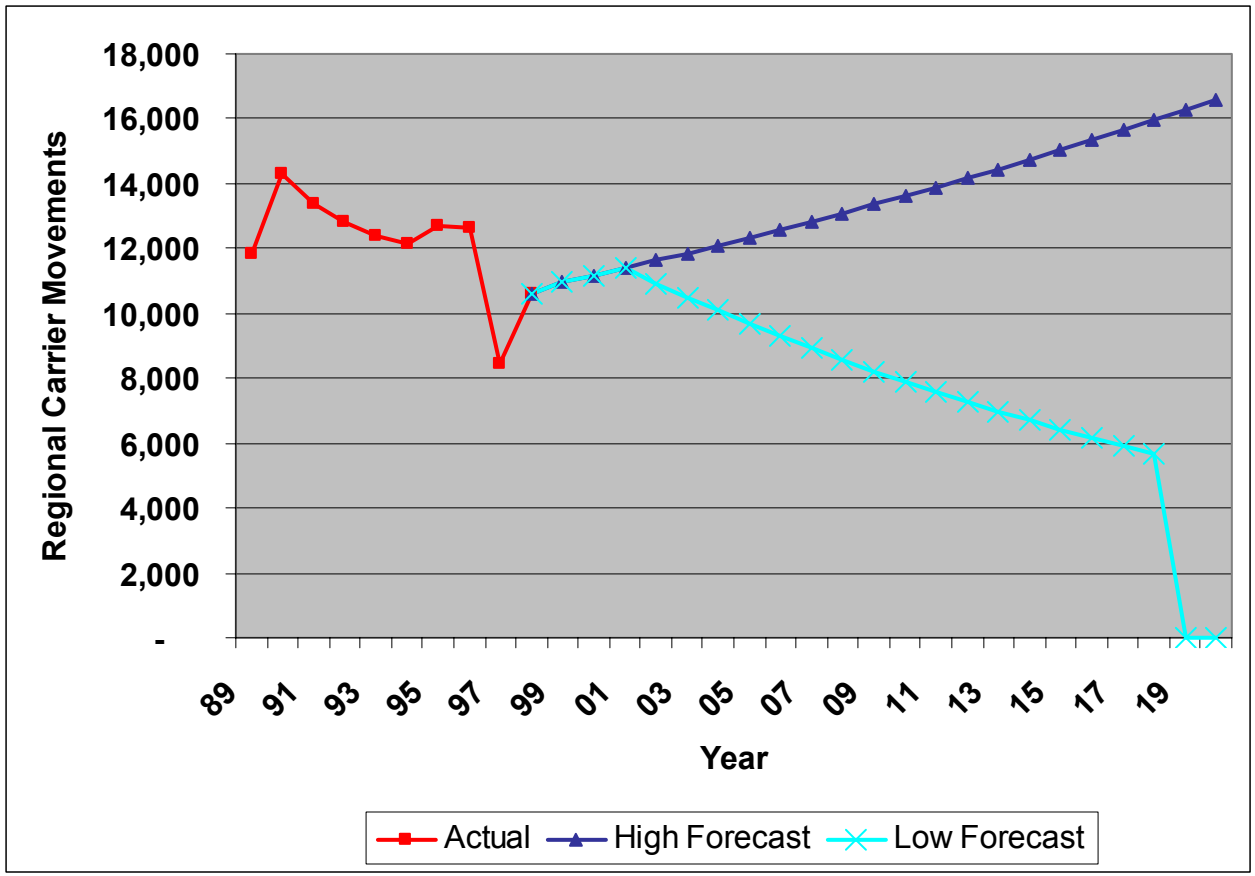
Summary

	2003				
	Baseline High 2003	**Turboprop 2003**	**32 Seat Jet 2003**	**50 Seat Jet 2003**	**77 Seat Jet 2003**
O-D Passengers	114,213	423,951	582,894	579,540	618,228
PPHP	75	200	310	310	330
Percent of O-D Market					
Ottawa/Mont./London	4.9%	4.9%		7.9%	9.2%
North	0.0%	13.6%	13.6%	12.1%	5.0%
NY,BOS,CHI,WASH,DET	0.0%	9.0%	12.6%	12.6%	14.7%
Commercial Movements/Day					
Jet	0	0	98	66	48
Turbo Large	32	86	0	6	6
Turbo Small	0	6	6	0	0
Total Level I-III Carrier	32	92	104	72	54
Business Jet	0	0	13	13	13
Piston	390	390	390	390	390
Total	422	482	507	475	457

	2020				
	Baseline High 2020	**Turboprop 2020**	**32 Seat Jet 2020**	**50 Seat Jet 2020**	**77 Seat Jet 2020**
O-D Passengers	183,867	652,574	852,010	874,432	961,532
PPHP	120	350	500	410	450
Percent of O-D Market					
Ottawa/Mont./London	5.2%	6.0%	8.2%	7.6%	8.1%
North	0.0%	12.6%	11.9%	9.8%	10.2%
NY,BOS,CHI,WASH,DET	0.0%	8.4%	11.7%	13.3%	15.0%
Commercial Movements/Day					
Jet	0	0	144	100	78
Turbo Large	34	112	0	6	6
Turbo Small	0	18	16	0	0
Total Level I-III Carrier	34	130	160	106	84
Business Jet	0	0	20	20	20
Piston	390	390	160	160	160
Total	424	520	340	286	264

Baseline Movement Forecasts
Regional Carrier Movements

Year	Actual	High Forecast	Low Forecast	Pax/Op High	Pax/Op Low	Estimated LF
89	11,824			23		63.3%
90	14,328			19		51.0%
91	13,400					
92	12,800					
93	12,400					
94	12,128			12		32.0%
95	12,690			11		28.9%
96	12,644			10		28.2%
97	8,470			9		25.0%
98	10,604	10,604	10,604	11	11	29.2%
99		10,955	10,955	10.95	10.95	
00		11,174	11,174	10.29	10.29	
01		11,398	11,398	9.21	9.21	
02		11,626	10,942	8.13	8.64	
03		11,858	10,504	9.63	8.10	
04		12,095	10,084	9.71	7.59	
05		12,337	9,680	9.79	7.12	
06		12,584	9,293	9.87	6.67	
07		12,836	8,922	9.95	6.25	
08		13,092	8,565	10.03	5.86	
09		13,354	8,222	10.11	5.50	
10		13,621	7,893	10.19	5.15	
11		13,894	7,577	10.27	-	
12		14,171	7,274	10.35	-	
13		14,455	6,983	10.43	-	
14		14,744	6,704	10.52	-	
15		15,039	6,436	10.60	-	
16		15,340	6,178	10.69	-	
17		15,646	5,931	10.77	-	
18		15,959	5,694	10.86	-	
19		16,279	-	10.95	-	
20		16,604	-	11.07	-	



Baseline Movement Forecasts – Scheduled Services Only

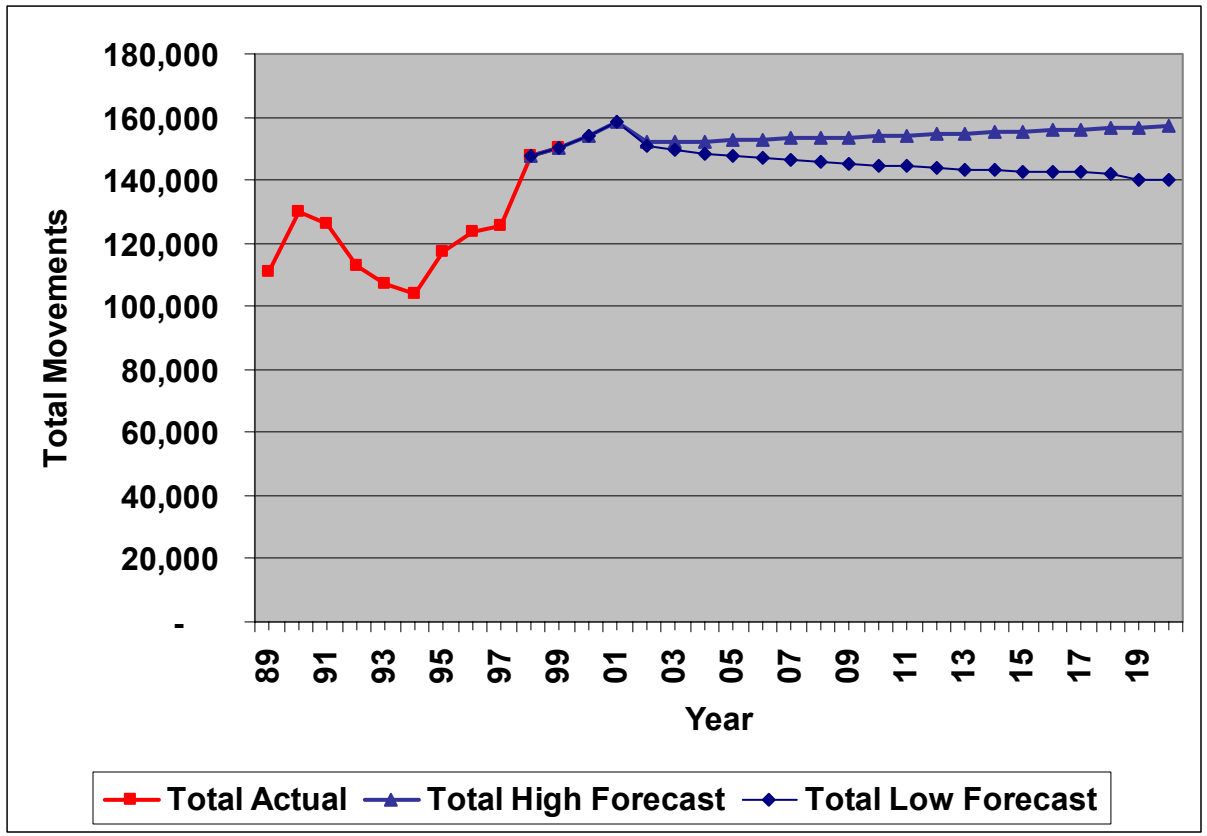
Baseline Movement Forecast
Total Movements

Year	Regional Carrier	GA	Other Commercial	Total Actual	Commercial High Forecast	Total High Forecast
89	11,824	65,301	34,000	111,125		
90	14,328	81,797	34,000	130,125		
91	13,400	78,828	34,000	126,228		
92	12,800	66,137	34,000	112,937		
93	12,400	60,588	34,000	106,988		
94	12,128	57,836	34,000	103,964		
95	12,690	70,332	34,142	117,164		
96	12,644	73,460	37,692	123,796		
97	8,470	76,637	40,316	125,423		
98	10,604	95,378	41,804	147,786	10,604	147,786
99	10,955	98,302	41,165	150,422	10,955	150,422
00		101000	42,000		11,174	154,174
01		105000	42,000		11,398	158,398
02		98,302	42,000		11,626	151,928
03		98,302	42,000		11,858	152,160
04		98,302	42,000		12,095	152,397
05		98,302	42,000		12,337	152,639
06		98,302	42,000		12,584	152,886
07		98,302	42,000		12,836	153,138
08		98,302	42,000		13,092	153,394
09		98,302	42,000		13,354	153,656
10		98,302	42,000		13,621	153,923
11		98,302	42,000		13,894	154,196
12		98,302	42,000		14,171	154,473
13		98,302	42,000		14,455	154,757
14		98,302	42,000		14,744	155,046
15		98,302	42,000		15,039	155,341
16		98,302	42,000		15,340	155,642
17		98,302	42,000		15,646	155,948
18		98,302	42,000		15,959	156,261
19		98,302	42,000		16,279	156,581
20		98,302	42,000		16,604	156,906

Peak Day 2020	468
Average Day 2020	390

Baseline Movement Forecast
Total Movements

Year	Commercial Low Forecast	Total Low Forecast	Pax/Op High	Pax/Op Low	Estimated LF
89			23		63.3%
90			19		51.0%
91					
92					
93					
94			12		32.0%
95			11		28.9%
96			10		28.2%
97			9		25.0%
98	10,604	147,786	11	11	29.2%
99	10,955	150,422	10.95	10.95	
00	11,174	154,174	10.29	10.29	
01	11,398	158,398	9.21	9.21	
02	10,258	150,560	8.13	9.21	
03	9,232	149,534	9.63	9.21	
04	8,309	148,611	9.71	9.21	
05	7,478	147,780	9.79	9.21	
06	6,730	147,032	9.87	9.21	
07	6,057	146,359	9.95	9.21	
08	5,451	145,753	10.03	9.21	
09	4,906	145,208	10.11	9.21	
10	4,416	144,718	10.19	9.21	
11	3,974	144,276	10.27	-	
12	3,577	143,879	10.35	-	
13	3,219	143,521	10.43	-	
14	2,897	143,199	10.52	-	
15	2,607	142,909	10.60	-	
16	2,347	142,649	10.69	-	
17	2,112	142,414	10.77	-	
18	1,901	142,203	10.86	-	
19	-	140,302	10.95	-	
20	-	140,302	11.07	-	

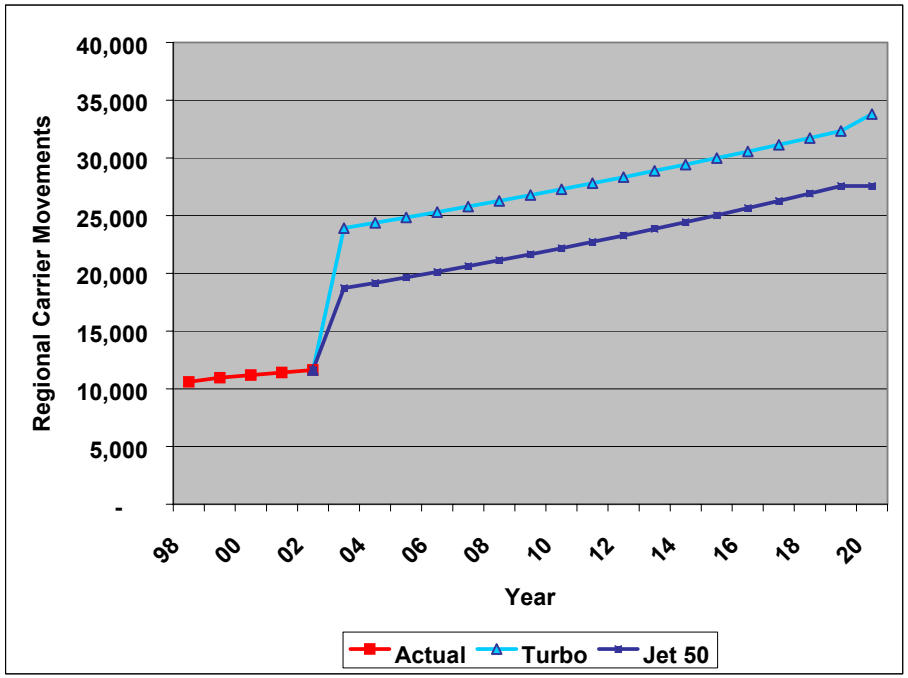


Baseline Movement Forecast – Total Traffic

Movement Forecasts Turbo & Jet Scenarios
Scheduled Services Only

Year	Actual	Turbo	Jet 50
98	10,604		
99	10,955		
00	11,174		
01	11,398		
02	11,626	11,626	11,626
03		23,920	18,720
04		24,374	19,179
05		24,838	19,649
06		25,310	20,130
07		25,790	20,623
08		26,280	21,128
09		26,780	21,646
10		27,289	22,176
11		27,807	22,720
12		28,335	23,276
13		28,874	23,847
14		29,422	24,431
15		29,981	25,029
16		30,551	25,643
17		31,131	26,271
18		31,723	26,914
19		32,326	27,574
20		33,800	27,560

Growth Rates	
Turbo	1.90%
Jet	2.45%



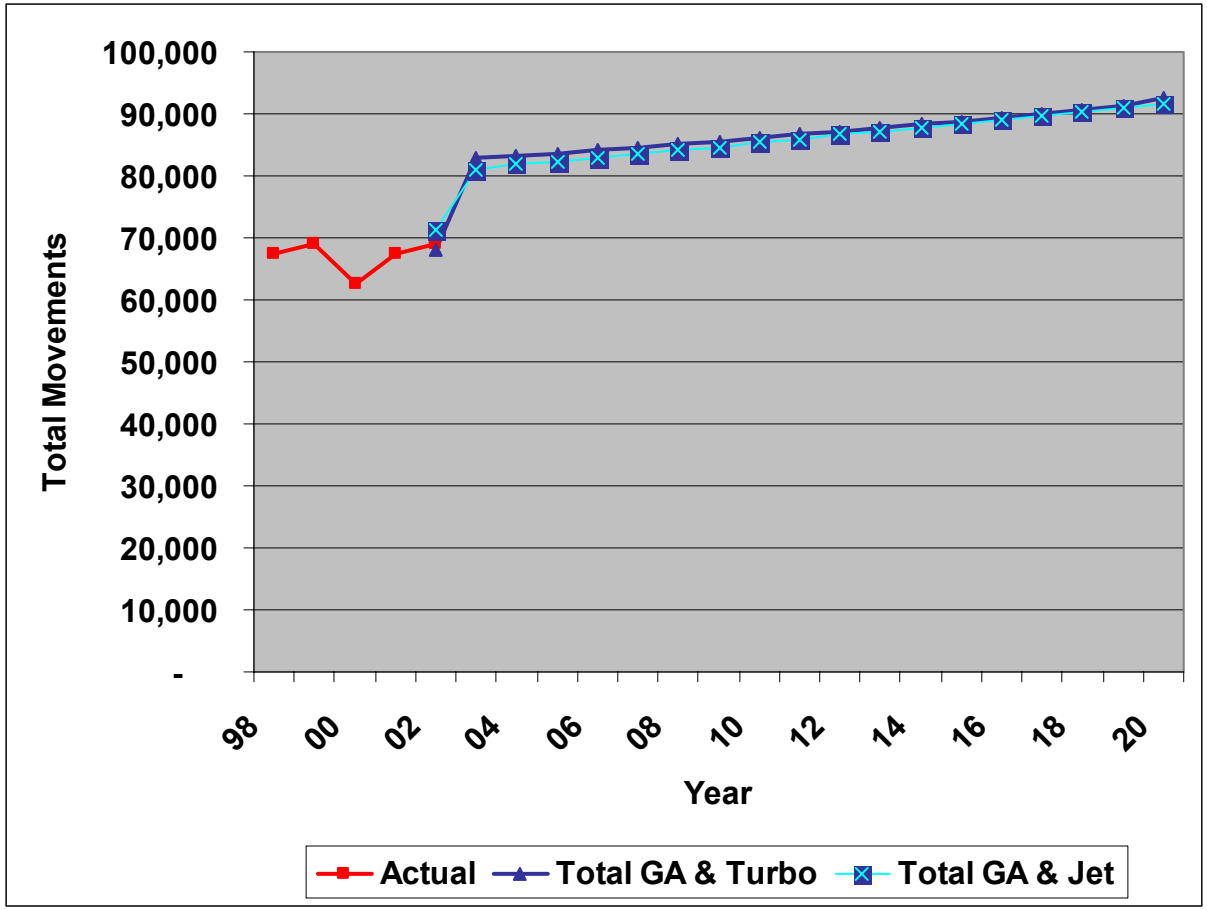
Movement Forecasts Turbo & Jet Scenarios
Scheduled Service Movements Only

Movement Forecasts
Scheduled plus Other Commercial, Itinerant

Year	Actual	GA	Other Commercial	Bus jet Slots Used	Business Jet	Turbo in Turbo Scenario	Turbo in Jet Scenario	Jet 50	Total GA & Turbo	Total GA & Jet
98	67,479									
99	68,951									
00	62,623									
01	67,479									
02	68,951	16,831	42,000	12	3,120	9,339		9,339	68,170	71,290
03		16,831	42,000	13	3,380	23,920	1,560	17,160	82,751	80,931
04		16,831	42,000	15	3,900	24,374	1,560	17,580	83,205	81,871
05		16,831	42,000	15	3,900	24,838	1,560	18,011	83,669	82,302
06		16,831	42,000	16	4,160	25,310	1,560	18,452	84,141	83,003
07		16,831	42,000	16	4,160	25,790	1,560	18,904	84,621	83,455
08		16,831	42,000	17	4,420	26,280	1,560	19,368	85,111	84,179
09		16,831	42,000	17	4,420	26,780	1,560	19,842	85,611	84,653
10		16,831	42,000	18	4,680	27,289	1,560	20,328	86,120	85,399
11		16,831	42,000	18	4,680	27,807	1,560	20,826	86,638	85,897
12		16,831	42,000	19	4,940	28,335	1,560	21,337	87,166	86,668
13		16,831	42,000	19	4,940	28,874	1,560	21,859	87,705	87,190
14		16,831	42,000	19	4,940	29,422	1,560	22,395	88,253	87,726
15		16,831	42,000	20	5,200	29,981	1,560	22,944	88,812	88,535
16		16,831	42,000	20	5,200	30,551	1,560	23,506	89,382	89,097
17		16,831	42,000	20	5,200	31,131	1,560	24,082	89,962	89,673
18		16,831	42,000	20	5,200	31,723	1,560	24,672	90,554	90,263
19		16,831	42,000	20	5,200	32,326	1,560	25,276	91,157	90,867
20		16,831	42,000	20	5,200	33,800	1,560	26,000	92,631	91,591

Growth Rates	
Turbo	1.90%
Jet	2.45%
GA	0%

Av. Day 2020	161
Peak 2020	196



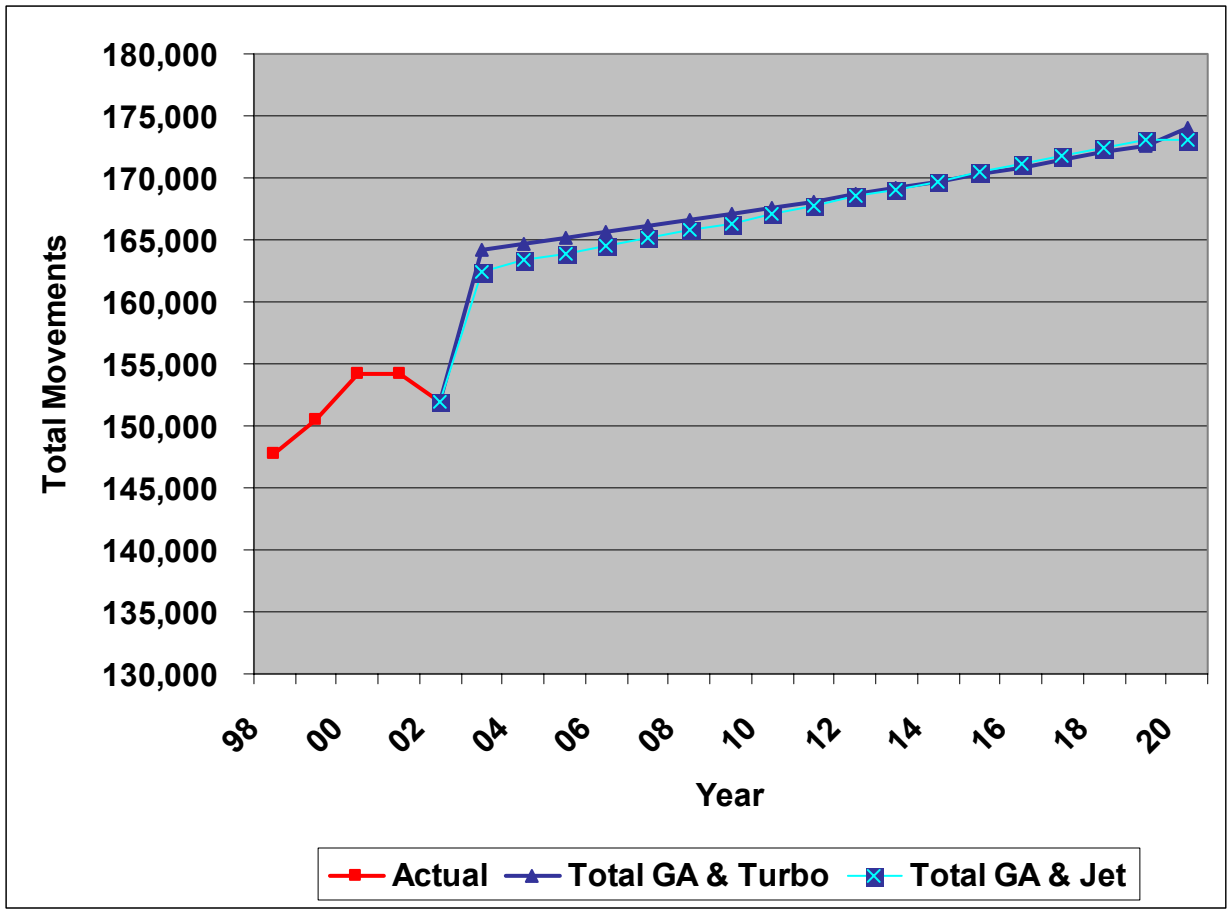
Movement Forecast – Scheduled, Other Commercial & Itinerant

Movement Forecasts Total

Year	Actual	Bus jet Slots Used	Business Jet	GA	Other Commercial	Turbo	Jet 50	Total GA & Turbo	Total GA & Jet
98	147,786				41,804				
99	150,422				41,165				
00	154,174				42,000				
01	154,174				42,000				
02	151,928	12	-	98,302	42,000	11,626	11,626	151,928	151,928
03		13	3,380	98,302	42,000	23,920	18,720	164,222	162,402
04		15	3,900	98,302	42,000	24,374	19,179	164,676	163,381
05		15	3,900	98,302	42,000	24,838	19,649	165,140	163,851
06		16	4,160	98,302	42,000	25,310	20,130	165,612	164,592
07		16	4,160	98,302	42,000	25,790	20,623	166,092	165,085
08		17	4,420	98,302	42,000	26,280	21,128	166,582	165,850
09		17	4,420	98,302	42,000	26,780	21,646	167,082	166,368
10		18	4,680	98,302	42,000	27,289	22,176	167,591	167,158
11		18	4,680	98,302	42,000	27,807	22,720	168,109	167,702
12		19	4,940	98,302	42,000	28,335	23,276	168,637	168,518
13		19	4,940	98,302	42,000	28,874	23,847	169,176	169,089
14		19	4,940	98,302	42,000	29,422	24,431	169,724	169,673
15		20	5,200	98,302	42,000	29,981	25,029	170,283	170,531
16		20	5,200	98,302	42,000	30,551	25,643	170,853	171,145
17		20	5,200	98,302	42,000	31,131	26,271	171,433	171,773
18		20	5,200	98,302	42,000	31,723	26,914	172,025	172,416
19		20	5,200	98,302	42,000	32,326	27,574	172,628	173,076
20		20	5,200	98,302	42,000	33,800	27,560	174,102	173,062

Av Day 2020 384

Growth Rates	
Turbo	1.90%
Jet	2.45%
GA	0%



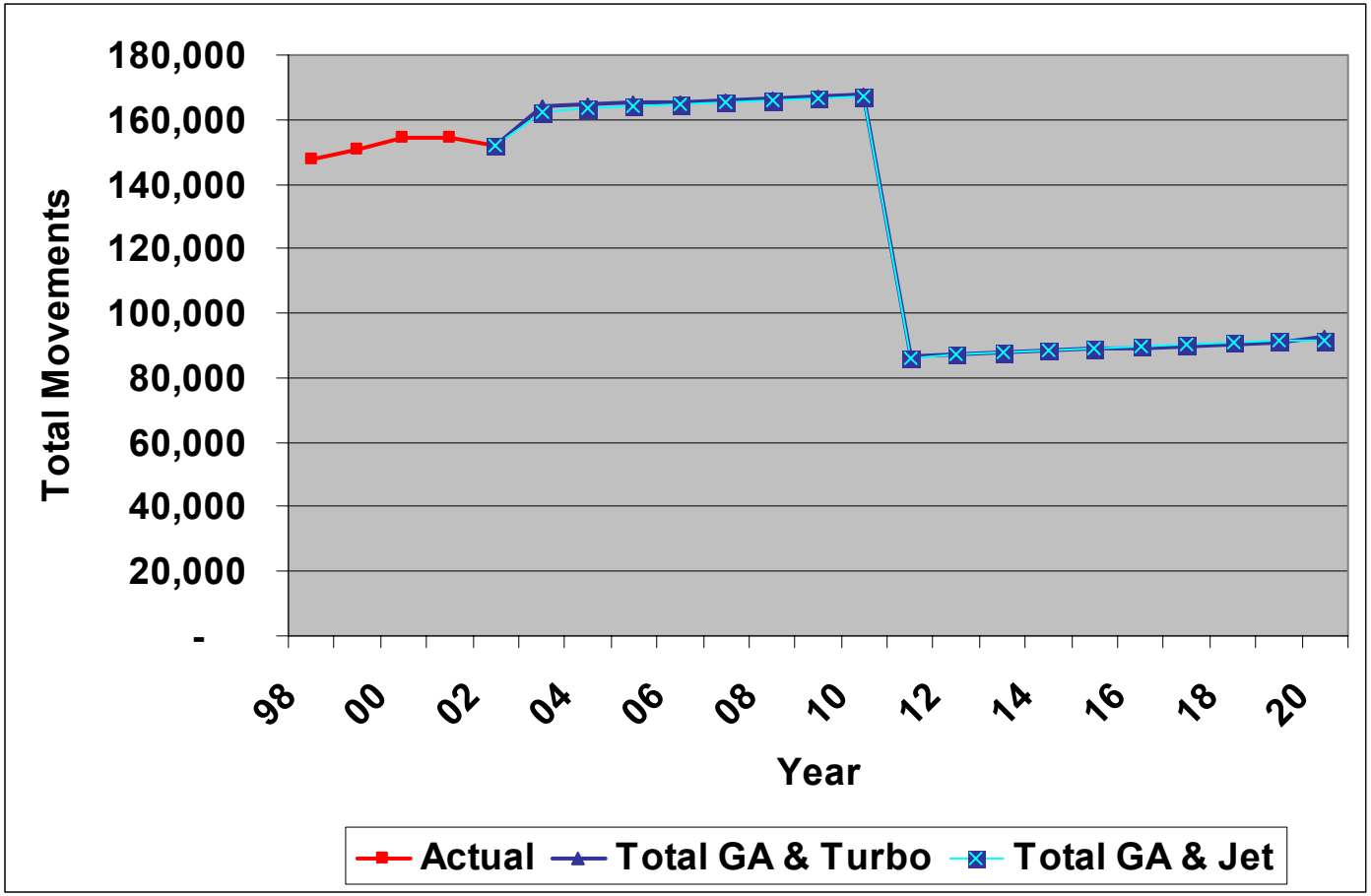
Movement Forecasts Total

Movement Forecasts with Local Eliminated in 2010

Year	Actual	Bus jet Slots Used	Business Jet	GA	Other Commercial	Turbo	Jet 50	Total GA & Turbo	Total GA & Jet
98	147,786				41,804				
99	150,422				41,165				
00	154,174				42,000				
01	154,174				42,000				
02	151,928	12	-	98,302	42,000	11,626	11,626	151,928	151,928
03		13	3,380	98,302	42,000	23,920	18,720	164,222	162,402
04		15	3,900	98,302	42,000	24,374	19,179	164,676	163,381
05		15	3,900	98,302	42,000	24,838	19,649	165,140	163,851
06		16	4,160	98,302	42,000	25,310	20,130	165,612	164,592
07		16	4,160	98,302	42,000	25,790	20,623	166,092	165,085
08		17	4,420	98,302	42,000	26,280	21,128	166,582	165,850
09		17	4,420	98,302	42,000	26,780	21,646	167,082	166,368
10		18	4,680	98,302	42,000	27,289	22,176	167,591	167,158
11		18	4,680	16,831	42,000	27,807	22,720	86,638	86,231
12		19	4,940	16,831	42,000	28,335	23,276	87,166	87,047
13		19	4,940	16,831	42,000	28,874	23,847	87,705	87,618
14		19	4,940	16,831	42,000	29,422	24,431	88,253	88,202
15		20	5,200	16,831	42,000	29,981	25,029	88,812	89,060
16		20	5,200	16,831	42,000	30,551	25,643	89,382	89,674
17		20	5,200	16,831	42,000	31,131	26,271	89,962	90,302
18		20	5,200	16,831	42,000	31,723	26,914	90,554	90,945
19		20	5,200	16,831	42,000	32,326	27,574	91,157	91,605
20		20	5,200	16,831	42,000	33,800	27,560	92,631	91,591

Av Day 2020 161

Growth Rates	
Turbo	1.90%
Jet	2.45%
GA	0%

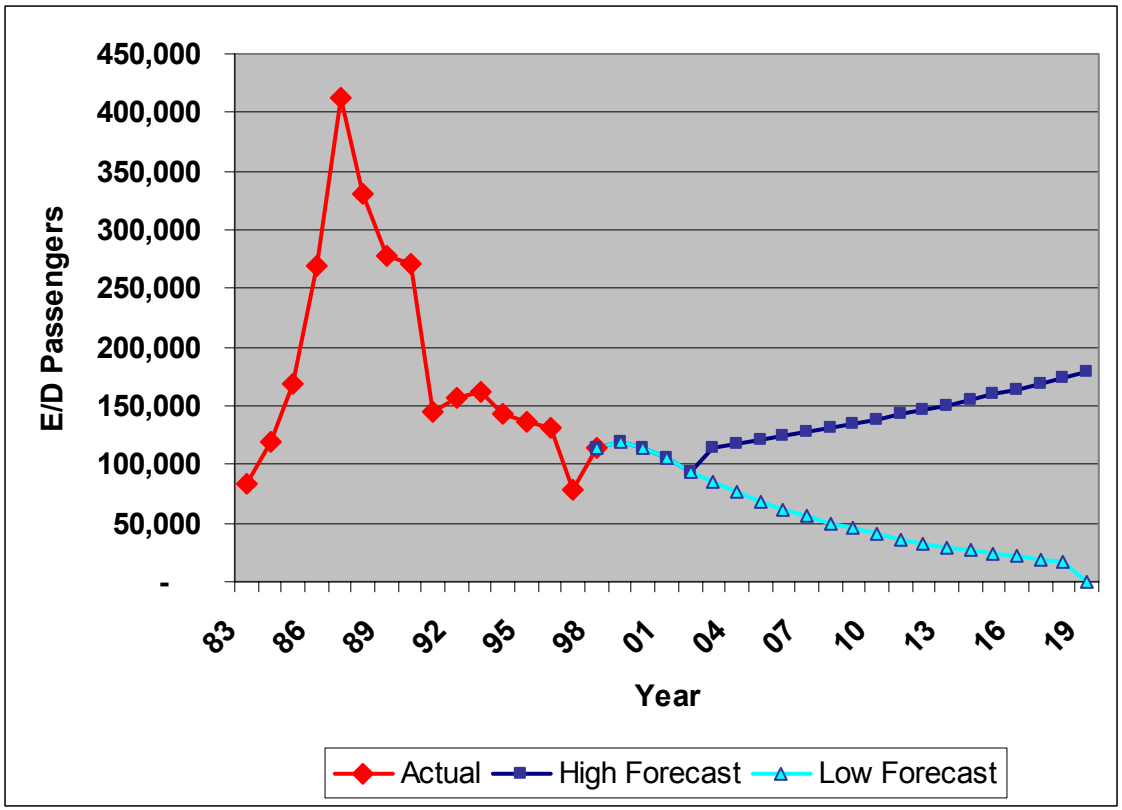


Movement Forecasts with Local Movements Eliminated 2010

Baseline Passenger Forecasts

Year	Actual	High Forecast	Low Forecast
83	83,000		
84	120,000		
85	168,000		
86	270,000		
87	412,000		
88	330,000		
89	277,000		
90	270,564		
91	144,310		
92	156,479		
93	162,522		
94	143,700		
95	135,770		
96	131,737		
97	78,384		
98	114,538	114,538	114,538
99		120,000	120,000
00		115,000	115,000
01		105,000	105,000
02		94,500	94,500
03		114,213	85,050
04		117,434	76,545
05		120,745	68,891
06		124,150	62,001
07		127,652	55,801
08		131,251	50,221
09		134,953	45,199
10		138,758	40,679
11		142,671	36,611
12		146,695	32,950
13		150,831	29,655
14		155,085	26,690
15		159,458	24,021
16		163,955	21,619
17		168,578	19,457
18		173,332	17,511
19		178,220	-
20		183,867	-

2.82% growth	1.0282
10% Decline	0.9



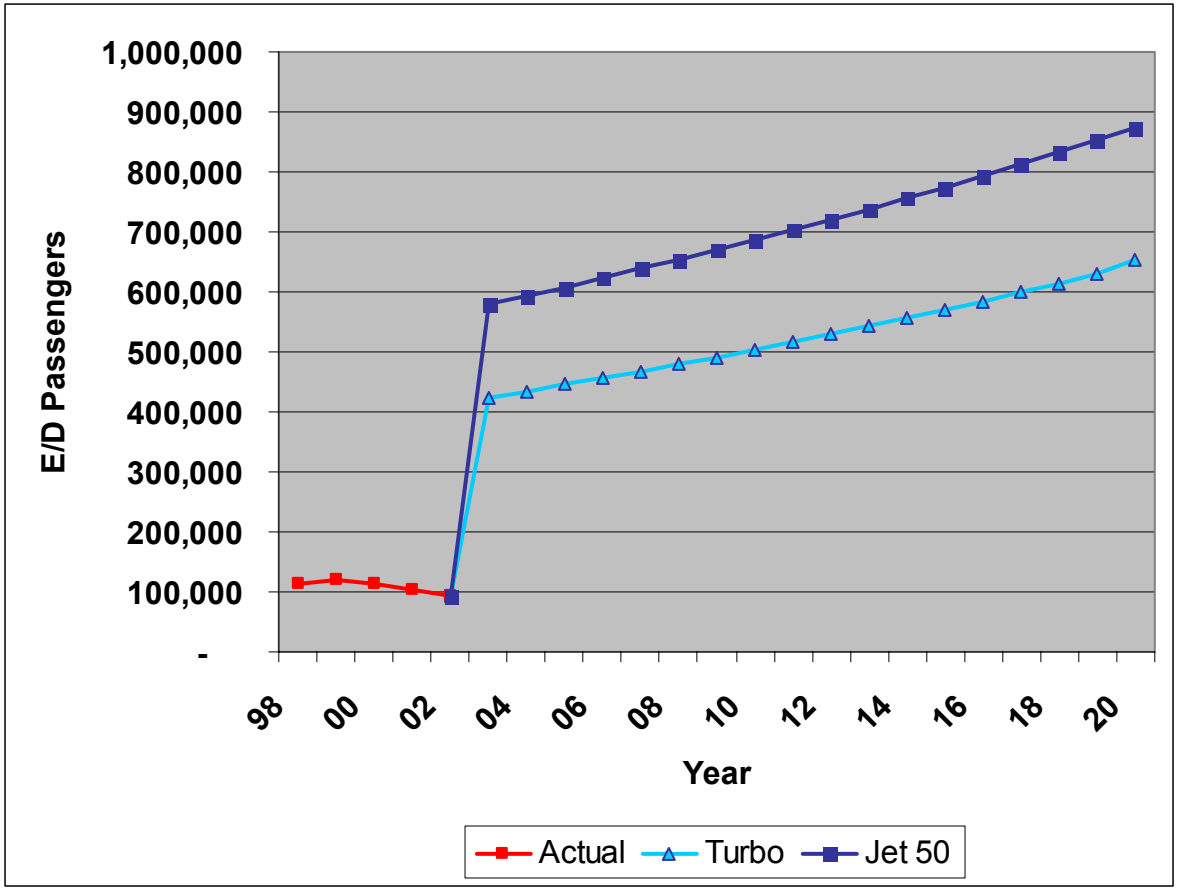
Baseline Passenger Forecasts

Passenger Forecasts - Turbo and Jet 50 Scenarios

Year	Actual	Turbo	Jet 50
98	114,538		
99	120,000		
00	115,000		
01	105,000		
02	94,500	94,500	94,500
03		423,951	579,540
04		434,550	593,739
05		445,413	608,285
06		456,549	623,188
07		467,962	638,456
08		479,661	654,099
09		491,653	670,124
10		503,944	686,542
11		516,543	703,362
12		529,456	720,595
13		542,693	738,249
14		556,260	756,336
15		570,167	774,867
16		584,421	793,851
17		599,031	813,300
18		614,007	833,226
19		629,357	853,640
20		652,574	874,432

Growth Rates

Turbo	2.50%
Jet	2.45%



Passenger Forecasts – Turbo and Jet Scenarios

Year 2003
Baseline Scenario

Inputs	
Aircraft	Seats
DHC8-100	38
BE19	19
Forecast Growth	2.50%
Years	5
L.F.	55%

Destination	Aircraft	Seats	L.F.	Pax	Turns/Day	Pax/Day	Pax/Year	2003 O-D	% of Market
Transborder									
New York	DHC8-100	38	55%	21	0	0	0	1,140,063	0.0%
Chicago	DHC8-100	38	55%	21	0	0	0	453,457	0.0%
Boston	DHC8-100	38	55%	21	0	0	0	289,358	0.0%
Washington	DHC8-100	38	55%	21	0	0	0	258,538	0.0%
Detroit	DHC8-100	38	55%	21	0	0	0	54,466	0.0%
Total TB					**0**	**0**	**0**	**2,195,882**	**0.0%**
North									
North Bay	BE19	19	55%	10	0	0	0	28,907	0.0%
Sault	BE19	19	55%	10	0	0	0	109,566	0.0%
Sudbury	BE19	19	55%	10	0	0	0	70,136	0.0%
Total North					**0**	**0**	**0**	**208,609**	**0.0%**
Mainline									
Ottawa	DHC8-100	38	66%	25	7	351	91,291	827,908	11.0%
Montreal	DHC8-100	38	16%	6	5	61	15,808	1,460,637	1.1%
London	DHC8-100	38	9%	3	4	27	7,114	52,973	13.4%
Total Mainline					**16**	**439**	**114,213**	**2,341,517**	**4.9%**
Total					**16**	**439**	**114,213**	**4,746,009**	**2.4%**

Commercial	Daily	Annual
Jet	0	0
Turbo Large	32	8320
Turbo Small	0	0
Total	32	8320

Year 2003
Turbo Scenario

Inputs	
Aircraft	Seats
DHC8-100	38
BE19	19
Forecast Growth	2.50%
Years	5
L.F.	55%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2003 O-D	% of Market
Transborder									
New York	DHC8-100	38	55%	21	8	334	86,944	1,140,063	7.6%
Chicago	DHC8-100	38	55%	21	4	167	43,472	453,457	9.6%
Boston	DHC8-100	38	55%	21	3	125	32,604	289,358	11.3%
Washington	DHC8-100	38	55%	21	3	125	32,604	258,538	12.6%
Cleveland	DHC8-100	38	55%	21	0	0	0	80,590	0.0%
Philadelphia	DHC8-100	38	55%	21	3	125	32,604	171,058	19.1%
Pittsburgh	DHC8-100	38	55%	21	0	0	0	55,156	0.0%
Cincinnati	DHC8-100	38	55%	21	0	0	0	38,174	0.0%
Detroit	DHC8-100	38	55%	21	0	0	0	54,466	0.0%
Total TB					**21**	**878**	**228,228**	**2,540,860**	**9.0%**
North									
North Bay	BE19	19	55%	10	0	0	0	28,907	0.0%
Sault	BE19	19	55%	10	3	63	16,302	109,566	14.9%
Thunder Bay	DHC8-100	38	55%	21	3	125	32,604	197,555	16.5%
Timmins	BE19	19	55%	10	0	0	0	69,932	0.0%
Quebec	DHC8-100	38	55%	21	3	125	32,604	121,185	26.9%
Sudbury	BE19	19	55%	10	0	0	0	70,136	0.0%
Total North					**9**	**314**	**81,510**	**597,282**	**13.6%**
Mainline									
Ottawa	DHC8-100	38	66%	25	7	351	91,291	827,908	11.0%
Montreal	DHC8-100	38	16%	6	5	61	15,808	1,460,637	1.1%
London	DHC8-100	38	9%	3	4	27	7,114	52,973	13.4%
Total Mainline					**16**	**439**	**114,213**	**2,341,517**	**4.9%**
Total					**46**	**1,631**	**423,951**	**5,479,659**	**7.7%**

Commercial	Daily	Annual
Jet	0	0
Turbo Large	86	22360
Turbo Small	6	1560
Total	92	23920

Year 2003
32 Seat Jet Scenario

Inputs	
Aircraft	Seats
Do328J	32
BE19	19
Forecast Growth	2.50%
Years	5
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2003 O-D	% of Market
Transborder									
New York	Do328J	32	75%	24	10	480	124,800	1,140,063	10.9%
Chicago	Do328J	32	70%	22	6	269	69,888	453,457	15.4%
Boston	Do328J	32	70%	22	4	179	46,592	289,358	16.1%
Washington	Do328J	32	70%	22	4	179	46,592	258,538	18.0%
Cleveland	Do328J	32	65%	21	0	0	0	80,590	0.0%
Philadelphia	Do328J	32	65%	21	3	125	32,448	171,058	19.0%
Pittsburgh	Do328J	32	65%	21	0	0	0	55,156	0.0%
Cincinnati	Do328J	32	65%	21	0	0	0	38,174	0.0%
Detroit	Do328J	32	65%	21	0	0	0	54,466	0.0%
Total TB					**27**	**1,232**	**320,320**	**2,540,860**	**12.6%**
North									
North Bay	BE19	19	55%	10	0	0	0	28,907	0.0%
Sault	BE19	19	55%	10	3	63	16,302	109,566	14.9%
Thunder Bay	Do328J	32	65%	21	3	125	32,448	197,555	16.4%
Timmins	BE19	19	55%	10	0	0	0	69,932	0.0%
Quebec	Do328J	32	65%	21	3	125	32,448	121,185	26.8%
Sudbury	BE19	19	65%	12	0	0	0	70,136	0.0%
Total North					**9**	**312**	**81,198**	**597,282**	**13.6%**
Mainline									
Ottawa	Do328J	32	70%	22	10	448	116,480	827,908	14.1%
Montreal	Do328J	32	65%	21	6	250	64,896	1,460,637	4.4%
London	Do328J	32	65%	21	0	0	0	52,973	0.0%
Total Mainline					**16**	**698**	**181,376**	**2,341,517**	**7.7%**
Total					**52**	**2,242**	**582,894**	**5,479,659**	**10.6%**

Commercial	Daily	Annual
Jet	98	25480
Turbo Large	0	0
Turbo Small	6	1560
Total	104	27040

Year 2003
50 Seat Jet Scenario

Inputs	
Aircraft	Seats
CRJ	50
DHC8-100	38
Forecast Growth	2.50%
Years	5
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2003 O-D	% of Market
Transborder									
New York	CRJ	50	65%	33	8	520	135,200	1,140,063	11.9%
Chicago	CRJ	50	65%	33	5	325	84,500	453,457	18.6%
Boston	CRJ	50	65%	33	3	195	50,700	289,358	17.5%
Washington	CRJ	50	65%	33	3	195	50,700	258,538	19.6%
Cleveland	CRJ	50	65%	33	0	0	0	80,590	0.0%
Philadelphia	CRJ	50	65%	33	0	0	0	171,058	0.0%
Pittsburgh	CRJ	50	65%	33	0	0	0	55,156	0.0%
Cincinnati	CRJ	50	65%	33	0	0	0	38,174	0.0%
Detroit	CRJ	50	65%	33	0	0	0	54,466	0.0%
Total TB					**19**	**1,235**	**321,100**	**2,540,860**	**12.6%**
North									
North Bay	DHC8-100	38	55%	21	0	0	0	28,907	0.0%
Sault	DHC8-100	38	50%	19	3	114	29,640	109,566	27.1%
Thunder Bay	CRJ	50	55%	28	3	165	42,900	197,555	21.7%
Timmins	DHC8-100	38	55%	21	0	0	0	69,932	0.0%
Quebec	CRJ	50	65%	33	0	0	0	121,185	0.0%
Sudbury	DHC8-100	38	65%	25	0	0	0	70,136	0.0%
Total North					**6**	**279**	**72,540**	**597,282**	**12.1%**
Mainline									
Ottawa	CRJ	50	65%	33	7	455	118,300	827,908	14.3%
Montreal	CRJ	50	65%	33	4	260	67,600	1,460,637	4.6%
London	CRJ	50	65%	33	0	0	0	52,973	0.0%
Total Mainline					**11**	**715**	**185,900**	**2,341,517**	**7.9%**
Total					**36**	**2,229**	**579,540**	**5,479,659**	**10.6%**

Commercial	Daily	Annual
Jet	66	17160
Turbo Large	6	1560
Turbo Small	0	0
Total	72	18720

Year 2003
77 Seat Jet Scenario

Inputs	
Aircraft	Seats
BAe146	77
DHC8-100	38
Forecast Growth	2.50%
Years	5
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2003 O-D	% of Market
Transborder									
New York	BAe146	77	70%	54	6	647	168,168	1,140,063	14.8%
Chicago	BAe146	77	60%	46	3	277	72,072	453,457	15.9%
Boston	BAe146	77	55%	42	3	254	66,066	289,358	22.8%
Washington	BAe146	77	55%	42	3	254	66,066	258,538	25.6%
Cleveland	BAe146	77	65%	50	0	0	0	80,590	0.0%
Philadelphia	BAe146	77	65%	50	0	0	0	171,058	0.0%
Pittsburgh	BAe146	77	65%	50	0	0	0	55,156	0.0%
Cincinnati	BAe146	77	65%	50	0	0	0	38,174	0.0%
Detroit	BAe146	77	65%	50	0	0	0	54,466	0.0%
Total TB					**15**	**1,432**	**372,372**	**2,540,860**	**14.7%**
North									
North Bay	DHC8-100	38	55%	21	0	0	0	28,907	0.0%
Sault	DHC8-100	38	50%	19	3	114	29,640	109,566	27.1%
Thunder Bay	BAe146	77	65%	50	0	0	0	197,555	0.0%
Timmins	DHC8-100	38	55%	21	0	0	0	69,932	0.0%
Quebec	BAe146	77	65%	50	0	0	0	121,185	0.0%
Sudbury	DHC8-100	38	65%	25	0	0	0	70,136	0.0%
Total North					**3**	**114**	**29,640**	**597,282**	**5.0%**
Mainline									
Ottawa	BAe146	77	60%	46	6	554	144,144	827,908	17.4%
Montreal	BAe146	77	60%	46	3	277	72,072	1,460,637	4.9%
London	BAe146	77	65%	50	0	0	0	52,973	0.0%
Total Mainline					**9**	**832**	**216,216**	**2,341,517**	**9.2%**
Total					**27**	**2,378**	**618,228**	**5,479,659**	**11.3%**

Commercial	Daily	Annual
Jet	48	12480
Turbo Large	6	1560
Turbo Small	0	0
Total	54	14040

Year 2020
Baseline

Inputs	
Aircraft	Seats
DHC8-100	38
BE19	19
Forecast Growth	2.50%
Years	22
L.F.	55%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2020 O-D	% of Market
Transborder									
New York	DHC8-100	38	55%	21	0	0	0	1,734,741	0.0%
Chicago	DHC8-100	38	55%	21	0	0	0	689,989	0.0%
Boston	DHC8-100	38	55%	21	0	0	0	440,292	0.0%
Washington	DHC8-100	38	55%	21	0	0	0	393,396	0.0%
Detroit	DHC8-100	38	55%	21	0	0	0	82,876	0.0%
Total TB					**0**	**0**	**0**	**3,341,295**	**0.0%**
North									
North Bay	BE19	19	55%	10	0	0	0	43,986	0.0%
Sault	BE19	19	55%	10	0	0	0	166,717	0.0%
Sudbury	BE19	19	50%	10	0	0	0	106,720	0.0%
Total North					**0**	**0**	**0**	**317,423**	**0.0%**
Mainline									
Ottawa	DHC8-100	38	70%	27	9	479	124,488	1,259,760	9.9%
Montreal	DHC8-100	38	45%	17	5	171	44,559	2,222,531	2.0%
London	DHC8-100	38	25%	10	3	57	14,820	80,604	18.4%
Total Mainline					**17**	**707**	**183,867**	**3,562,895**	**5.2%**
Total					**17**	**707**	**183,867**	**7,221,613**	**2.5%**

Commercial	Daily	Annual
Jet	0	0
Turbo Large	34	8840
Turbo Small	0	0
Total	34	8840

Year 2020
Baseline

Inputs	
Aircraft	Seats
DHC8-100	38
BE19	19
Forecast Growth	2.50%
Years	22
L.F.	55%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2020 O-D	% of Market
Transborder									
New York	DHC8-100	38	55%	21	0	0	0	1,734,741	0.0%
Chicago	DHC8-100	38	55%	21	0	0	0	689,989	0.0%
Boston	DHC8-100	38	55%	21	0	0	0	440,292	0.0%
Washington	DHC8-100	38	55%	21	0	0	0	393,396	0.0%
Detroit	DHC8-100	38	55%	21	0	0	0	82,876	0.0%
Total TB					**0**	**0**	**0**	**3,341,295**	**0.0%**
North									
North Bay	BE19	19	55%	10	0	0	0	43,986	0.0%
Sault	BE19	19	55%	10	0	0	0	166,717	0.0%
Sudbury	BE19	19	50%	10	0	0	0	106,720	0.0%
Total North					**0**	**0**	**0**	**317,423**	**0.0%**
Mainline									
Ottawa	DHC8-100	38	70%	27	9	479	124,488	1,259,760	9.9%
Montreal	DHC8-100	38	45%	17	5	171	44,559	2,222,531	2.0%
London	DHC8-100	38	25%	10	3	57	14,820	80,604	18.4%
Total Mainline					**17**	**707**	**183,867**	**3,562,895**	**5.2%**
Total					**17**	**707**	**183,867**	**7,221,613**	**2.5%**

Commercial	Daily	Annual
Jet	0	0
Turbo Large	34	8840
Turbo Small	0	0
Total	34	8840

Year 2020
Jet 32 Scenario

Inputs	
Aircraft	Seats
Do328J	32
BE19	19
Forecast Growth	2.50%
Years	22
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2020 O-D	% of Market
Transborder									
New York	Do328J	32	75%	24	12	576	149,760	1,734,741	8.6%
Chicago	Do328J	32	78%	25	8	399	103,834	689,989	15.0%
Boston	Do328J	32	65%	21	7	291	75,712	440,292	17.2%
Washington	Do328J	32	65%	21	6	250	64,896	393,396	16.5%
Cleveland	Do328J	32	65%	21	0	0	0	122,628	0.0%
Philadelphia	Do328J	32	65%	21	3	125	32,448	260,284	12.5%
Pittsburgh	Do328J	32	65%	21	0	0	0	83,927	0.0%
Cincinnati	Do328J	32	65%	21	0	0	0	58,086	0.0%
Detroit	Do328J	32	50%	16	3	96	24,960	82,876	30.1%
Total TB					**39**	**1,737**	**451,610**	**3,866,219**	**11.7%**
North									
North Bay	BE19	19	65%	12	0	0	0	43,986	0.0%
Sault	BE19	19	55%	10	5	105	27,170	166,717	16.3%
Thunder Bay	Do328J	32	65%	21	3	125	32,448	300,604	10.8%
Timmins	BE19	19	55%	10	0	0	0	106,410	0.0%
Quebec	Do328J	32	65%	21	3	125	32,448	184,398	17.6%
Sudbury	BE19	19	55%	10	3	63	16,302	106,720	15.3%
Total North					**14**	**417**	**108,368**	**908,835**	**11.9%**
Mainline									
Ottawa	Do328J	32	65%	21	12	499	129,792	1,259,760	10.3%
Montreal	Do328J	32	65%	21	12	499	129,792	2,222,531	5.8%
London	Do328J	32	65%	21	3	125	32,448	80,604	40.3%
Total Mainline					**27**	**1,123**	**292,032**	**3,562,895**	**8.2%**
Total					**80**	**3,277**	**852,010**	**8,337,949**	**10.2%**

Commercial	Daily	Annual
Jet	144	37440
Turbo Large	0	0
Turbo Small	16	4160
Total	160	41600

Year 2020
Jet 50 Scenario

Inputs	
Aircraft	Seats
CRJ	50
DHC100	38
Forecast Growth	2.50%
Years	22
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2020 O-D	% of Market
Transborder									
New York	CRJ	50	65%	33	12	780	202,800	1,734,741	11.7%
Chicago	CRJ	50	60%	30	7	420	109,200	689,989	15.8%
Boston	CRJ	50	65%	33	5	325	84,500	440,292	19.2%
Washington	CRJ	50	65%	33	4	260	67,600	393,396	17.2%
Cleveland	CRJ	50	65%	33	0	0	0	122,628	0.0%
Philadelphia	CRJ	50	65%	33	3	195	50,700	260,284	19.5%
Pittsburgh	CRJ	50	65%	33	0	0	0	83,927	0.0%
Cincinnati	CRJ	50	65%	33	0	0	0	58,086	0.0%
Detroit	CRJ	50	65%	33	0	0	0	82,876	0.0%
Total TB					**31**	**1,980**	**514,800**	**3,866,219**	**13.3%**
North									
North Bay	DHC100	38	65%	25	0	0	0	43,986	0.0%
Sault	DHC100	38	65%	25	3	148	38,532	166,717	23.1%
Thunder Bay	CRJ	50	65%	33	3	195	50,700	300,604	16.9%
Timmins	DHC100	38	65%	25	0	0	0	106,410	0.0%
Quebec	CRJ	50	65%	33	0	0	0	184,398	0.0%
Sudbury	DHC100	38	65%	25	0	0	0	106,720	0.0%
Total North					**6**	**343**	**89,232**	**908,835**	**9.8%**
Mainline									
Ottawa	CRJ	50	65%	33	10	650	169,000	1,259,760	13.4%
Montreal	CRJ	50	65%	33	6	390	101,400	2,222,531	4.6%
London	CRJ	50	65%	33	0	0	0	80,604	0.0%
Total Mainline					**16**	**1,040**	**270,400**	**3,562,895**	**7.6%**
Total					**53**	**3,363**	**874,432**	**8,337,949**	**10.5%**

Commercial	Daily	Annual
Jet	100	26000
Turbo Large	6	1560
Turbo Small	0	0
Total	106	27560

Year 2020
Jet 77 Scenario

Inputs	
Aircraft	Seats
BAe146	77
DHC100	38
Forecast Growth	2.50%
Years	22
L.F.	65%

Destination	Aircraft	Seats	L.F.	Pax	Turns /Day	Pax /Day	Pax /Year	2020 O-D	% of Market
Transborder									
New York	BAe146	77	65%	50	11	1,101	286,286	1,734,741	16.5%
Chicago	BAe146	77	60%	46	4	370	96,096	689,989	13.9%
Boston	BAe146	77	55%	42	3	254	66,066	440,292	15.0%
Washington	BAe146	77	55%	42	3	254	66,066	393,396	16.8%
Cleveland	BAe146	77	65%	50	0	0	0	122,628	0.0%
Philadelphia	BAe146	77	55%	42	3	254	66,066	260,284	25.4%
Pittsburgh	BAe146	77	65%	50	0	0	0	83,927	0.0%
Cincinnati	BAe146	77	65%	50	0	0	0	58,086	0.0%
Detroit	BAe146	77	65%	50	0	0	0	82,876	0.0%
Total TB					**24**	**2,233**	**580,580**	**3,866,219**	**15.0%**
North									
North Bay	DHC100	38	65%	25	0	0	0	43,986	0.0%
Sault	DHC100	38	55%	21	3	125	32,604	166,717	19.6%
Thunder Bay	BAe146	77	50%	39	3	231	60,060	300,604	20.0%
Timmins	DHC100	38	55%	21	0	0	0	106,410	0.0%
Quebec	BAe146	77	55%	42	0	0	0	184,398	0.0%
Sudbury	DHC100	38	50%	19	0	0	0	106,720	0.0%
Total North					**6**	**356**	**92,664**	**908,835**	**10.2%**
Mainline									
Ottawa	BAe146	77	60%	46	8	739	192,192	1,259,760	15.3%
Montreal	BAe146	77	60%	46	4	370	96,096	2,222,531	4.3%
London	BAe146	77	65%	50	0	0	0	80,604	0.0%
Total Mainline					**12**	**1,109**	**288,288**	**3,562,895**	**8.1%**
Total					**42**	**3,698**	**961,532**	**8,337,949**	**11.5%**

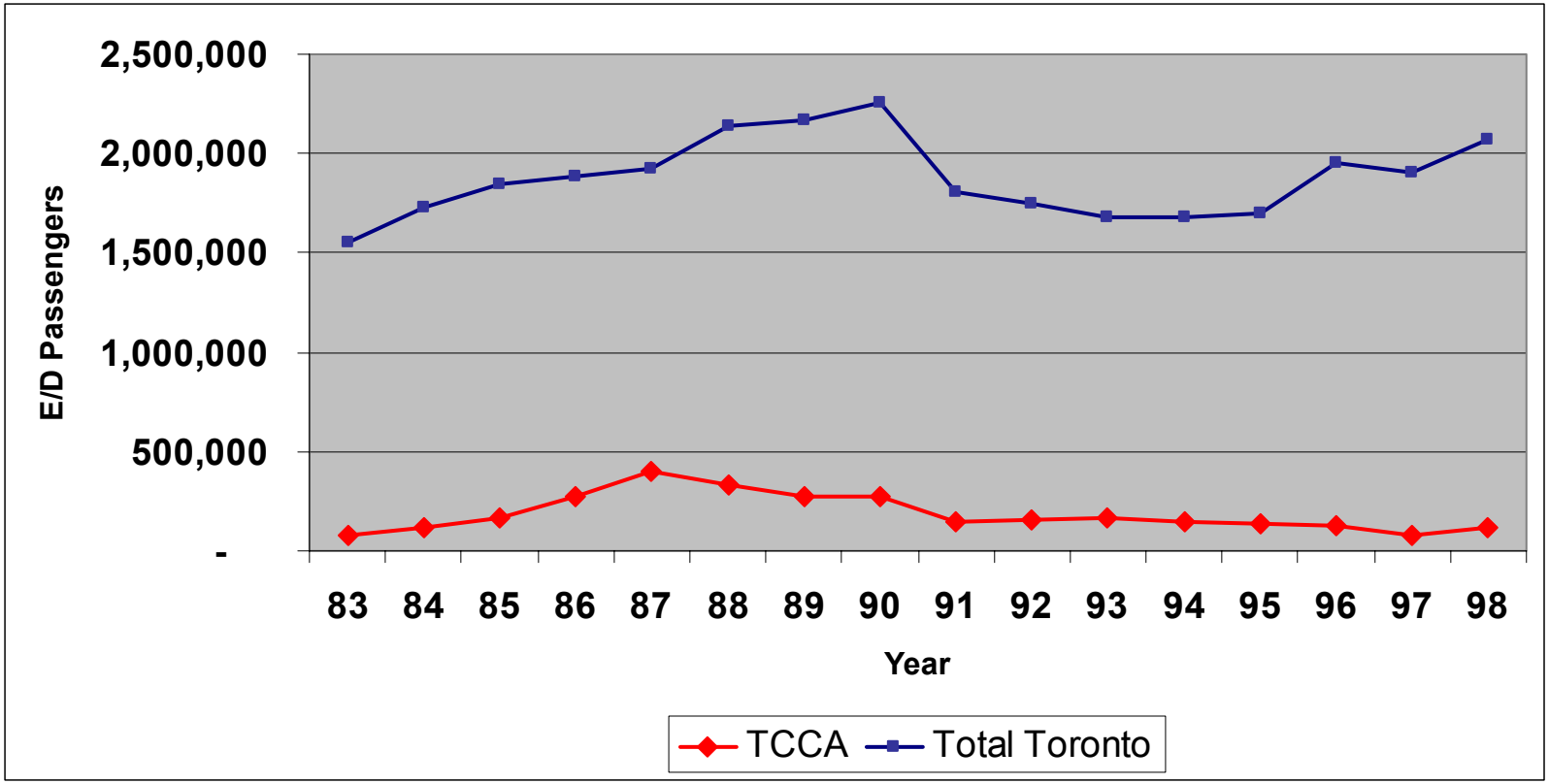
Commercial	Daily	Annual
Jet	78	20280
Turbo Large	6	1560
Turbo Small	0	0
Total	84	21840

Passengers on the Ottawa, Montreal, London Markets
O-D Markets

Year	TCCA	Ottawa-Toronto	Montreal Toronto	London Toronto	Total Toronto	TCCA % of total
83	83,000	557,190	971,790	19,310	1,548,290	5.36%
84	120,000	623,710	1,084,900	20,830	1,729,440	6.94%
85	168,000	633,160	1,197,590	18,960	1,849,710	9.08%
86	270,000	635,140	1,221,360	26,950	1,883,450	14.34%
87	400,000	671,400	1,224,290	23,990	1,919,680	20.84%
88	330,000	761,150	1,359,560	18,920	2,139,630	15.42%
89	277,000	788,920	1,361,890	18,420	2,169,230	12.77%
90	270,564	784,960	1,447,920	18,690	2,251,570	12.02%
91	144,310	659,540	1,122,020	22,220	1,803,780	8.00%
92	156,479				1,743,780	8.97%
93	162,522				1,683,780	9.65%
94	143,700	593,000	1,067,080	23,690	1,683,770	8.53%
95	135,770	591,510	1,082,320	27,300	1,701,130	7.98%
96	131,737	665,560	1,256,910	33,210	1,955,680	6.74%
97	78,384	688,880	1,181,770	32,460	1,903,110	4.12%
98	114,538	731,750	1,290,990	46,820	2,069,560	5.53%

Excludes domestic portions of international or transborder Journeys

15% Growth in YUL-YYZ Market
11% Growth in YOW-YYZ Market 91-98
15% Growth in Total Market 91-98
79% Change in Island Demand 91-98



Historical Traffic on Shorthaul Traffic to Toronto from Ottawa, Montreal, London

Appendix D

Financial Forecasts

Sypher

Financial Forecast Assumptions

Scenarios Include

- Baseline Low - baseline low traffic, status quo financial structure
- Baseline high - baseline high traffic, status quo financial structure
- Baseline low enhanced - baseline low traffic, introduction of landing fees, revision of PUF to seat basis, reduction of one FTE
- Baseline high enhanced - baseline high traffic, introduction of landing fees, revision of PUF to seat basis, Reduction of one FTE
- Turbo - turbo scenario traffic, revised fee structure as above, bridge and terminal in 2003
- Jet - Jet scenario traffic, revised fee structure as above, bridge, terminal and pavement strengthening in 2003

In growth scenarios, bridge is built in 2003, saving a net of 8FTE considering bridge operation. But, for these scenarios, traffic triples quickly, then increases to 600,000-900,000, so additional staff requirements are likely, including possibly increased firefighting for the jet scenario. For simplicity, leave

Fee Restructuring

Fee restructuring for the growth scenarios involves:

- Setting landing fees equivalent to Pearson
- Setting a passenger fee (or adjusting the PUF) to be seat based and at a level similar to Pearson, then increasing it until there is a breakeven on operations. A seat based fee will discourage empty movements, and will contribute to noise management
- Introducing a $10 AIF similar to Pearson

Revenue

- Property revenue - land rentals left constant, even in high growth scenarios. This may understate these revenues, but lease issues have not been
- Parking revenue - 1/2 is assumed to come from passengers, and grows with passenger growth, remainder no growth
- Rentals. Where there is a new terminal, assume that 20% of the terminal floorspace is rentable (with pax fees covering hold rooms), at fully allocated annual cost of $35/sq ft = $700,000.

Expenses

- Salary & benefits, increase 2% real every 5 years
- Consulting goes to $50,000/year after 2002.
- Realty taxes increase to reflect terminal, bridge investment, and 1% of the capital cost is used as an estimate.
- Utility costs increase in proportion to passenger traffic
- Security costs triple in 2004 for scenarios with a bridge
- Insurance costs increase by 10% for high traffic scenarios
- For high traffic scenarios, promotion costs increase to $100,000/year
- For high traffic scenarios, travel costs increase to $25,000/year
- Amortization is calculated on the basis of a 40 year life for a bridge, 25 year life for a terminal with straight line depreciation
- Cost per pax ops is the per passenger cost of the sum of landing fees, passenger charges and ferry fees - it is an estimate of airport charges that will be in the ticket price
- Cost per pax total is the cost per pax ops plus the AIF per pax. The AIF is normally shown separately on the ticket

Net Present Values

- A 5% real discount rate and a 17 year period (2003-2020) are used
- NPV Operations is the net present value of cash flow from operations, excluding AIF revenues, amortization expense and interest expense
- NPV Cash Flow is the net present value of the cash flow including the AIF revenues, and the interest and amortization expenses

NPV Net is the net present value of the net income, including all income statement items, but excluding the principal portion of debt repayment

Financial Model
Summary

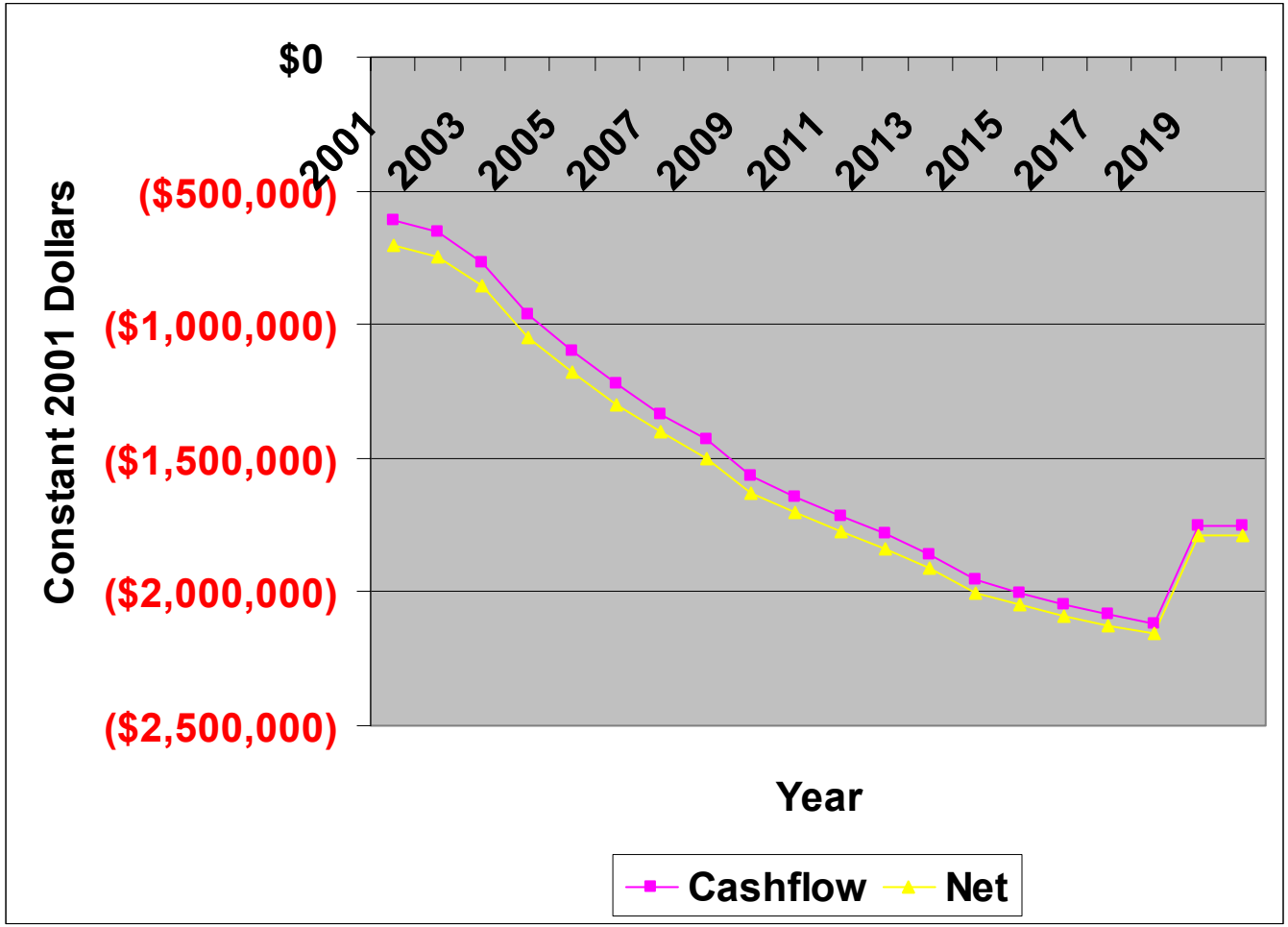
	Scenario					
	Baseline Low	Baseline High	Baseline Low Enhanced	Baseline High Enhanced	Turbo	Jet 50
2003 e/d Passengers	85,050	114,213	85,050	114,213	423,951	579,540
2003 Movements	149,534	152,160	149,534	152,160	164,222	162,402
2003 Revenue	$2,423,663	$2,941,346	$2,931,689	$3,300,799	$9,014,119	$11,953,067
2003 Expenses	$3,195,162	$3,195,162	$3,125,162	$3,125,162	$4,897,862	$5,689,441
2003 Cash Flow	($771,499)	($253,816)	($193,473)	$175,637	$4,116,257	$6,263,626
2003 Net	($857,417)	($339,734)	($279,391)	$89,719	$4,030,339	$6,177,708
2003 Cost/pax	$16.90	$16.90	$22.88	$20.05	$18.22	$18.20
NPV AIF	$0	$0	$0	$0	$57,768,023	$78,300,612
Subsidy 2003-2020	($29,759,257)	($2,112,309)	($18,020,055)	($22,593)	$0	$0
NPV Subsidy	($17,617,982)	($1,341,266)	($9,977,147)	($21,517)	$0	$0
NPV Ops (Net of AIF,interest, amortization	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$980,271	$10,669,420
NPV Cash Flow	($17,617,982)	$930,272	($9,977,147)	$5,850,023	$45,196,674	$74,665,544
NPV Net	($18,387,326)	$160,928	($10,746,491)	$5,080,678	$32,761,518	$61,719,093
Capital Program	$0	$0	$0	$0	$36,000,000	$38,000,000
ROI on Capital Program	n/a	n/a	n/a	n/a	10%	33%
2004 Debt Coverage	n/a	n/a	n/a	n/a	1.53	2.19

TCCA Financials
Base Case Low
Constant 2001 $

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	85,050	76,545	68,891	62,001	55,801	50,221	45,199	40,679
TotalMovements	154,174	150,560	149,534	148,611	147,780	147,032	146,359	145,753	145,208	144,718
Regional Carrier Turbo Movements	11,398	10,942	10,504	10,084	9,680	9,293	8,922	8,565	8,222	7,893
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$1,235,000	$1,111,500	$1,000,350	$900,315	$810,284	$729,255	$656,330	$590,697	$531,627	$478,464
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$540,000	$486,000	$437,400	$393,660	$354,294	$318,865	$286,978	$258,280	$232,452	$209,207
Parking	$138,208	$131,298	$125,078	$119,481	$114,443	$109,909	$105,829	$102,156	$98,851	$95,876
Fuel Sales	$123,340	$120,449	$119,628	$118,889	$118,225	$117,626	$117,088	$116,603	$116,167	$115,775
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landing Fees Other	$199,374	$194,700	$193,374	$192,180	$191,105	$190,138	$189,268	$188,485	$187,780	$187,145
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$2,783,755	$2,591,779	$2,423,663	$2,272,358	$2,136,184	$2,013,627	$1,903,325	$1,804,054	$1,714,710	$1,634,301
Expenses										
Salaries/Benefits	$2,102,653	$2,102,653	$2,102,653	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,187,600	$2,187,600
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$200,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,245,162	$3,195,162	$3,237,215	$3,237,215	$3,237,215	$3,237,215	$3,237,215	$3,280,109	$3,280,109
Cash Surplus(Deficit)	($611,407)	($653,383)	($771,499)	($964,857)	($1,101,032)	($1,223,588)	($1,333,890)	($1,433,161)	($1,565,399)	($1,645,809)
Amortization	$95,200	$90,440	$85,918	$81,622	$77,541	$73,664	$69,981	$66,482	$63,158	$60,000
Net	($706,607)	($743,823)	($857,417)	($1,046,479)	($1,178,573)	($1,297,252)	($1,403,870)	($1,499,643)	($1,628,557)	($1,705,808)

TCCA Financials
Base Case Low
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	36,611	32,950	29,655	26,690	24,021	21,619	19,457	17,511	-	-
TotalMovements	144,276	143,879	143,521	143,199	142,909	142,649	142,414	142,203	140,302	140,302
Regional Carrier Turbo Movements	7,577	7,274	6,983	6,704	6,436	6,178	5,931	5,694	-	-
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$430,618	$387,556	$348,800	$313,920	$282,528	$254,276	$228,848	$205,963	$0	$0
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$188,286	$169,458	$152,512	$137,261	$123,535	$111,181	$100,063	$90,057	$0	$0
Parking	$93,199	$90,790	$88,621	$86,669	$84,913	$83,332	$81,909	$80,629	$69,104	$69,104
Fuel Sales	$115,422	$115,104	$114,817	$114,560	$114,328	$114,120	$113,932	$113,763	$112,242	$112,242
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landing Fees Other	$186,574	$186,060	$185,598	$185,181	$184,807	$184,470	$184,166	$183,893	$181,435	$181,435
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$1,561,932	$1,496,800	$1,421,544	$1,368,787	$1,321,306	$1,278,573	$1,240,114	$1,205,500	$893,977	$893,977
Expenses										
Salaries/Benefits	$2,187,600	$2,187,600	$2,187,600	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$1,673,514	$1,673,514
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$0	$0
Consulting/Planning	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$14,200	$14,200
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$25,000	$25,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$18,683	$18,683
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$10,900	$10,900
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$5,000	$5,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,280,109	$3,280,109	$3,280,109	$3,323,861	$3,323,861	$3,323,861	$3,323,861	$3,323,861	$2,644,758	$2,644,758
Cash Surplus(Deficit)	($1,718,177)	($1,783,309)	($1,858,565)	($1,955,074)	($2,002,555)	($2,045,288)	($2,083,748)	($2,118,361)	($1,750,781)	($1,750,781)
Amortization	$57,000	$54,150	$51,442	$48,870	$46,427	$44,105	$41,900	$39,805	$37,815	$35,924
Net	($1,775,177)	($1,837,459)	($1,910,008)	($2,003,944)	($2,048,982)	($2,089,393)	($2,125,648)	($2,158,166)	($1,788,596)	($1,786,705)



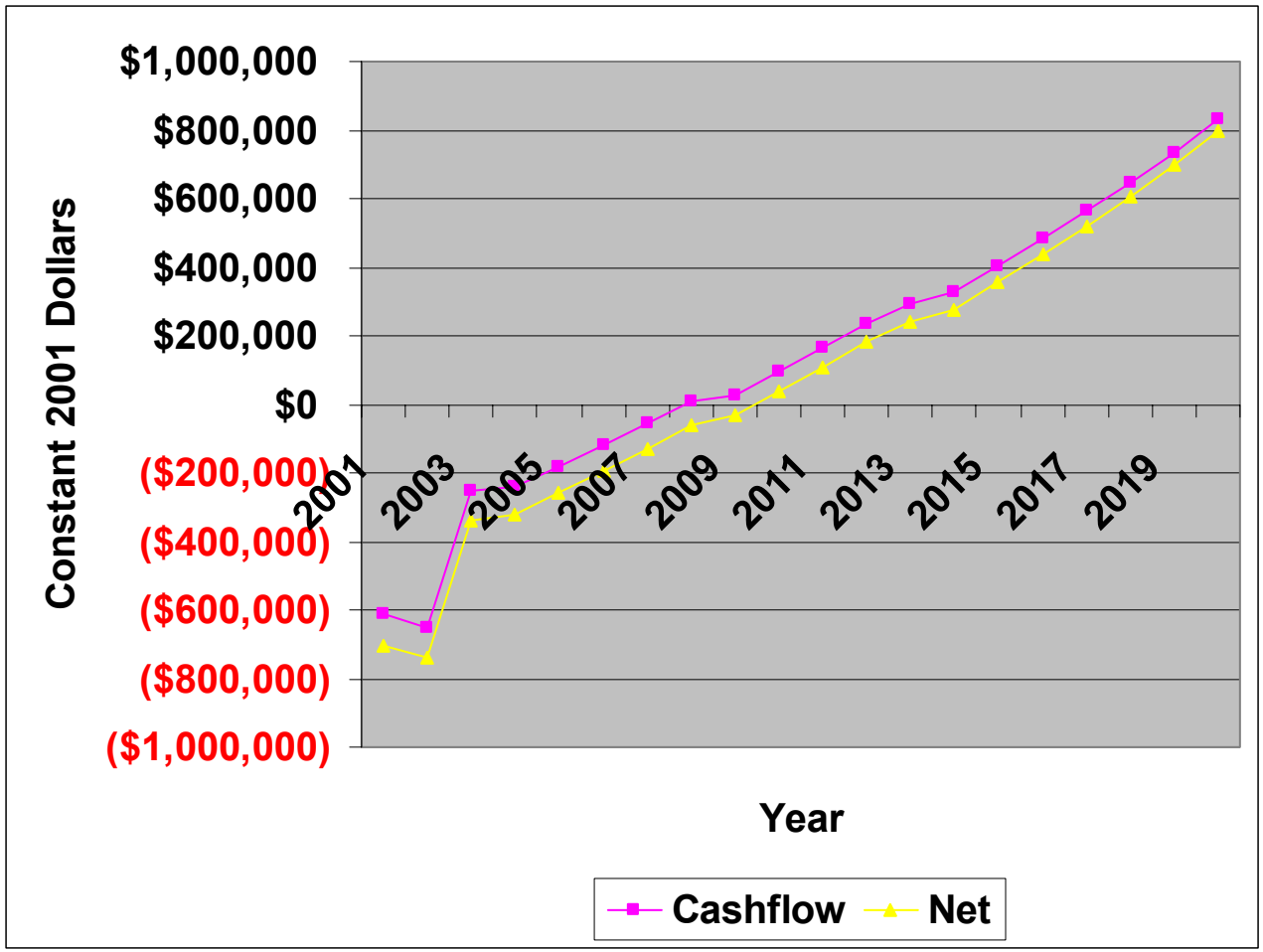
Baseline Low Scenario Forecast Cashflow and Net Income

TCCA Financials
Base Case High
Constant 2001 $

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	114,213	117,434	120,745	124,150	127,652	131,251	134,953	138,758
TotalMovements	154,174	151,928	152,160	152,397	152,639	152,886	153,138	153,394	153,656	153,923
Commercial Turbo Movements	11,398	11,626	11,858	12,095	12,337	12,584	12,836	13,092	13,354	13,621
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$1,235,000	$1,111,500	$1,343,362	$1,381,245	$1,420,196	$1,460,246	$1,501,425	$1,543,765	$1,587,299	$1,632,061
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$540,000	$486,000	$587,381	$603,945	$620,977	$638,488	$656,493	$675,007	$694,042	$713,614
Parking	$138,208	$131,298	$144,271	$146,391	$148,571	$150,812	$153,116	$155,485	$157,921	$160,425
Fuel Sales	$123,340	$121,543	$121,729	$121,918	$122,112	$122,309	$122,511	$122,716	$122,926	$123,139
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landing Fees Other	$199,374	$196,469	$196,769	$197,076	$197,389	$197,708	$198,034	$198,366	$198,704	$199,049
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$2,783,755	$2,594,642	$2,941,346	$2,998,409	$3,057,078	$3,117,396	$3,179,411	$3,243,171	$3,308,724	$3,376,122
Expenses										
Salaries/Benefits	$2,102,653	$2,102,653	$2,102,653	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,187,600	$2,187,600
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$200,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,245,162	$3,195,162	$3,237,215	$3,237,215	$3,237,215	$3,237,215	$3,237,215	$3,280,109	$3,280,109
Cash Surplus(Deficit)	($611,407)	($650,520)	($253,816)	($238,806)	($180,138)	($119,819)	($57,804)	$5,956	$28,615	$96,013
Amortization	$95,200	$90,440	$85,918	$81,622	$77,541	$73,664	$69,981	$66,482	$63,158	$60,000
Net	($706,607)	($740,960)	($339,734)	($320,428)	($257,679)	($193,483)	($127,785)	($60,526)	($34,542)	$36,013

TCCA Financials
Base Case High
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	142,671	146,695	150,831	155,085	159,458	163,955	168,578	173,332	178,220	183,867
TotalMovements	154,196	154,473	154,757	155,046	155,341	155,642	155,948	156,261	156,581	156,906
Commercial Turbo Movements	13,894	14,171	14,455	14,744	15,039	15,340	15,646	15,959	16,279	16,604
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$1,678,085	$1,725,407	$1,774,064	$1,824,092	$1,875,532	$1,928,422	$1,982,803	$2,038,718	$2,096,210	$2,162,626
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$733,738	$754,429	$775,704	$797,579	$820,071	$843,196	$866,975	$891,423	$916,561	$945,602
Parking	$163,001	$165,649	$168,371	$171,170	$174,049	$177,008	$180,051	$183,180	$186,397	$190,113
Fuel Sales	$123,357	$123,579	$123,806	$124,038	$124,273	$124,514	$124,759	$125,010	$125,265	$125,526
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landing Fees Other	$199,402	$199,761	$200,128	$200,502	$200,883	$201,272	$201,669	$202,073	$202,486	$202,907
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$3,445,415	$3,516,658	$3,573,268	$3,648,576	$3,726,002	$3,805,607	$3,887,452	$3,971,600	$4,058,115	$4,157,969
Expenses										
Salaries/Benefits	$2,187,600	$2,187,600	$2,187,600	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,280,109	$3,280,109	$3,280,109	$3,323,861	$3,323,861	$3,323,861	$3,323,861	$3,323,861	$3,323,861	$3,323,861
Cash Surplus(Deficit)	$165,306	$236,549	$293,159	$324,715	$402,141	$481,746	$563,591	$647,738	$734,253	$834,108
Amortization	$57,000	$54,150	$51,442	$48,870	$46,427	$44,105	$41,900	$39,805	$37,815	$35,924
Net	$108,307	$182,399	$241,716	$275,844	$355,715	$437,641	$521,691	$607,933	$696,439	$798,184



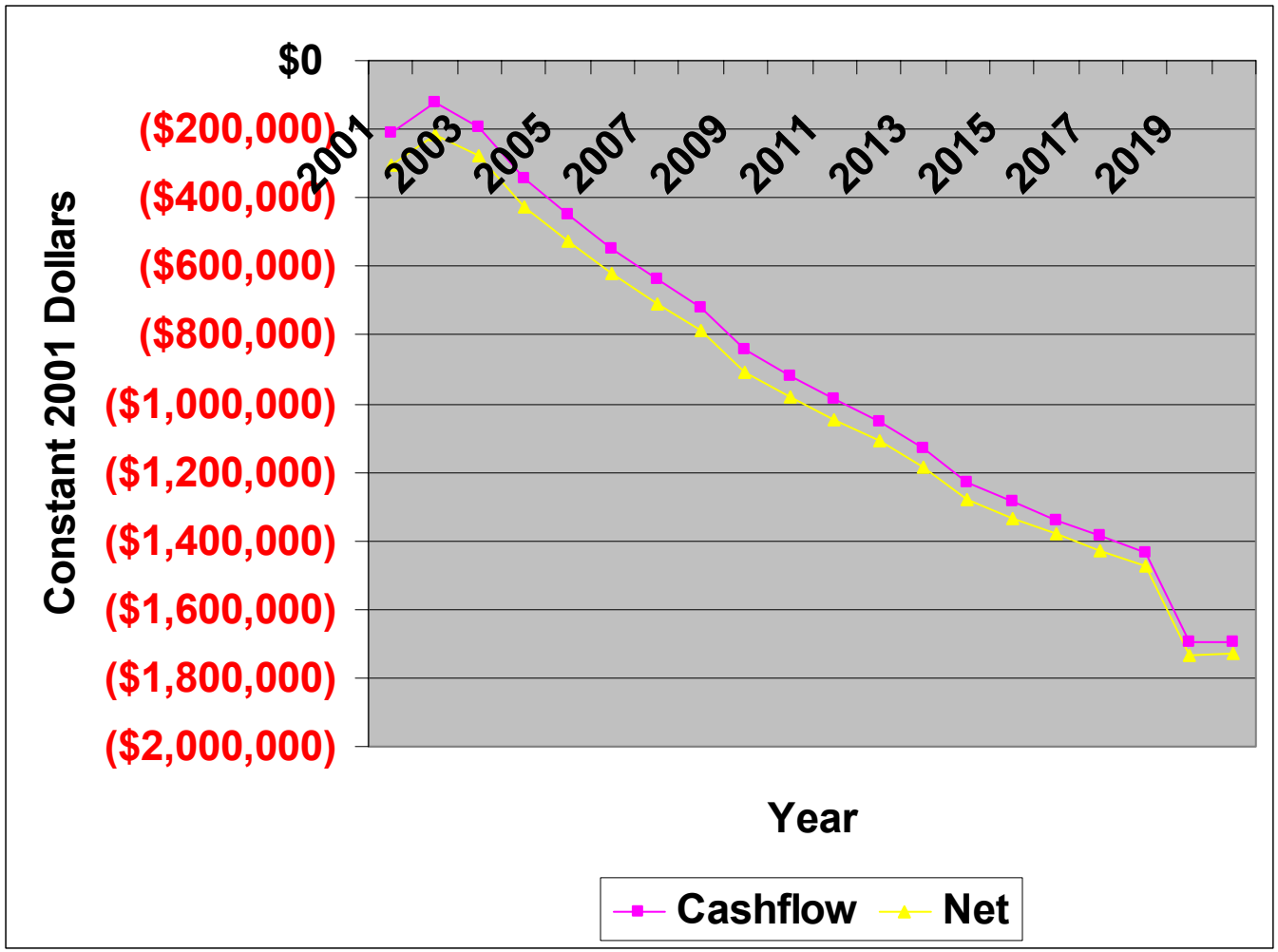
Base Case High Scenario Forecast Cashflow and Net Income

TCCA Financials
Base Case Low Enhanced
Constant 2001 $

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	85,050	76,545	68,891	62,001	55,801	50,221	45,199	40,679
TotalMovements	154,174	150,560	149,534	148,611	147,780	147,032	146,359	145,753	145,208	144,718
Commercial Turbo Movements	11,398	10,942	10,504	10,084	9,680	9,293	8,922	8,565	8,222	7,893
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$952,838	$914,724	$878,135	$843,010	$809,290	$776,918	$745,841	$716,008	$687,367	$659,873
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$540,000	$486,000	$437,400	$393,660	$354,294	$318,865	$286,978	$258,280	$232,452	$209,207
Parking	$138,208	$131,298	$125,078	$119,481	$114,443	$109,909	$105,829	$102,156	$98,851	$95,876
Fuel Sales	$123,340	$120,449	$119,628	$118,889	$118,225	$117,626	$117,088	$116,603	$116,167	$115,775
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$683,855	$656,501	$630,241	$605,031	$580,830	$557,597	$535,293	$513,881	$493,326	$473,593
Landing Fees Other	$199,374	$194,700	$193,374	$192,180	$191,105	$190,138	$189,268	$188,485	$187,780	$187,145
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$3,185,448	$3,051,504	$2,931,689	$2,820,084	$2,716,019	$2,618,886	$2,528,130	$2,443,246	$2,363,776	$2,289,302
Expenses										
Salaries/Benefits	$2,102,653	$2,032,653	$2,032,653	$2,073,306	$2,073,306	$2,073,306	$2,073,306	$2,073,306	$2,114,772	$2,114,772
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$200,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,175,162	$3,125,162	$3,165,815	$3,165,815	$3,165,815	$3,165,815	$3,165,815	$3,207,281	$3,207,281
Cash Surplus(Deficit)	($209,714)	($123,658)	($193,473)	($345,731)	($449,796)	($546,929)	($637,685)	($722,569)	($843,505)	($917,979)
Amortization	$95,200	$90,440	$85,918	$81,622	$77,541	$73,664	$69,981	$66,482	$63,158	$60,000
Net	($304,914)	($214,098)	($279,391)	($427,353)	($527,337)	($620,593)	($707,666)	($789,051)	($906,662)	($977,979)

TCCA Financials
Base Case Low Enhanced
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	36,611	32,950	29,655	26,690	24,021	21,619	19,457	17,511	-	-
TotalMovements	144,276	143,879	143,521	143,199	142,909	142,649	142,414	142,203	140,302	140,302
Commercial Turbo Movements	7,577	7,274	6,983	6,704	6,436	6,178	5,931	5,694	-	-
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
Pax Fees	$633,478	$608,139	$583,813	$560,461	$538,042	$516,520	$495,860	$476,025	$0	$0
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$188,286	$169,458	$152,512	$137,261	$123,535	$111,181	$100,063	$90,057	$0	$0
Parking	$93,199	$90,790	$88,621	$86,669	$84,913	$83,332	$81,909	$80,629	$69,104	$69,104
Fuel Sales	$115,422	$115,104	$114,817	$114,560	$114,328	$114,120	$113,932	$113,763	$112,242	$112,242
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$454,649	$436,463	$419,005	$402,244	$386,155	$370,708	$355,880	$341,645	$0	$0
Landing Fees Other	$186,574	$186,060	$185,598	$185,181	$184,807	$184,470	$184,166	$183,893	$181,435	$181,435
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$2,219,441	$2,153,846	$2,075,561	$2,017,572	$1,962,974	$1,911,526	$1,863,005	$1,817,207	$893,977	$893,977
Expenses										
Salaries/Benefits	$2,114,772	$2,114,772	$2,114,772	$2,157,068	$2,157,068	$2,157,068	$2,157,068	$2,157,068	$1,617,801	$1,617,801
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$0	$0
Consulting/Planning	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$14,200	$14,200
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$25,000	$25,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$18,683	$18,683
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$10,900	$10,900
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$5,000	$5,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,207,281	$3,207,281	$3,207,281	$3,249,577	$3,249,577	$3,249,577	$3,249,577	$3,249,577	$2,589,044	$2,589,044
Cash Surplus(Deficit)	($987,840)	($1,053,435)	($1,131,720)	($1,232,005)	($1,286,602)	($1,338,050)	($1,386,571)	($1,432,370)	($1,695,068)	($1,695,068)
Amortization	$57,000	$54,150	$51,442	$48,870	$46,427	$44,105	$41,900	$39,805	$37,815	$35,924
Net	($1,044,840)	($1,107,585)	($1,183,162)	($1,280,875)	($1,333,029)	($1,382,155)	($1,428,471)	($1,472,175)	($1,732,883)	($1,730,992)



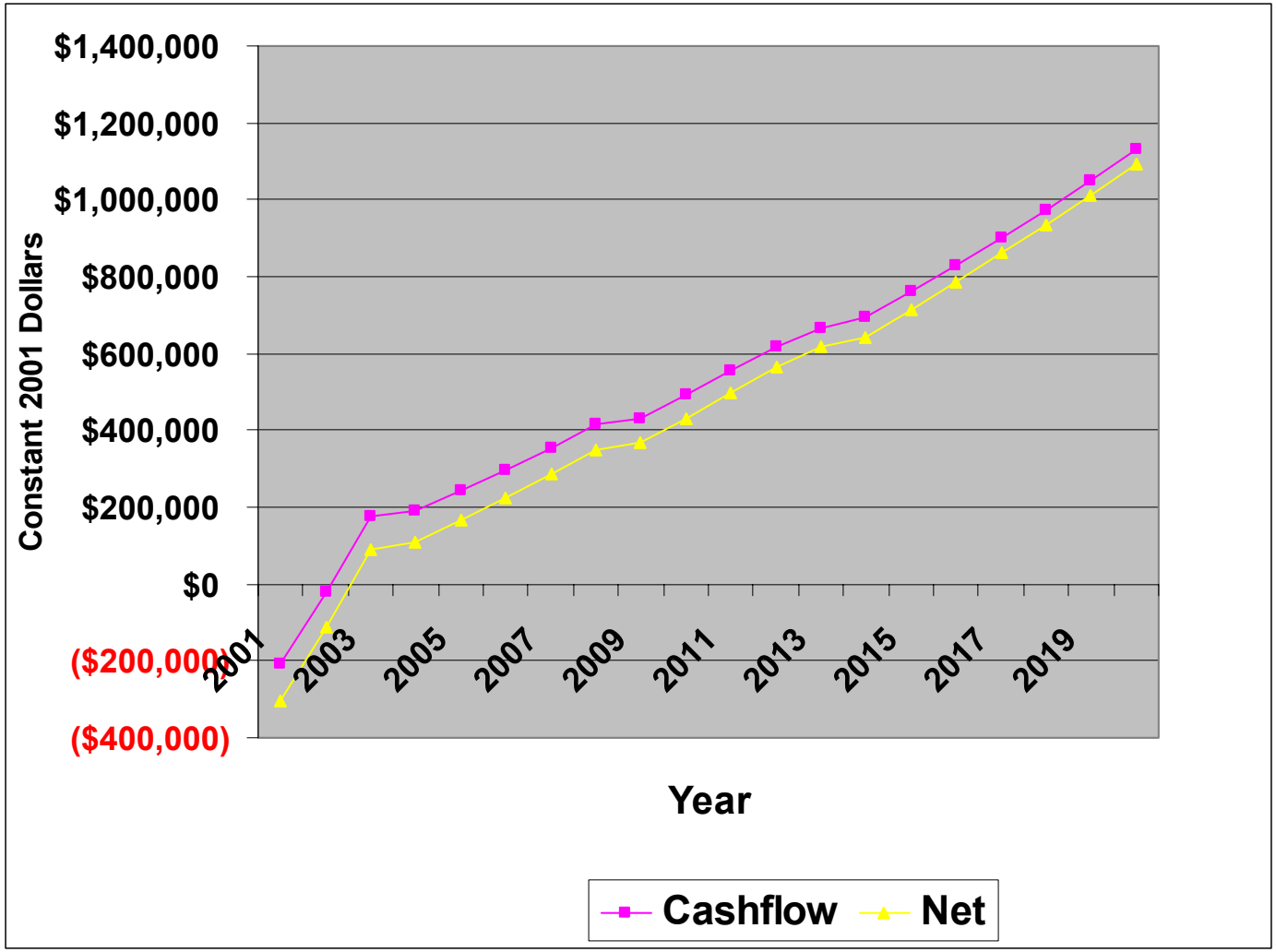
Baseline Low Enhanced Scenario Forecast Cashflow and Net Income

TCCA Financials
Base Case High Enhanced
Constant 2001 $

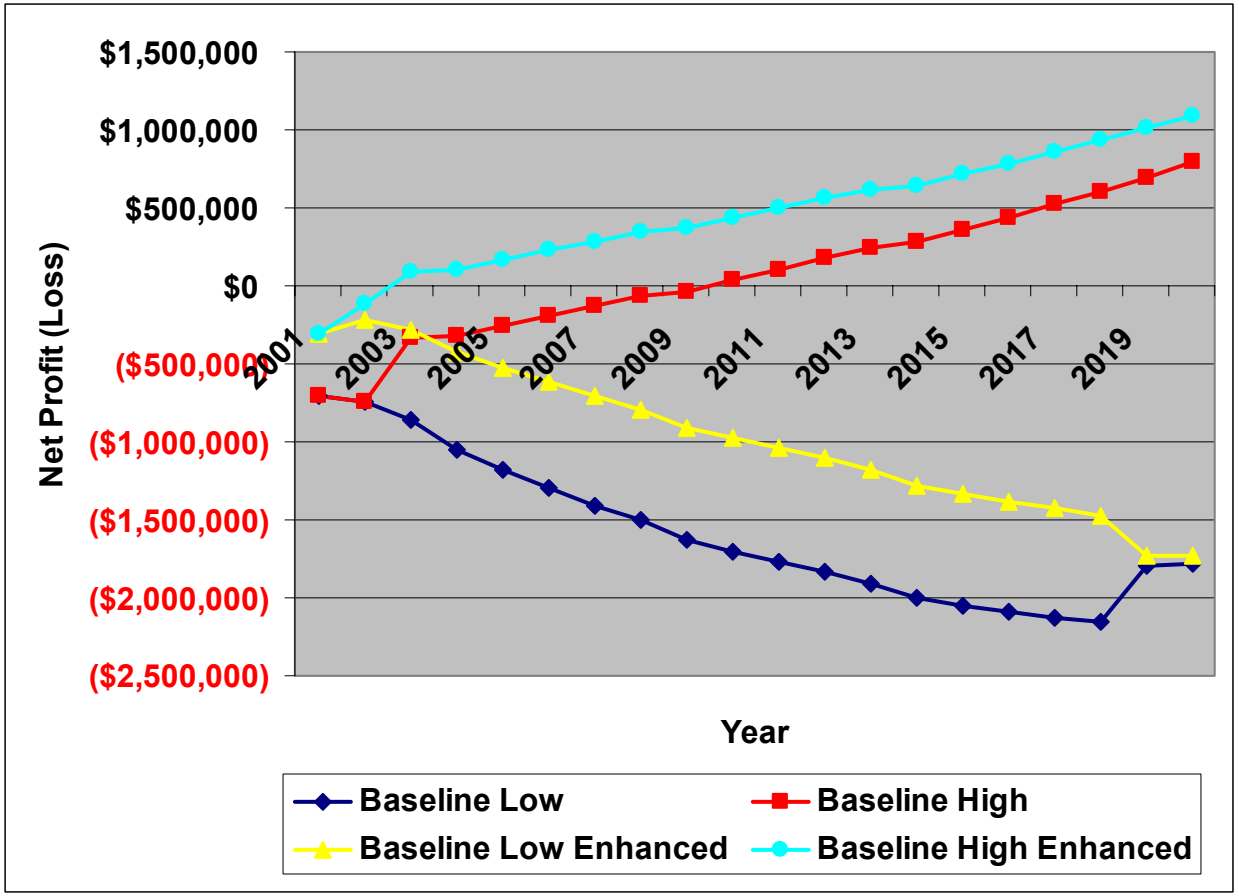
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	114,213	117,434	120,745	124,150	127,652	131,251	134,953	138,758
TotalMovements	154,174	151,928	152,160	152,397	152,639	152,886	153,138	153,394	153,656	153,923
Commercial Turbo Movements	11,398	11,626	11,858	12,095	12,337	12,584	12,836	13,092	13,354	13,621
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
AIF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pax Fees	$952,838	$971,895	$991,333	$1,011,159	$1,031,382	$1,052,010	$1,073,050	$1,094,511	$1,116,401	$1,138,729
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$540,000	$486,000	$587,381	$603,945	$620,977	$638,488	$656,493	$675,007	$694,042	$713,614
Parking	$138,208	$131,298	$144,271	$146,391	$148,571	$150,812	$153,116	$155,485	$157,921	$160,425
Fuel Sales	$123,340	$121,543	$121,729	$121,918	$122,112	$122,309	$122,511	$122,716	$122,926	$123,139
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$683,855	$697,532	$711,483	$725,712	$740,227	$755,031	$770,132	$785,534	$801,245	$817,270
Landing Fees Other	$199,374	$196,469	$196,769	$197,076	$197,389	$197,708	$198,034	$198,366	$198,704	$199,049
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$3,185,448	$3,152,569	$3,300,799	$3,354,036	$3,408,490	$3,464,191	$3,521,168	$3,579,452	$3,639,072	$3,700,060
Expenses										
Salaries/Benefits	$2,102,653	$2,032,653	$2,032,653	$2,073,306	$2,073,306	$2,073,306	$2,073,306	$2,073,306	$2,114,772	$2,114,772
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$200,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,175,162	$3,125,162	$3,165,815	$3,165,815	$3,165,815	$3,165,815	$3,165,815	$3,207,281	$3,207,281
Cash Surplus(Deficit)	($209,714)	($22,593)	$175,637	$188,220	$242,675	$298,376	$355,353	$413,636	$431,790	$492,779
Amortization	$95,200	$90,440	$85,918	$81,622	$77,541	$73,664	$69,981	$66,482	$63,158	$60,000
Net	($304,914)	($113,033)	$89,719	$106,598	$165,134	$224,712	$285,373	$347,155	$368,633	$432,779

TCCA Financials
Base Case High Enhanced
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	142,671	146,695	150,831	155,085	159,458	163,955	168,578	173,332	178,220	183,867
TotalMovements	154,196	154,473	154,757	155,046	155,341	155,642	155,948	156,261	156,581	156,906
Commercial Turbo Movements	13,894	14,171	14,455	14,744	15,039	15,340	15,646	15,959	16,279	16,604
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
AIF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pax Fees	$1,161,504	$1,184,734	$1,208,429	$1,232,597	$1,257,249	$1,282,394	$1,308,042	$1,334,203	$1,360,887	$1,388,105
Property Revenue	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920	$457,920
Ferry Services	$733,738	$754,429	$775,704	$797,579	$820,071	$843,196	$866,975	$891,423	$916,561	$945,602
Parking	$163,001	$165,649	$168,371	$171,170	$174,049	$177,008	$180,051	$183,180	$186,397	$190,113
Fuel Sales	$123,357	$123,579	$123,806	$124,038	$124,273	$124,514	$124,759	$125,010	$125,265	$125,526
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$833,615	$850,288	$867,293	$884,639	$902,332	$920,379	$938,786	$957,562	$976,713	$996,247
Landing Fees Other	$199,402	$199,761	$200,128	$200,502	$200,883	$201,272	$201,669	$202,073	$202,486	$202,907
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$3,762,450	$3,826,273	$3,874,926	$3,941,720	$4,010,052	$4,079,959	$4,151,477	$4,224,646	$4,299,505	$4,379,695
Expenses										
Salaries/Benefits	$2,114,772	$2,114,772	$2,114,772	$2,157,068	$2,157,068	$2,157,068	$2,157,068	$2,157,068	$2,157,068	$2,157,068
Operating Mat/Util	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200	$534,200
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Consulting/Planning	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048	$56,048
Security	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Realty Taxes	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861	$11,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,207,281	$3,207,281	$3,207,281	$3,249,577	$3,249,577	$3,249,577	$3,249,577	$3,249,577	$3,249,577	$3,249,577
Cash Surplus(Deficit)	$555,168	$618,992	$667,645	$692,144	$760,476	$830,382	$901,901	$975,070	$1,049,928	$1,130,118
Amortization	$57,000	$54,150	$51,442	$48,870	$46,427	$44,105	$41,900	$39,805	$37,815	$35,924
Net	$498,169	$564,842	$616,203	$643,273	$714,049	$786,277	$860,001	$935,265	$1,012,114	$1,094,194



Baseline High Enhanced Scenario Forecast Cashflow and Net Income



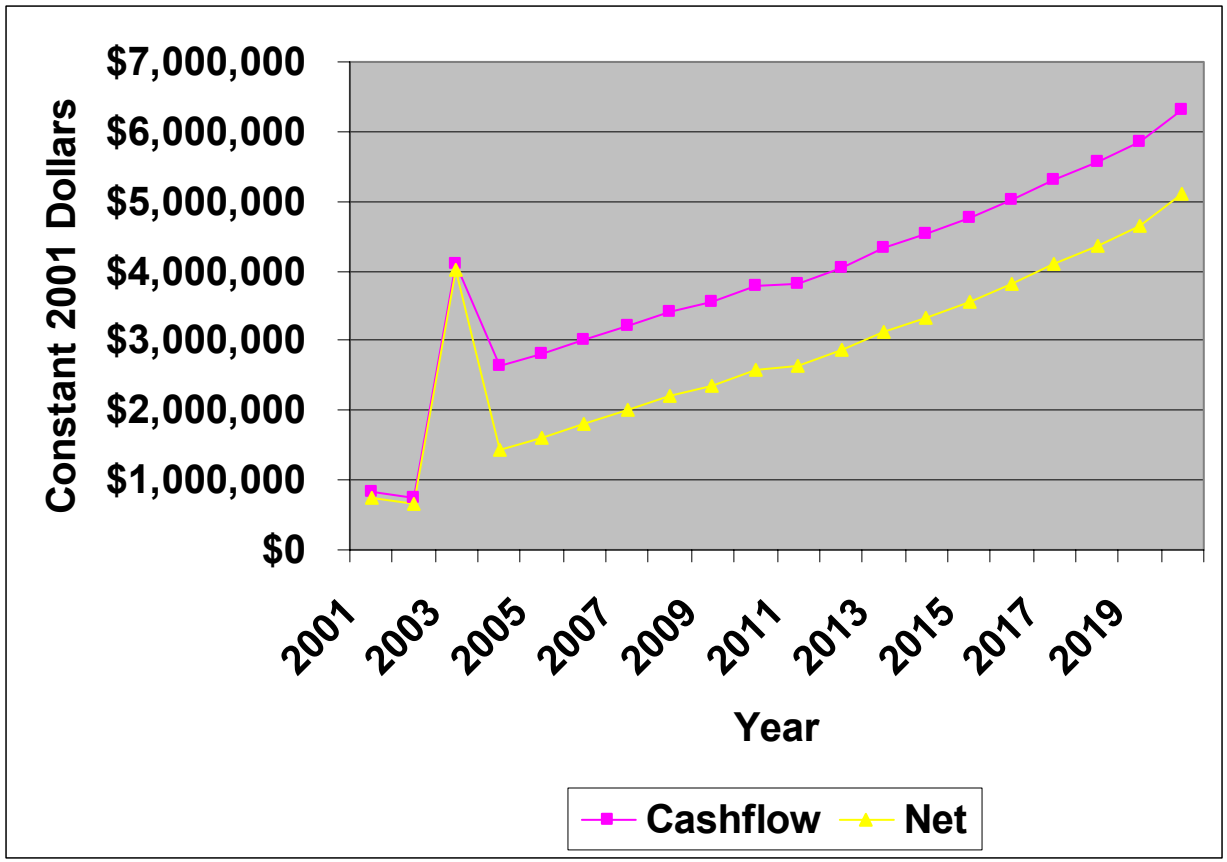
Baseline Scenarios - Summary of Net Income Forecasts

TCCA Financials
Turbo Scenario
Constant 2001 $

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	423,951	434,550	445,413	456,549	467,962	479,661	491,653	503,944
TotalMovements	154,174	151,928	164,222	164,676	165,140	165,612	166,092	166,582	167,082	167,591
Commercial Turbo Movements	11,398	11,626	23,920	24,374	24,838	25,310	25,790	26,280	26,780	27,289
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
AIF	$1,050,000	$945,000	$4,239,508	$4,345,496	$4,454,133	$4,565,486	$4,679,624	$4,796,614	$4,916,530	$5,039,443
Pax Fees	$952,838	$971,895	$1,999,712	$2,037,707	$2,076,423	$2,115,875	$2,156,077	$2,197,042	$2,238,786	$2,281,323
Property Revenue	$457,920	$457,920	$457,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920
Ferry Services	$540,000	$486,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Taxi Services	$0	$0	$50,000	$51,250	$52,531	$53,845	$55,191	$56,570	$57,985	$59,434
Parking	$138,208	$131,298	$348,120	$355,096	$362,245	$369,574	$377,086	$384,785	$392,677	$400,767
Fuel Sales	$123,340	$121,543	$131,378	$131,742	$132,112	$132,490	$132,875	$133,267	$133,666	$134,073
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$683,855	$697,532	$1,435,200	$1,462,469	$1,490,256	$1,518,571	$1,547,423	$1,576,824	$1,606,784	$1,637,313
Landing Fees Other	$199,374	$196,469	$212,368	$212,955	$213,554	$214,165	$214,786	$215,420	$216,066	$216,724
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$4,235,448	$4,097,569	$9,014,119	$9,894,547	$10,079,088	$10,267,838	$10,460,894	$10,658,356	$10,860,326	$11,066,909
Expenses										
Salaries/Benefits	$2,102,653	$2,102,653	$2,102,653	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,187,600	$2,187,600
Operating Mat/Util	$534,200	$480,780	$2,156,900	$2,210,823	$2,266,093	$2,322,746	$2,380,814	$2,440,335	$2,501,343	$2,563,876
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$50,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Consulting/Planning	$200,000	$200,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653
Security	$26,000	$26,000	$26,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000
Realty Taxes	$11,861	$11,861	$11,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Interest	$0	$0	$0	$1,800,000	$1,745,563	$1,688,405	$1,628,388	$1,565,371	$1,499,203	$1,429,727
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,341,742	$4,897,862	$7,261,443	$7,262,276	$7,261,770	$7,259,823	$7,256,326	$7,294,060	$7,287,117
Cash Surplus(Deficit)	$840,286	$755,827	$4,116,257	$2,633,104	$2,816,812	$3,006,068	$3,201,071	$3,402,030	$3,566,266	$3,779,792
Amortization	$95,200	$90,440	$85,918	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000
Net	$745,086	$665,387	$4,030,339	$1,433,104	$1,616,812	$1,806,068	$2,001,071	$2,202,030	$2,366,266	$2,579,792

TCCA Financials
Turbo Scenario
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	516,543	529,456	542,693	556,260	570,167	584,421	599,031	614,007	629,357	652,574
TotalMovements	86,638	87,166	87,705	88,253	88,812	89,382	89,962	90,554	91,157	92,631
Commercial Turbo Movements	27,807	28,335	28,874	29,422	29,981	30,551	31,131	31,723	32,326	33,800
Commercial Jet Movements	-	-	-	-	-	-	-	-	-	-
Business Jet Movements	-	-	-	-	-	-	-	-	-	-
Revenues										
AIF	$5,165,429	$5,294,565	$5,426,929	$5,562,602	$5,701,667	$5,844,209	$5,990,314	$6,140,072	$6,293,573	$6,525,740
Pax Fees	$2,324,668	$2,368,837	$2,413,845	$2,459,708	$2,506,442	$2,554,064	$2,602,592	$2,652,041	$2,702,430	$2,825,680
Property Revenue	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920
Ferry Services	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Taxi Services	$60,920	$62,443	$64,004	$65,604	$67,244	$68,926	$70,649	$72,415	$74,225	$76,963
Parking	$409,058	$417,557	$426,268	$435,197	$444,350	$453,731	$463,347	$473,203	$483,305	$498,585
Fuel Sales	$69,311	$69,734	$70,164	$70,603	$71,050	$71,506	$71,970	$72,444	$72,926	$74,105
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$1,668,422	$1,700,122	$1,732,424	$1,765,340	$1,798,882	$1,833,061	$1,867,889	$1,903,379	$1,939,543	$2,028,000
Landing Fees Other	$112,038	$112,721	$113,418	$114,127	$114,850	$115,587	$116,337	$117,102	$117,882	$119,788
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$11,107,679	$11,323,811	$11,528,247	$11,754,377	$11,985,680	$12,222,278	$12,464,292	$12,711,850	$12,965,079	$13,430,057
Expenses										
Salaries/Benefits	$2,187,600	$2,187,600	$2,187,600	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352
Operating Mat/Util	$2,627,973	$2,693,673	$2,761,015	$2,830,040	$2,900,791	$2,973,311	$3,047,643	$3,123,835	$3,201,930	$3,320,048
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Consulting/Planning	$50,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653
Security	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000
Realty Taxes	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Interest	$1,356,776	$1,280,178	$1,199,751	$1,115,302	$1,026,630	$933,525	$835,764	$733,116	$625,335	$512,165
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$7,278,264	$7,267,365	$7,204,279	$7,232,607	$7,214,687	$7,194,102	$7,170,674	$7,144,217	$7,114,532	$7,119,479
Cash Surplus(Deficit)	$3,829,415	$4,056,446	$4,323,968	$4,521,769	$4,770,994	$5,028,176	$5,293,618	$5,567,633	$5,850,547	$6,310,578
Amortization	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000
Net	$2,629,415	$2,856,446	$3,123,968	$3,321,769	$3,570,994	$3,828,176	$4,093,618	$4,367,633	$4,650,547	$5,110,578



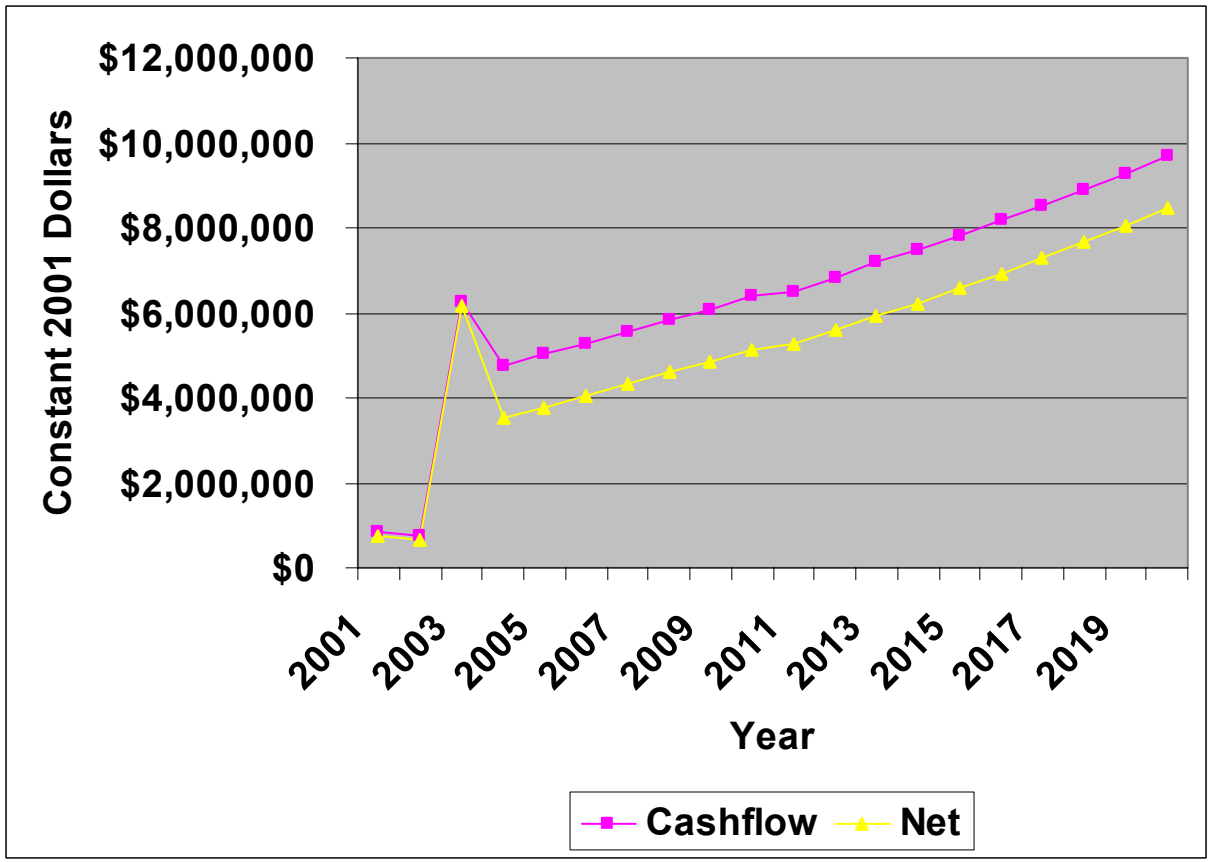
Turbo Scenario Forecast Cashflow and Net Income

TCCA Financials
Jet
Constant 2001 $

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E/D Passengers	105,000	94,500	579,540	593,739	608,285	623,188	638,456	654,099	670,124	686,542
TotalMovements	154,174	151,928	162,402	163,381	163,851	164,592	165,085	165,850	166,368	167,158
Regional Carrier Turbo Movements	11,398	11,626	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560
Commercial Jet Movements	-	-	17,160	17,580	18,011	18,452	18,904	19,368	19,842	20,328
Business Jet Movements	-	-	3,380	3,900	3,900	4,160	4,160	4,420	4,420	4,680
Revenues										
AIF	$1,050,000	$945,000	$5,795,400	$5,937,387	$6,082,853	$6,231,883	$6,384,564	$6,540,986	$6,701,240	$6,865,421
Pax Fees	$952,838	$971,895	$1,564,992	$1,600,139	$1,636,147	$1,673,038	$1,710,832	$1,749,552	$1,789,221	$1,829,862
Property Revenue	$457,920	$457,920	$457,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920
Ferry Services	$540,000	$486,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Taxi Services	$0	$0	$68,350	$70,024	$71,740	$73,498	$75,298	$77,143	$79,033	$80,970
Parking	$138,208	$131,298	$450,519	$459,863	$469,437	$479,245	$489,293	$499,588	$510,135	$520,940
Fuel Sales	$123,340	$121,543	$129,922	$130,705	$131,081	$131,674	$132,069	$132,681	$133,095	$133,727
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$683,855	$697,532	$3,136,037	$3,236,808	$3,308,083	$3,396,705	$3,471,516	$3,563,760	$3,642,281	$3,738,327
Landing Fees Other	$199,374	$196,469	$210,014	$211,280	$211,887	$212,846	$213,484	$214,473	$215,143	$216,165
Multi Media	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630	$6,630
Other	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283	$43,283
	$4,235,448	$4,097,569	$11,953,067	$12,944,040	$13,209,063	$13,496,722	$13,774,890	$14,076,017	$14,367,982	$14,683,244
Expenses										
Salaries/Benefits	$2,102,653	$2,102,653	$2,102,653	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,144,706	$2,187,600	$2,187,600
Operating Mat/Util	$534,200	$480,780	$2,948,479	$3,020,716	$3,094,724	$3,170,545	$3,248,223	$3,327,805	$3,409,336	$3,492,865
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$20,000	$20,000	$50,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Consulting/Planning	$200,000	$200,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$56,048	$56,048	$56,048	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653
Security	$26,000	$26,000	$26,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000
Realty Taxes	$11,861	$11,861	$11,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$15,000	$15,000	$15,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Interest	$0	$0	$0	$1,900,000	$1,842,539	$1,782,205	$1,718,854	$1,652,336	$1,582,492	$1,509,156
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$3,395,162	$3,341,742	$5,689,441	$8,171,336	$8,187,883	$8,203,370	$8,217,697	$8,230,761	$8,285,342	$8,295,534
Cash Surplus(Deficit)	$840,286	$755,827	$6,263,626	$4,772,704	$5,021,180	$5,293,353	$5,557,193	$5,845,256	$6,082,640	$6,387,710
Amortization	$95,200	$90,440	$85,918	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000
Net	$745,086	$665,387	$6,177,708	$3,522,704	$3,771,180	$4,043,353	$4,307,193	$4,595,256	$4,832,640	$5,137,710

TCCA Financials
Jet
Constant 2001 $

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
E/D Passengers	703,362	720,595	738,249	756,336	774,867	793,851	813,300	833,226	853,640	874,432
TotalMovements	85,897	86,668	87,190	87,726	88,535	89,097	89,673	90,263	90,867	91,591
Regional Carrier Turbo Movements	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560
Commercial Jet Movements	20,826	21,337	21,859	22,395	22,944	23,506	24,082	24,672	25,276	26,000
Business Jet Movements	4,680	4,940	4,940	4,940	5,200	5,200	5,200	5,200	5,200	5,200
Revenues										
AIF	$7,033,624	$7,205,947	$7,382,493	$7,563,364	$7,748,666	$7,938,509	$8,133,002	$8,332,261	$8,536,401	$8,744,320
Pax Fees	$1,871,498	$1,914,155	$1,957,856	$2,002,629	$2,048,498	$2,095,491	$2,143,635	$2,192,959	$2,243,491	$2,304,016
Property Revenue	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920	$1,157,920
Ferry Services	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Taxi Services	$82,953	$84,986	$87,068	$89,201	$91,386	$93,625	$95,919	$98,269	$100,677	$103,129
Parking	$532,010	$543,351	$554,970	$566,874	$579,070	$591,564	$604,364	$617,478	$630,913	$644,597
Fuel Sales	$68,718	$69,334	$69,753	$70,181	$70,828	$71,278	$71,738	$72,210	$72,694	$73,273
Storage	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Landing Fees Commercial	$3,820,743	$3,920,778	$4,007,282	$4,095,906	$4,202,301	$4,295,320	$4,390,618	$4,488,251	$4,588,276	$4,708,080
Landing Fees Other	$111,080	$112,076	$112,752	$113,445	$114,491	$115,218	$115,962	$116,725	$117,507	$118,443
Multi Media	$6,630	$6,630	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420	$4,420
Other	$43,283	$43,283	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855	$28,855
	$14,818,460	$15,148,461	$15,453,370	$15,782,795	$16,136,435	$16,482,199	$16,836,435	$17,199,349	$17,571,154	$17,977,053
Expenses										
Salaries/Benefits	$2,187,600	$2,187,600	$2,187,600	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352	$2,231,352
Operating Mat/Util	$3,578,440	$3,666,111	$3,755,931	$3,847,952	$3,942,226	$4,038,811	$4,137,762	$4,239,137	$4,342,996	$4,448,777
Equip/Maint/Repairs	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500	$297,500
Promotion	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Consulting/Planning	$50,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0
Office/General	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300	$21,300
Legal & Audit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Insurance	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653	$61,653
Security	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000
Realty Taxes	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861	$361,861
Training/Membership	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700	$32,700
Travel	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Bad Debt	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200	$22,200
Interest	$1,432,153	$1,351,299	$1,266,404	$1,177,263	$1,083,665	$985,387	$882,196	$773,845	$660,076	$540,619
Other Expenses	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
	$8,304,106	$8,310,925	$8,265,849	$8,312,480	$8,313,157	$8,311,464	$8,307,224	$8,300,248	$8,290,338	$8,276,662
Cash Surplus(Deficit)	$6,514,353	$6,837,536	$7,187,522	$7,470,315	$7,823,278	$8,170,735	$8,529,211	$8,899,101	$9,280,817	$9,700,392
Amortization	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000
Net	$5,264,353	$5,587,536	$5,937,522	$6,220,315	$6,573,278	$6,920,735	$7,279,211	$7,649,101	$8,030,817	$8,450,392



Jet Scenario Forecast Cashflow and Net Income

Appendix E

Terminal And Access Concepts

APPENDIX E. TERMINAL AND ACCESS CONCEPTS

A. Introduction

Development of terminal concepts was not within the scope of this study, but in discussions, questions were raised about the feasibility of various terminal configurations, including terminals on the mainland, with pedestrian access to the island for passengers.

The nominal program for the terminal is:

- 12 gates;
- 437 planning peak hour passengers both directions combined (at a 900,000 annual passenger flow);
- 300 planning peak hour enplanements;
- 300 planning peak hour deplanements;
- Terminal area approximately 92,000 sq.ft.

Two concepts were developed:

- Scheme 1 has a landside terminal with a high level pedestrian bridge. Alternatively, it could have a pedestrian tunnel or an enhanced ferry service with passenger ferries and indoor berths at each end; and
- Scheme 2 has a vehicle bascule bridge with a terminal on the island.

Exhibits E-1 to E-10 illustrate these two schemes.

B. Pedestrian Bridge Connection

This proposal attempts to satisfy both the Airport users and the Western Channel users. A fixed pedestrian bridge connection suspended 60 feet in the air above the lake will allow over 95% of the traffic through the channel. The height of this structure would however be subject to the transition zoning requirements for the runways on the Island. Assuming that the Code 2 C runway is maintained, the maximum height of structures on the island would be require careful architectural consideration if boat traffic was to be allowed as envisioned. Generous elevators on both ends and moving walkways will help the uninterrupted flow of the Airport users.

The flow of traffic from mainland to island relies on elevators and moving walkways for smoothness. A bank of three elevators has been

allocated, each sized to handle 3,500 lbs, or approximately 12 passengers with luggage.

At a speed of 500 fpm, the 60'-0" rise at 8.33 ft per sec will be covered in 7.2 sec, and 70% of the peak hour traffic of 457 passengers, i.e. 320 passengers can be handled in 9 trips. However, passenger flow is always concentrated into periods. Further analysis would be required at the design concept stage, and four elevators at each end may be required.

The pedestrian bridge suspended in the air is expressed with a strong and elegant arch element that becomes a gateway to the harbor.

The Terminal building on the island accommodates arrivals and departures facilities along with administration and a restaurant. The scheme has room for 14 gates.

An extension of the Terminal building on the mainland would have waiting area, car rentals, taxi and bus shuttle service on the ground level interspersed with landscaping and parking above and below ground. This maximizes the land on the island for the terminal and hangars.

Vehicular access is maintained by the ferry service and therefore is kept to current low levels. For pedestrians, access to and from the island is not restricted to the first and last ferry.

The footprint of the Island Terminal building is 6,170 sm [66,400 sf].

We have allocated about 550 sm [5,920 sf] for a restaurant, included in the Terminal building area since it may not necessarily be successful if open to the general public, for the fact that they have to walk across the pedestrian bridge. It would have some attraction as a novel place to eat, with a great view.

The footprint of the mainland Terminal Building [with parking above] is 1,690 sm. [18,190 sf]. This building would contain some terminal building functions such as car rentals.

A maximum terminal building size of 92,000 sf can therefore be easily accommodated in the Island Terminal, the additional area on a mezzanine level.

The attached sketches show the overall scheme. It is envisioned that the work would proceed in Phases. In the first phase, the Terminal building can be built on the current location of Hangar 2 and Terminal B. The old Terminal building can be relocated before the end of this phase. New

hangar buildings would be constructed on the south side and when they are in operation, Hangar Building 1 would be demolished to make way for the completion of the Terminal building and a restaurant.

C. Bascule Bridge Connection

The premise is that, with the limited available space on the island, the priority is to accommodate the airplanes first, then a terminal, then taxi and bus service. By the time all of the priorities are satisfied there is not much land left. A scheme was therefore developed with two levels of underground parking for approximately 270 spaces on the mainland. Glassed stair shafts emerge among a beautifully landscaped park that augments the public promenade along the waterfront.

Shuttle service across the bridge can be easily provided, and even if it is not, the 400-foot track across the bridge is small compared to most international airports. Parking on the island would be limited to permit parking for frequent users and staff parking.

Taxis and busses drop-off in front of the new terminal is quick and efficient.

The height of the bridge will allow continuous use of the Western Channel by small vessels. Boats higher than 20'-0" will adhere to a bridge opening schedule.

The Terminal and Hangar buildings will create a continuous buffer to the airplane noise.

The scheme indicates that with one walkway arm, 13 gates can be accommodated. A second arm will increase this count to 19 gates.

The foot print is made up of the Terminal - 4,325 sm + Administration - 760 sm + + Walkway 1- 960 sm + Walkway 2 – 1045 sm. The total is 7,090 sm [76,316 sf]. To this we would add another 1,650 sm for the third level plus another +/- 1,000 sm for the second level and street level for a total of 9,740 sm. [104,840 sf].

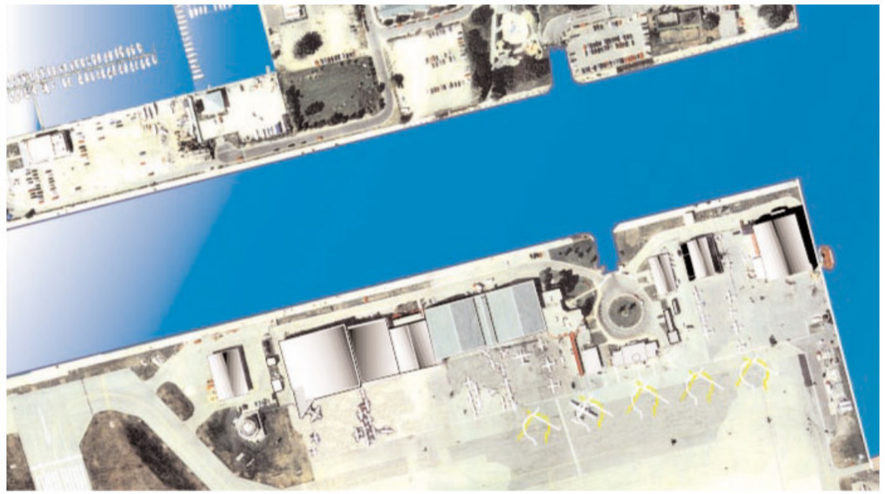
We are also showing a restaurant sized at 1,095 sm [11,780 sf], separate from the Terminal since it is perceived that the general public would frequent the facility as well.

The attached sketches show the overall scheme. As with Study 1, the development will be in Phases. The bridge and roadwork can proceed while maintaining the ferry connection and the present Terminal

operations. Generally the process would involve the demolition of Hangar Building 2, Terminal B and Terminal T-T in the first Phase.

The New Terminal building would be large enough to include the new carrier and Air Ontario. The second phase would demolish Shell Aerocentre East and build a new hangar. This would then allow Hangar Building 1 to be demolished and allow the construction of a new restaurant with a grand panoramic view of the city. The final scheme includes the relocation of the fuel farm.

EXISTING AERIAL PHOTO



TORONTO CITY CENTRE AIRPORT - NORTH VIEW

Sypher ■ Sypher : Mueller International Inc.

Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

EXISTING SITE

TORONTO PORT AUTHORITY

JULY 2001

BUILDINGS

1. NEW TERMINAL / ADMINISTRATION BUILDING
2. HANGARS 3 & 4 - SHELL AEROCENTRE EAST
3. M.O.H. HANGAR
4. HANGARS 5 & 6 - SHELL AEROCENTRE WEST
5. NEW HANGARS
6. CONTROL TOWER
7. MAINTENANCE GARAGE & FIREHALL
8. FIRE PUMPING STATION
9. F.E.C. BUILDING
10. NEW FUEL FARM

LEGEND

- EXISTING BUILDINGS
- NEW BUILDINGS
- ROADS & PARKING AREAS
- TAXIWAYS & RUNWAYS
- LANDSCAPED AREAS
- WATER

Sypher ■ Sypher : Mueller International Inc.

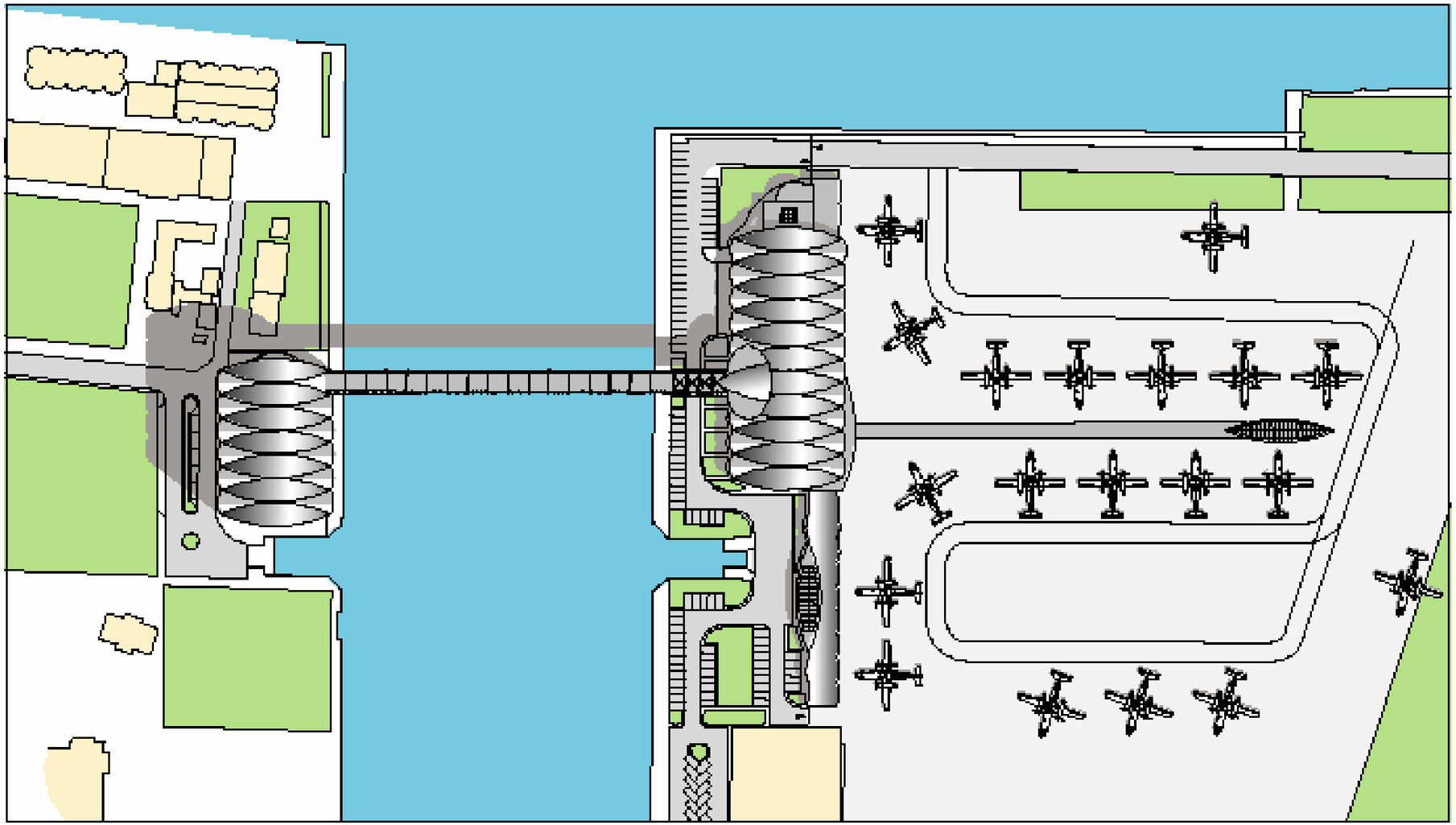
Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 1 - PEDESTRIAN BRIDGE - SITE PLAN

TORONTO PORT AUTHORITY

JULY 2001



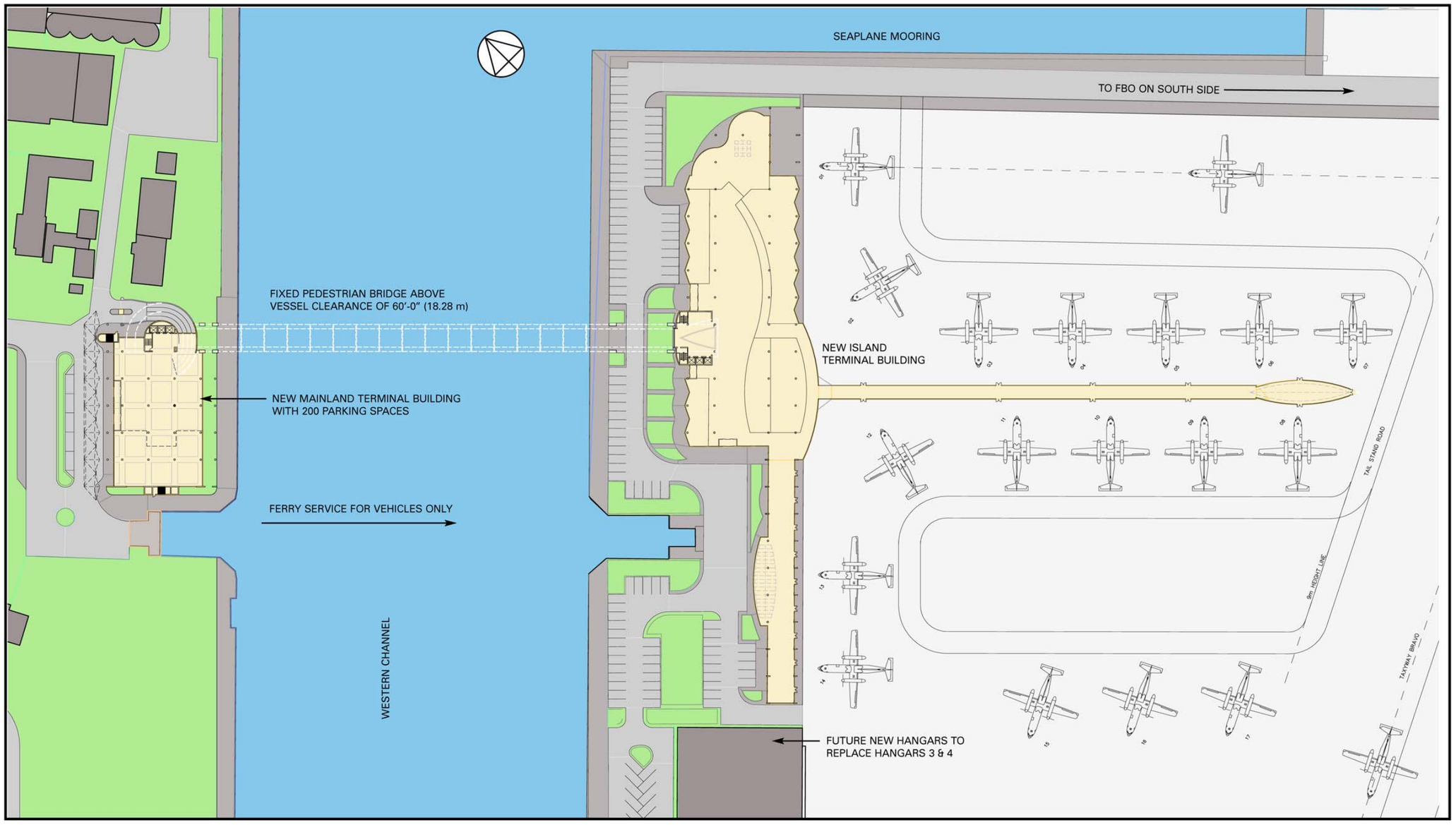
Sypher

TORONTO CITY CENTRE AIRPORT

STUDY 1 - PEDESTRIAN BRIDGE - ROOF PLAN

TORONTO PORT AUTHORITY

JULY 2001



Sypher ■ Sypher : Mueller International Inc.

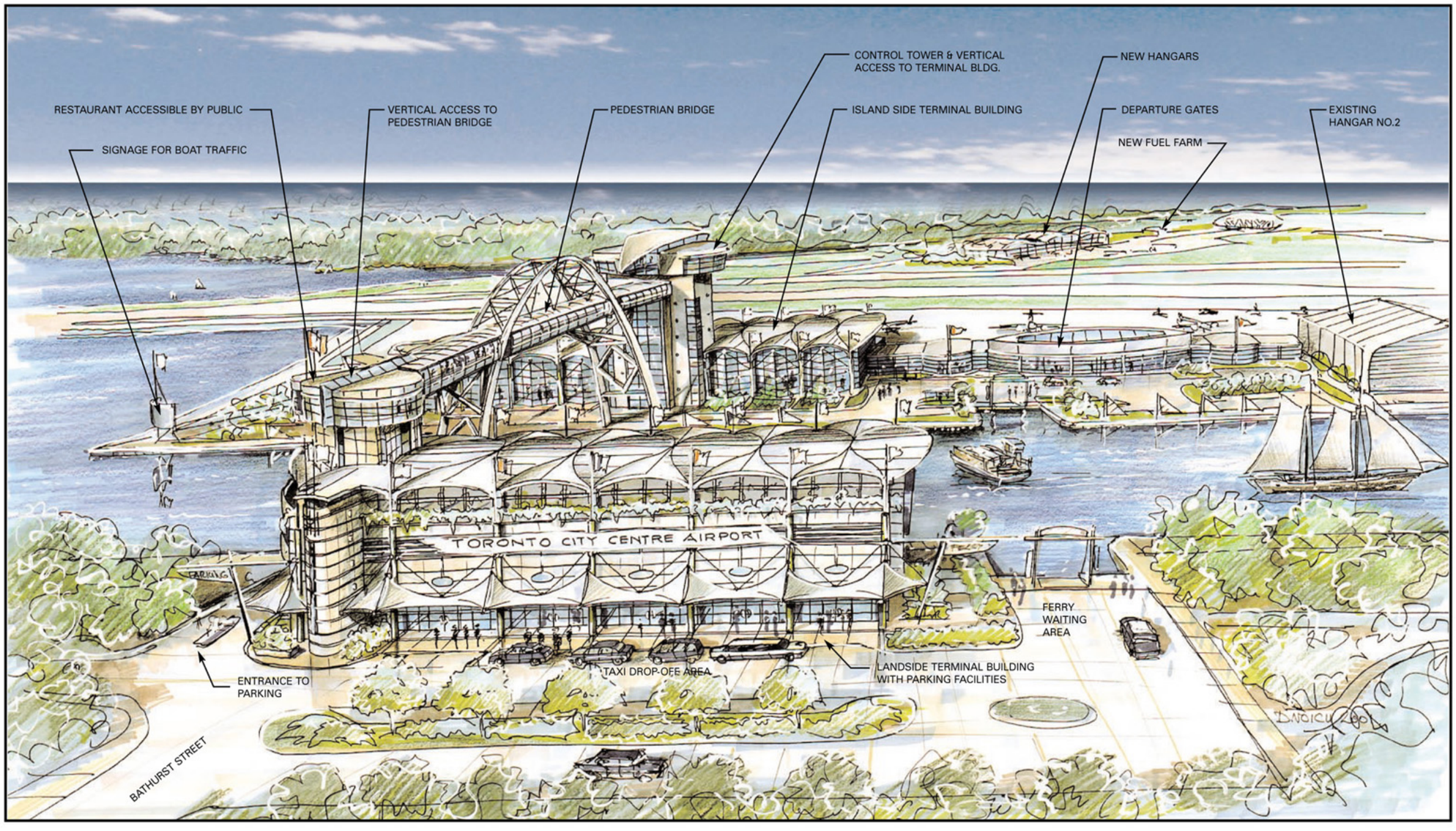
Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 1 - PEDESTRIAN BRIDGE - FLOOR PLAN

TORONTO PORT AUTHORITY

JULY 2001



Sypher ■ Sypher : Mueller International Inc.

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TORONTO CITY CENTRE AIRPORT

STUDY 1 - PEDESTRIAN BRIDGE - PERSPECTIVE WITH NOTES

TORONTO PORT AUTHORITY

JULY 2001

BUILDINGS

1. NEW TERMINAL / ADMINISTRATION BUILDING
2. HANGARS 3 & 4 - SHELL AEROCENTRE EAST
3. M.O.H. HANGAR
4. HANGARS 5 & 6 - SHELL AEROCENTRE WEST
5. NEW HANGARS
6. CONTROL TOWER
7. MAINTENANCE GARAGE & FIREHALL
8. FIRE PUMPING STATION
9. F.E.C. BUILDING
10. NEW FUEL FARM
11. UNDERGROUND PARKING FACILITIES FOR AIRPORT

LEGEND

- EXISTING BUILDINGS
- NEW BUILDINGS
- ROADS & PARKING AREAS
- TAXIWAYS & RUNWAYS
- LANDSCAPED AREAS
- WATER

Sypher ■ Sypher : Mueller International Inc.

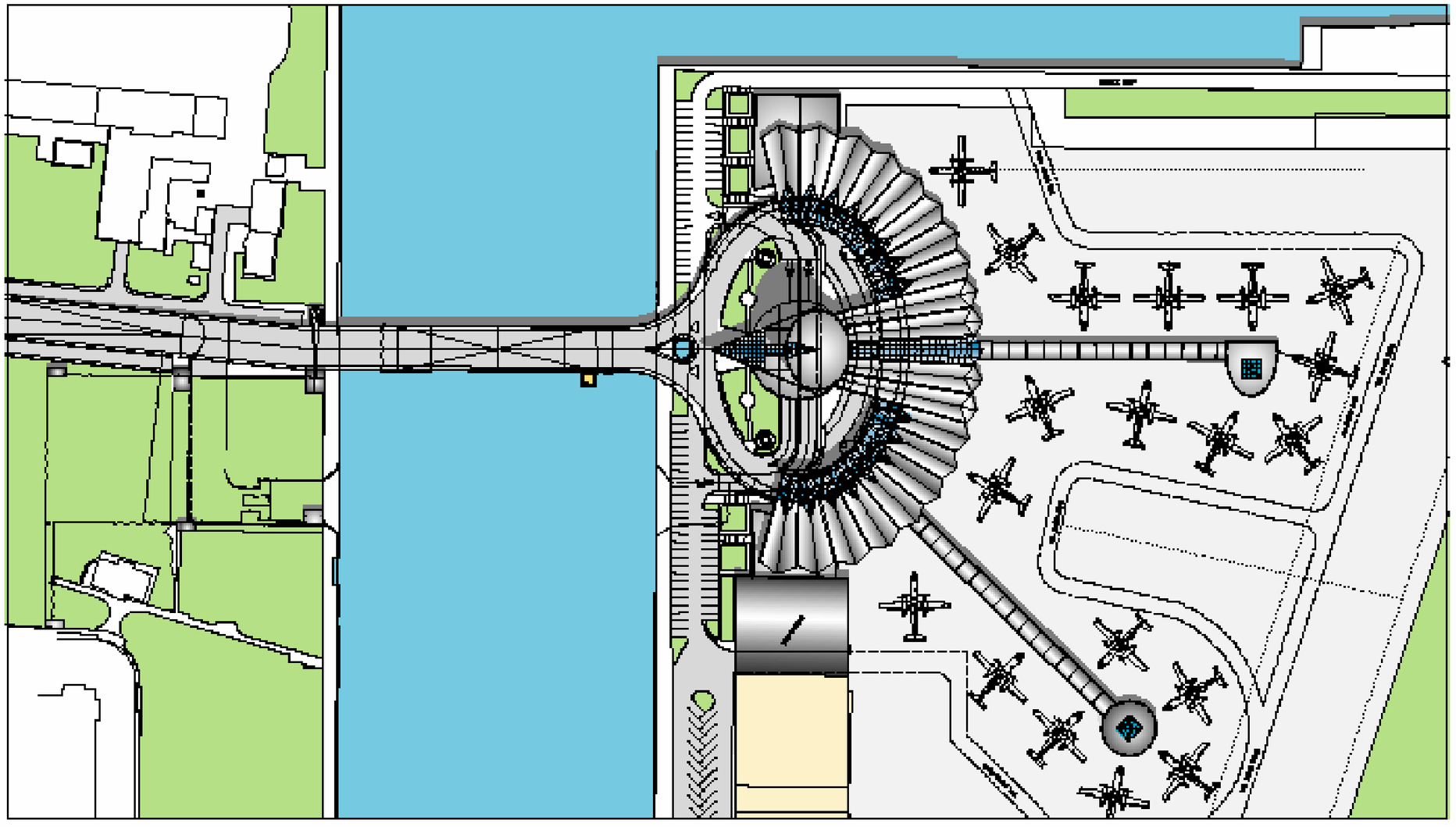
Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - SITE PLAN

TORONTO PORT AUTHORITY

JULY 2001



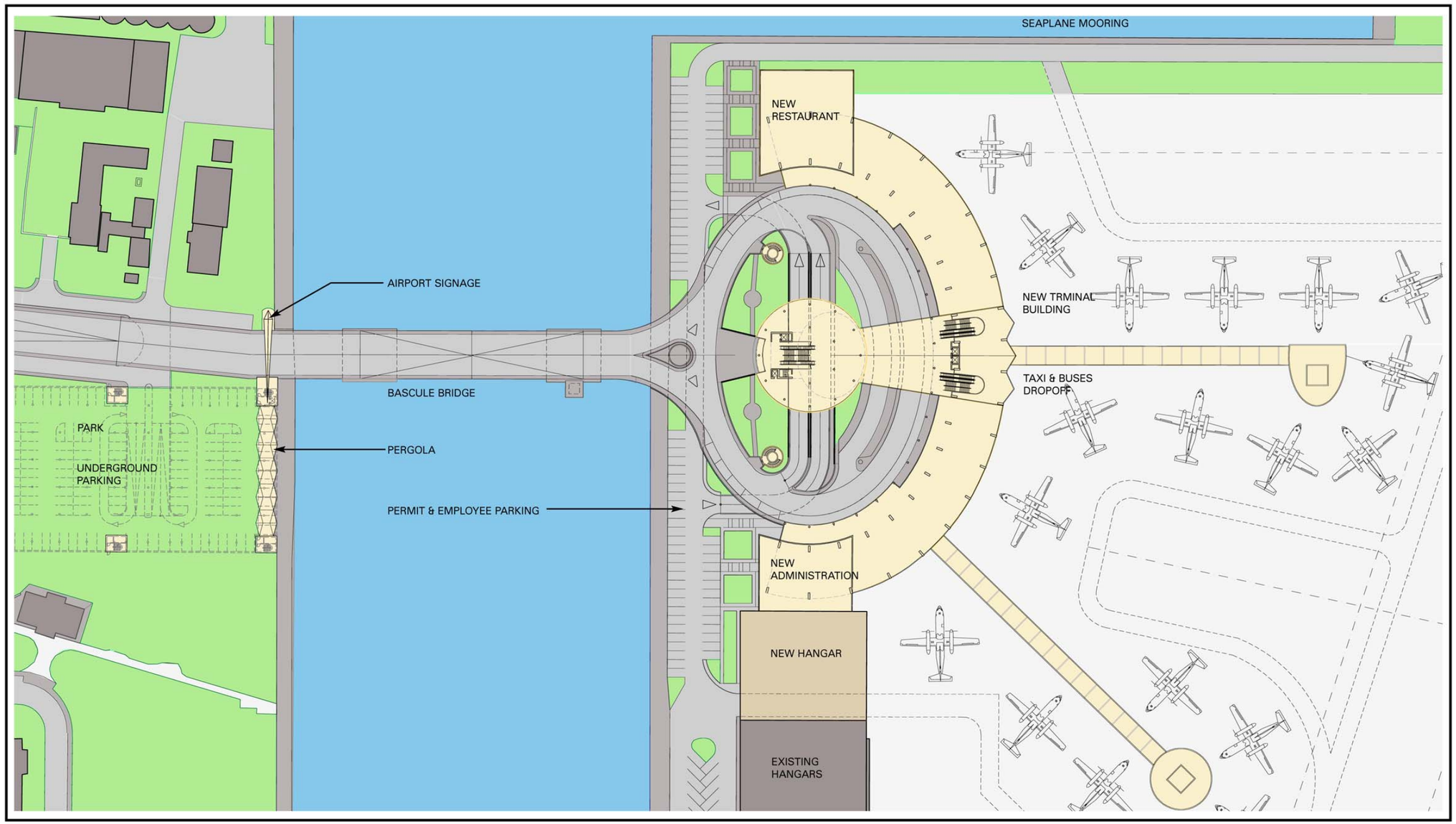
Sypher

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - ROOF PLAN

TORONTO PORT AUTHORITY

JULY 2001



Sypher ■ Sypher : Mueller International Inc.

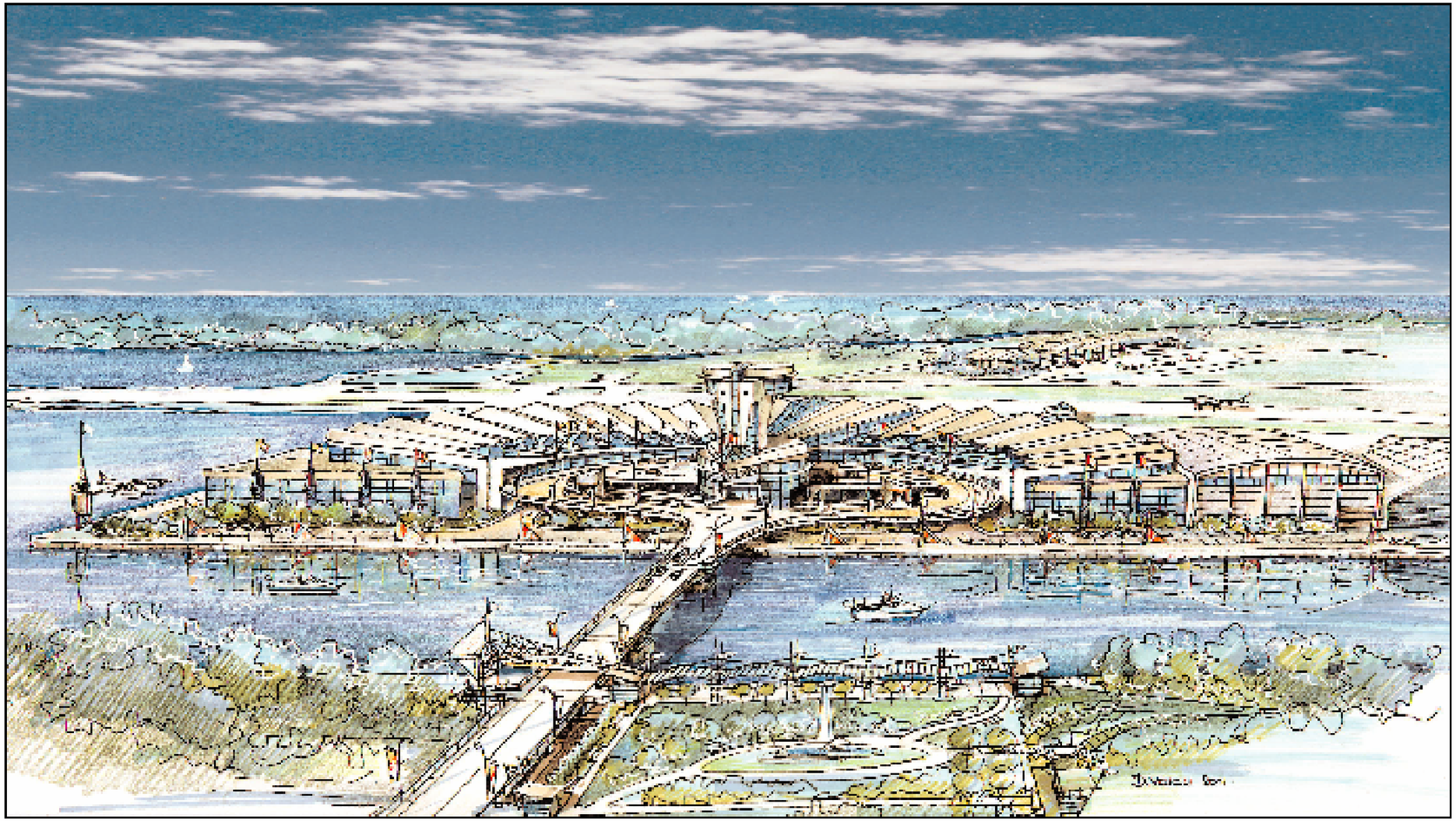
Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - FLOOR PLAN

TORONTO PORT AUTHORITY

JULY 2001



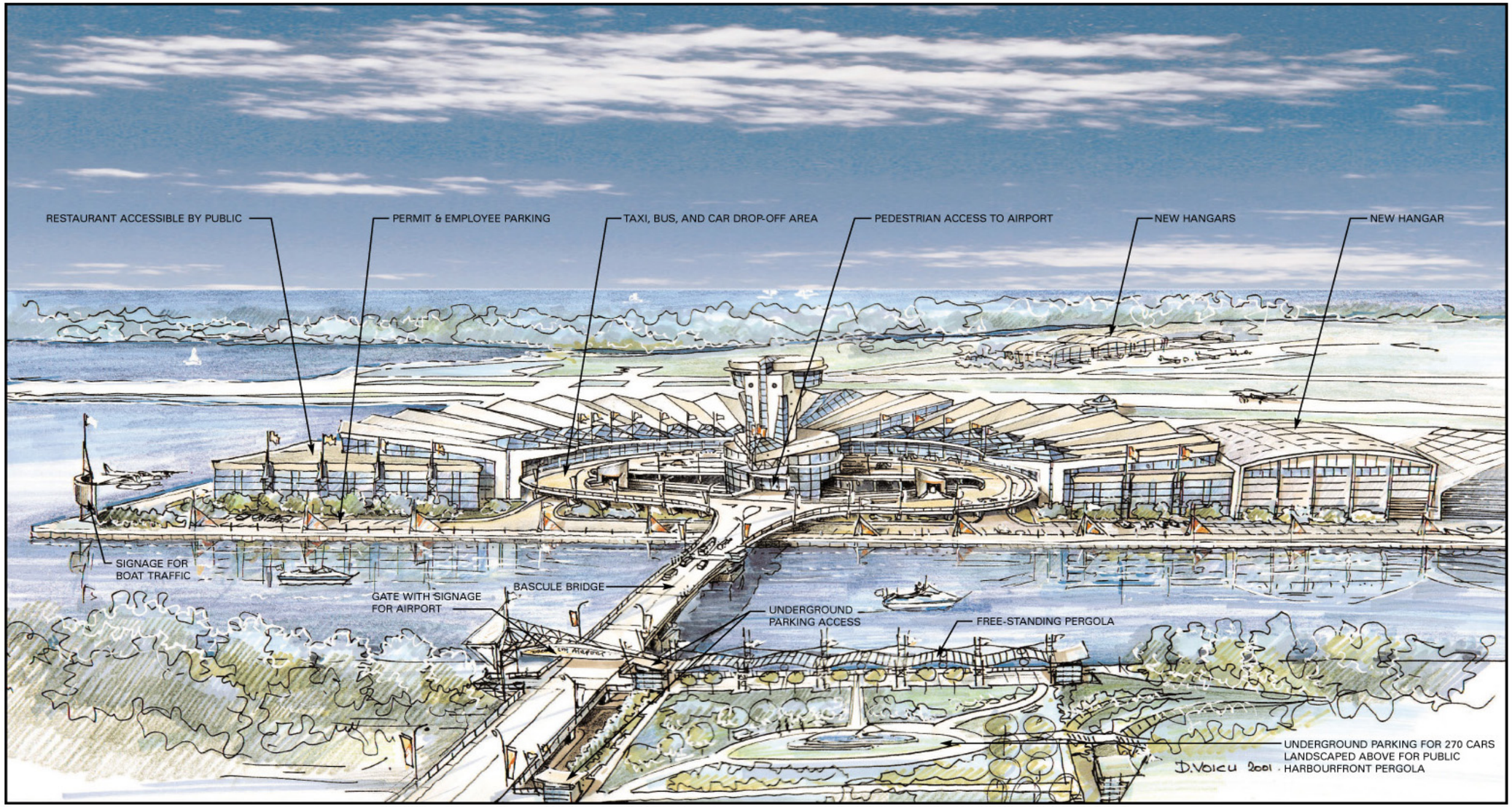
Sypher

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - PERSPECTIVE

TORONTO PORT AUTHORITY

JULY 2001



Sypher ■ Sypher : Mueller International Inc.

Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - PERSPECTIVE WITH NOTES

TORONTO PORT AUTHORITY

JULY 2001

Sypher ■ Sypher : Mueller International Inc.

Queen's Quay Architects International Inc.

TORONTO CITY CENTRE AIRPORT

STUDY 2 - BASCULE BRIDGE - PERSPECTIVE WITH CONTEXT

TORONTO PORT AUTHORITY

JULY 2001

Appendix F

Regulated Emissions Modelling Assumptions, Inputs and Outputs

Appendix F
Regulated Emissions Modelling
Assumptions, Inputs and Outputs

Assumptions

The following assumptions were used in setting up EDMS for comparison runs

- Current traffic levels on the highways were used;
  - Gardiner at Spadina – 38.5 million vehicles/year
  - Lakeshore at Bathurst – 10.1 million vehicles/year
  - Queen's Quay 1.7 million vehicles/year
- Forecast parking on the Airport is 400 slots, each turning over once/day
- Runway use is:
  - Jets, commuter turbo props 60% of arrivals and departures to the west on Runway 08/26 and 40% of arrivals and departures use this same runway to the east;
  - Remaining aircraft distributed on current traffic distribution;
- Air traffic levels and aircraft types used for the scenarios were:

	Current	Turbo	Jet 50
Commuter Jet			
Aircraft Type	-	-	CRJ-100
Annual Movements	-	-	27,560
Business Jet			
Aircraft Type	-	-	Falcon 50
Annual Movements	-	-	5,200
Commuter Turboprop			
Aircraft Type	DHC8-100	DHC8-400	-
Annual Movements	11,626	33,800	-
Other Commercial			
Aircraft Type	BE99A	BE99A	BE99A
Annual Movements	42,000	42,000	42,000
General Aviation			
Aircraft Type	C150	C150	C150
Annual Movements	98,830	98,830	16,830

EDMS 4.0 Study Information TCCA EDMS 24 Aug 2002 Airport Only

Date: Monday, August 27, 2001
Study Created: Friday, August 24, 2001
Study Pathname: C:\AAProjects\Toronto Centre\Toronto Centre EDMS\TCCA EDMS Jet 2020 Baseline\TCCA EDMS Jet 2020 Baseli

Airport: Toronto City Centre Airport, ON CYTZ
Airport Location (lat / lon): n43 37 39 w79 23 46
Field elevation: 0
Metric airport layout units selected
Average temperature: 58.
Mixing Height: 3000
Vehicle fleet year: 1995

Hourly Operational Profiles:
DEFAULT

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	1.000	9	1.000	17	1.000
2	1.000	10	1.000	18	1.000
3	1.000	11	1.000	19	1.000
4	1.000	12	1.000	20	1.000
5	1.000	13	1.000	21	1.000
6	1.000	14	1.000	22	1.000
7	1.000	15	1.000	23	1.000
8	1.000	16	1.000	24	1.000

TCCA

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.000	9	1.000	17	1.000
2	0.000	10	1.000	18	1.000
3	0.000	11	0.500	19	1.000
4	0.000	12	0.500	20	0.500
5	0.000	13	1.000	21	0.500
6	0.000	14	1.000	22	0.000
7	1.000	15	0.500	23	0.000
8	1.000	16	0.500	24	0.000

Daily Operational Profiles:
DEFAULT

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	1.000
Wednesday	1.000	Sunday	1.000
Thursday	1.000		

TCCA

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	0.000
Wednesday	1.000	Sunday	0.000
Thursday	1.000		

Monthly Operational Profiles:
DEFAULT

Month	Fraction of Peak	Month	Fraction of Peak
January	1.000	July	1.000
February	1.000	August	1.000
March	1.000	September	1.000
April	1.000	October	1.000
May	1.000	November	1.000
June	1.000	December	1.000

Aircraft:

Aircraft Name	Engine Type	Aircraft Category	Identification
Cessna 150	O-200	SGPP	General Aviation

Annual LTO: 16830
TGO: 81470
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5880	0.5880	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time

Aircraft Name	Engine Type	Aircraft Category	Identification
B. 99A	PT6A-27	SCTP	Other Commercial

Annual LTO: 42000
TGO: 0
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5880	0.5880	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time
Diesel Fuel Truck	35.00

Aircraft Name	Engine Type	Aircraft Category	Identification
DHC-8-100	DEFAULT	SCTP	Commuter Turbo

Annual LTO: 11626
TGO: 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36 (80HP)	26.00
Diesel Belt Loader	48.00
Diesel Fuel Truck	35.00
Gasoline Baggage Tug	85.00

Parking Lots:
Terminal Lot
Coordinates: (-850.00,100.00)
(-750.00,100.00)
(-750.00, 0.00)
(-850.00, 0.00)
Release Height: 1.00
Annual number of vehicles: 104000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Old Lots
Coordinates (0.00, 0.00)
(100.00, 0.00)
(100.00,150.00)
(0.00,150.00)
Release Height: 1.00
Annual number of vehicles: 39000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Roadways:
Access Road
End 1 coordinates: (-750.00, 0.00)
End 2 coordinates: (-750.00,625.00)
Annual number of vehicles: 106000
Average speed: 25 MPH

Round trip distance 0.777
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT

Gardiner
End 1 coordinates: (-1750.00,750.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 38552760
Average speed: 40 MPH
Round trip distance: 2.485
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Lakeshore
End 1 coordinates: (-1750.00,250.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 10143400
Average speed: 35 MPH
Round trip distance: 2.561
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Queen's Quay
End 1 coordinates: (-750.00,625.00)
End 2 coordinates: (1000.00,1000.00)
Annual number of vehicles: 1700000
Average speed: 25 MPH
Round trip distance: 2.224
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Stationary Sources:
Training Fires:
Runways:
06-25
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-1000.00,-500.00)
Queue coordinates at peak length: (-20.00,-20.00) , (-980.00,-480.00)

15-33
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (-1000.00,-250.00) to (-500.00,-750.00)
Queue coordinates at peak length: (-980.00,-230.00) , (-480.00,-730.00)

06-24
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-750.00,-625.00)

Queue coordinates at peak length: (-20.00,20.00) , (-770.00,-605.00)

Taxiways:
Gates:
Term (-750.00,-100.00)

Configurations:
Receptors:
Terminal Landside (-750.00, 0.00, 1.80)
Bathhurst/QQ (-750.00,625.00, 1.80)
Village Ferry Slip (2500.00, 0.00, 1.80)
Union Station (750.00,1500.00, 1.80)

Cartesian Receptor Networks:
Polar Receptor Networks:

EDMS 4.0 Emissions Inventory Report

Study Name: TCCA EDMS 24 Aug

Airport: Toronto City Centre Airport

Report Date: 08/27/01

SUMMARY

(Tons/Year)

NAME	CO	HC	NOx	SOx	PM10
Aircraft	481.606	33.654	24.134	3.128	.000
GSE/AGE/APU	247.921	6.175	29.228	1.262	.957
Roadways	2.551	.307	.255	.010	.013
Parking Lots	.930	.108	.033	.001	.001
Total	733.008	40.444	53.650	4.401	.971

AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
B. 99A	PT6A-27	TAXI	26.242	20 572	.896	410	.000
B. 99A	PT6A-27	TKOF	220	.000	1.718	220	.000
B 99A	PT6A-27	CLMB	.372	.000	2 156	306	000
B 99A	PT6A-27	APCH	28.450	2 674	10.220	1 221	.000
B 99A	PT6A-27	APU	.000	.000	.000	000	.000
B 99A	PT6A-27	GSE	4 861	1.458	13 368	.297	621
Cessna 150	O-200	TAXI	3.665	.185	009	.001	000
Cessna 150	O-200	TKOF	10.330	.222	.052	001	.000
Cessna 150	O-200	CLMB	22.873	.491	.115	.003	.000
Cessna 150	O-200	APCH	38 332	1.072	.037	.004	.000
Cessna 150	O-200	TGO	346.662	8.658	.987	.035	.000
Cessna 150	O-200	APU	.000	000	.000	000	.000
Cessna 150	O-200	GSE	000	000	.000	.000	.000
DHC 8 100	DEFAULT	TAXI	282	.000	.108	.019	.000
DHC-8-100	DEFAULT	TKOF	.261	000	1.908	140	.000
DHC-8-100	DEFAULT	CLMB	.430	.000	2.301	.187	000
DHC 8-100	DEFAULT	APCH	3.469	.000	3 527	.579	000
DHC-8-100	DEFAULT	APU	1.141	.083	5.623	557	.000
DHC-8-100	DEFAULT	GSE	241.919	4.634	10 237	.408	336

** Denotes User Created Aircraft

EDMS 4.0 Emissions Inventory

VEHICULAR EMISSIONS

(Tons/Year)

Source	CO	HC	NOx	SOx	PM10
Access Road	2.551	.307	.255	.010	.013
Old Lots	.930	.106	.033	.001	.001

EDMS 4.0 Emissions Inventory

EDMS 4.0 Study Information TCCA EDMS 24 Aug 2002 Airport/Roads

Date: Monday, August 27, 2001
Study Created: Friday, August 24, 2001
Study Pathname: C:\AAProjects\Toronto Centre\Toronto Centre EDMS\TCCA EDMS Jet 2020 Baseline\TCCA EDMS Jet 2020 Baseli

Airport: Toronto City Centre Airport, ON CYTZ
Airport Location (lat / lon): n43 37 39 w79 23 46
Field elevation: 0
Metric airport layout units selected
Average temperature: 58.
Mixing Height: 3000
Vehicle fleet year: 1995

Hourly Operational Profiles:
DEFAULT

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	1.000	9	1.000	17	1.000
2	1.000	10	1.000	18	1.000
3	1.000	11	1.000	19	1.000
4	1.000	12	1.000	20	1.000
5	1.000	13	1.000	21	1.000
6	1.000	14	1.000	22	1.000
7	1.000	15	1.000	23	1.000
8	1.000	16	1.000	24	1.000

TCCA

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.000	9	1.000	17	1.000
2	0.000	10	1.000	18	1.000
3	0.000	11	0.500	19	1.000
4	0.000	12	0.500	20	0.500
5	0.000	13	1.000	21	0.500
6	0.000	14	1.000	22	0.000
7	1.000	15	0.500	23	0.000
8	1.000	16	0.500	24	0.000

Daily Operational Profiles:
DEFAULT

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	1.000
Wednesday	1.000	Sunday	1.000
Thursday	1.000		

TCCA

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	0.000
Wednesday	1.000	Sunday	0.000
Thursday	1.000		

Monthly Operational Profiles:
DEFAULT

Month	Fraction of Peak	Month	Fraction of Peak
January	1.000	July	1.000
February	1.000	August	1.000
March	1.000	September	1.000
April	1.000	October	1.000
May	1.000	November	1.000
June	1.000	December	1.000

Aircraft:

Aircraft Name	Engine Type	Aircraft Category	Identification
Cessna 150	O-200	SGPP	General Aviation

Annual LTO: 16630
TCO: 81470
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5680	0.5680	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time

Aircraft Name	Engine Type	Aircraft Category	Identification
B. 99A	PT6A-27	SCTP	Other Commercial

Annual LTO: 42000
TGO: 0
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5680	0.5680	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time
Diesel Fuel Truck	35.00

Aircraft Name	Engine Type	Aircraft Category	Identification
DHC-8-100	DEFAULT	SCTP	Commuter Turbo

Annual LTO: 11626
TGO: 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36 (80HP)	26.00
Diesel Belt Loader	48.00
Diesel Fuel Truck	35.00
Gasoline Baggage Tug	85.00

Parking Lots:
Terminal Lot
Coordinates: (-850.00,100.00)
(-750.00,100.00)
(-750.00, 0.00)
(-850.00, 0.00)
Release Height: 1.00
Annual number of vehicles: 104000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Old Lots
Coordinates: (0.00, 0.00)
(100.00, 0.00)
(100.00,150.00)
(0.00,150.00)
Release Height: 1.00
Annual number of vehicles: 39000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Roadways:
Access Road
End 1 coordinates: (-750.00, 0.00)
End 2 coordinates: (-750.00,625.00)
Annual number of vehicles: 106000
Average speed: 25 MPH

Round trip distance: 0.777
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT

Gardiner
End 1 coordinates: (-1750.00,750.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 38552760
Average speed: 40 MPH
Round trip distance: 2.485
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Lakeshore
End 1 coordinates: (-1750.00,250.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 10143400
Average speed: 35 MPH
Round trip distance: 2.561
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Queen's Quay
End 1 coordinates: (-750.00,625.00)
End 2 coordinates: (1000.00,1000.00)
Annual number of vehicles: 1700000
Average speed: 25 MPH
Round trip distance: 2.224
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Stationary Sources:
Training Fires:
Runways:
08-26
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-1000.00,-500.00)
Queue coordinates at peak length: (-20.00,-20.00) , (-980.00,-480.00)

15-33
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (-1000.00,-250.00) to (-500.00,-750.00)
Queue coordinates at peak length: (-980.00,-230.00) , (-480.00,-730.00)

06-24
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-750.00,-625.00)

Queue coordinates at peak length. (-20.00,20.00) , (-770.00,-605.00)

Taxiways:
Gates:
Term (-750.00,-100.00)

Configurations:
Receptors:
Terminal Landside (-750.00, 0.00, 1.80)
Bathhurst/QQ (-750.00,625.00, 1.80)
Village Ferry Slip (2500.00, 0.00, 1.80)
Union Station (750.00,1500.00, 1.80)

Cartesian Receptor Networks:
Polar Receptor Networks:

EDMS 4.0 Emissions Inventory Report

Study Name: TCCA EDMS 24 Aug

Airport: Toronto City Centre Airport

Report Date: 08/27/01

SUMMARY

(Tons/Year)

NAME	CO	HC	NOx	SOx	PM10
Aircraft	481.606	33.854	24.134	3.128	000
GSE/AGE/APU	247.921	6.175	29.228	1.252	957
Roadways	2,765.387	361.379	399.834	15.927	19.805
Parking Lots	.930	.108	.033	.001	.001
Total	3,495.844	401.516	453.229	20.318	20.763

AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
B. 99A	PT6A-27	TAXI	26.242	20.572	996	.410	000
B. 99A	PT6A-27	TKOF	.220	000	1.718	220	.000
B 99A	PT6A-27	CLMB	.370	.000	2 156	.308	.000
B 99A	PT6A-27	APCH	28.450	2.674	10 220	1.221	000
B. 99A	PT6A-27	APU	.000	.000	.000	.000	000
B 99A	PT6A-27	GSE	4.861	1.468	13.368	.297	621
Cessna 150	O-200	TAXI	3.665	165	.009	.001	.000
Cessna 150	O-200	TKOF	10 330	.222	.052	.001	.000
Cessna 150	O-200	CLMB	22.873	.491	115	.003	.000
Cessna 150	O-200	APCH	38.332	1.072	.037	.004	.000
Cessna 150	O-200	TGO	346 662	8.658	.987	035	.000
Cessna 150	O-200	APU	.000	.000	.000	.000	.000
Cessna 150	O-200	GSE	.000	.000	.000	.000	000
DHC-8-100	DEFAULT	TAXI	.282	000	.108	019	.000
DHC-8-100	DEFAULT	TKOF	281	.000	1.908	.140	.000
DHC-8-100	DEFAULT	CLMB	.430	.000	2.301	.187	.000
DHC-8-100	DEFAULT	APCH	3.469	000	3.527	.579	.000
DHC-8-100	DEFAULT	APU	1 141	.083	5.623	.557	.000
DHC-8-100	DEFAULT	GSE	241.919	4 634	10.237	.408	.336

** Denotes User Created Aircraft

EDMS 4.0 Emissions Inventory

VEHICULAR EMISSIONS

(Tons/Year)

Source	CO	HC	NOx	SOx	PM10
Access Road	2.551	.307	.255	.010	.013
Gardiner	2,036.083	268.239	306.257	12.145	15.102
Lakeshore	609.643	78.747	81.610	3.293	4.095
Queen's Quay	117.111	14.087	11.711	.479	.596
Old Lots	.930	.108	.033	.001	.001

EDMS 4.0 Emissions Inventory

EDMS 4.0 Study Information TCCA EDMS 24 Aug 2020 Turbo

Date: Monday, August 27, 2001
Study Created: Friday, August 24, 2001
Study Pathname: C:\AA\Projects\Toronto Centre\Toronto Centre EDMS\TCCA EDMS Jet 2020 Baseline\TCCA EDMS Jet 2020 Baseli

Airport: Toronto City Centre Airport, ON CYTZ
Airport Location (lat / lon): n43 37 39 w79 23 46
Field elevation: 0
Metric airport layout units selected
Average temperature 58.
Mixing Height: 3000
Vehicle fleet year: 1995

Hourly Operational Profiles:
DEFAULT

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	1.000	9	1.000	17	1.000
2	1.000	10	1.000	18	1.000
3	1.000	11	1.000	19	1.000
4	1.000	12	1.000	20	1.000
5	1.000	13	1.000	21	1.000
6	1.000	14	1.000	22	1.000
7	1.000	15	1.000	23	1.000
8	1.000	16	1.000	24	1.000

TCCA

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.000	9	1.000	17	1.000
2	0.000	10	1.000	18	1.000
3	0.000	11	0.500	19	1.000
4	0.000	12	0.500	20	0.500
5	0.000	13	1.000	21	0.500
6	0.000	14	1.000	22	0.000
7	1.000	15	0.500	23	0.000
8	1.000	16	0.500	24	0.000

Daily Operational Profiles:
DEFAULT

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	1.000
Wednesday	1.000	Sunday	1.000
Thursday	1.000		

TCCA

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	0.000
Wednesday	1.000	Sunday	0.000
Thursday	1.000		

Monthly Operational Profiles:
DEFAULT

Month	Fraction of Peak	Month	Fraction of Peak
January	1.000	July	1.000
February	1.000	August	1.000
March	1.000	September	1.000
April	1.000	October	1.000
May	1.000	November	1.000
June	1.000	December	1.000

Aircraft:

Aircraft Name	Engine Type	Aircraft Category	Identification
Cessna 150	O-200	SGPP	General Aviation

Annual LTO: 16830
TGO: 82000
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate: -NONE-
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5860	0.5380	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time

Aircraft Name	Engine Type	Aircraft Category	Identification
B 99A	PT6A-27	SCTP	Other Commercial

Annual LTO: 42000
TGO: 0
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5860	0.5380	0.5000
33	0.0420	0.0060	0.0000

Assigned GSE/AGE:

GSE	Op Time
Diesel Fuel Truck	35.00

Aircraft Name	Engine Type	Aircraft Category	Identification
Falcon 50	TFE731-3	SGJB	Business Jet

Annual LTO: 5200
TGO: 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate: Term
Aircraft does not use configurations
Assigned Taxiways
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.4000	0.4000	0.4000
24	0.6000	0.6000	0.6000

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36 (80HP)	26.00
Diesel Fuel Truck	35.00
Gasoline Ground Power Unit	30.00

Aircraft Name	Engine Type	Aircraft Category	Identification
DHC-8-400	PW123	LCTP	Commuter Turboprop

Annual LTO: 33800
TGO: 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36 (80HP)	26.00
Diesel Belt Loader	48.00
Diesel Fuel Truck	35.00
Gasoline Baggage Tug	85.00

Parking Lots:
Terminal Lot
Coordinates: (-850.00,100.00)
(-750.00,100.00)
(-750.00, 0.00)
(-850.00, 0.00)
Release Height: 1.00
Annual number of vehicles: 104000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT

Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Old Lots
Coordinates: (0.00, 0.00)
(100.00, 0.00)
(100.00,150.00)
(0.00,150.00)
Release Height: 1.00
Annual number of vehicles: 39000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Roadways:
Access Road
End 1 coordinates: (-750.00, 0.00)
End 2 coordinates: (-750.00,625.00)
Annual number of vehicles: 106000
Average speed: 25 MPH
Round trip distance: 0.777
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT

Gardiner
End 1 coordinates: (-1750.00,750.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 38552760
Average speed: 40 MPH
Round trip distance: 2.485
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Lakeshore
End 1 coordinates: (-1750.00,250.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 10143400
Average speed: 35 MPH
Round trip distance: 2.561
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Queen's Quay
End 1 coordinates: (-750.00,625.00)
End 2 coordinates: (1000.00,1000.00)
Annual number of vehicles: 1700000
Average speed: 25 MPH
Round trip distance: 2.224
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Stationary Sources
Training Fires:
Runways:
06-26
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-1000.00,-500.00)
Queue coordinates at peak length: (-20.00,-20.00) , (-980.00,-480.00)

15-33
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (-1000.00,-250.00) to (-500.00,-750.00)
Queue coordinates at peak length: (-980.00,-230.00) , (-480.00,-730.00)

08-24
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-750.00,-625.00)
Queue coordinates at peak length: (-20.00,20.00) , (-770.00,-605.00)

Taxiways:
Gates:
Term (-750.00,-100.00)

Configurations:
Receptors:
Terminal Landside (-750.00, 0.00, 1.80)
Bathhurst/QQ (-750.00,625.00, 1.80)
Village Ferry Slip (2500.00, 0.00, 1.80)
Union Station (750.00,1500.00, 1.80)

Cartesian Receptor Networks:
Polar Receptor Networks:

EDMS 4.0 Emissions Inventory Report

Study Name: TCCA EDMS 24 Aug

Airport: Toronto City Centre Airport

Report Date: 08/27/01

SUMMARY

(Tons/Year)

NAME	CO	HC	NOx	SOx	PM10
Aircraft	494.594	34.355	61.968	5.679	000
GSE/AGE/APU	789.999	16.679	64.938	3.471	1.675
Roadways	2.765.387	361.379	399.834	15.927	19.805
Parking Lots	2.481	.288	.087	.003	.003
Total	4.052.461	412.701	526.827	25.080	21.483

AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
B 99A	PT6A-27	TAXI	26.242	20.572	996	.410	.030
B 99A	PT6A-27	TKOF	.220	000	1.718	.220	.000
B. 99A	PT6A-27	CLMB	370	.000	2.156	308	.000
B. 99A	PT6A 27	APCH	26.450	2.674	10.220	1.221	.020
B 99A	PT6A-27	APU	.020	.000	000	.020	.000
B. 99A	PT6A-27	GSE	4 661	1 458	13.358	267	.621
Cessna 150	O-200	TAXI	3.665	.165	.009	001	.020
Cessna 150	O-200	TKOF	10.330	292	.052	.001	.000
Cessna 150	O 200	CLMB	22 873	.491	.115	003	.000
Cessna 150	O-200	APCH	38.332	1.072	.037	004	.000
Cessna 150	O-200	TGO	348.917	8 714	.993	.036	.000
Cessna 150	O-200	APU	000	000	.000	000	.000
Cessna 150	O-200	GSE	000	000	.000	000	.000
DHC-8-400	PW123	TAXI	589	000	461	065	.000
DHC-8-400	PW123	TKOF	960	000	6.452	480	000
DHC-8-400	PW123	CLMB	1 315	000	10.648	657	000
DHC 8 400	PW123	APCH	7 476	000	19.083	1 968	.000
DHC-8-400	PW123	APU	3 318	243	16 347	1 518	.000
DHC-8-400	PW123	GSE	703.325	13 471	29.763	1.187	977
Falcon 50	TFE731-3	TAXI	205	039	.018	002	.030
Falcon 50	TFE731-3	TKOF	186	.010	3.245	092	.000
Falcon 50	TFE731-3	CLMB	.187	008	1.875	.063	.000
Falcon 50	TFE731-3	APCH	4 277	398	1.902	.148	000
Falcon 50	TFE731-3	APU	510	.037	2.515	249	.000
Falcon 50	TFE731-3	GSE	77.985	1 470	2.945	.120	.077

** Denotes User Created Aircraft

EDMS 4.0 Emissions Inventory

VEHICULAR EMISSIONS

(Tons/Year)

Source	CO	HC	NOx	SOx	PM10
Access Road	2.551	307	.255	.010	.013
Gardiner	2,036.083	268.239	306.257	12.145	15.102
Lakeshore	609.843	78.747	81.610	3.293	4.095
Queen's Quay	117.111	14.087	11.711	.479	.596
Terminal Lot	2.481	.288	087	.003	.003

EDMS 4.0 Emissions Inventory

EDMS 4.0 Study Information TCCA EDMS 24 Aug 2020 Jet

Date: Monday, August 27, 2001
Study Created: Friday, August 24, 2001
Study Pathname: C:\AAProjects\Toronto Centre\Toronto Centre EDMS\TCCA EDMS Jet 2020 Baseline\TCCA EDMS Jet 2020 Basoli

Airport: Toronto City Centre Airport, ON CYTZ
Airport Location (lat / lon): n43 37 39 w79 23 46
Field elevation: 0
Metric airport layout units selected
Average temperature: 58.
Mixing Height: 3000
Vehicle fleet year: 1995

Hourly Operational Profiles:
DEFAULT

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	1.000	9	1.000	17	1.000
2	1.000	10	1.000	18	1.000
3	1.000	11	1.000	19	1.000
4	1.000	12	1.000	20	1.000
5	1.000	13	1.000	21	1.000
6	1.000	14	1.000	22	1.000
7	1.000	15	1.000	23	1.000
8	1.000	16	1.000	24	1.000

TCCA

Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.000	9	1.000	17	1.000
2	0.000	10	1.000	18	1.000
3	0.000	11	0.500	19	1.000
4	0.000	12	0.500	20	0.500
5	0.000	13	1.000	21	0.500
6	0.000	14	1.000	22	0.000
7	1.000	15	0.500	23	0.000
8	1.000	16	0.500	24	0.000

Daily Operational Profiles:
DEFAULT

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	1.000
Wednesday	1.000	Sunday	1.000
Thursday	1.000		

TCCA

Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.000	Friday	1.000
Tuesday	1.000	Saturday	0.000
Wednesday	1.000	Sunday	0.000
Thursday	1.000		

Monthly Operational Profiles:
DEFAULT

Month	Fraction of Peak	Month	Fraction of Peak
January	1.000	July	1.000
February	1.000	August	1.000
March	1.000	September	1.000
April	1.000	October	1.000
May	1.000	November	1.000
June	1.000	December	1.000

Aircraft:

Aircraft Name	Engine Type	Aircraft Category	Identification
Cessna 150	O-200	SGPP	General Aviation

Annual LTO: 16830
TGO: 82000
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate: -NONE-
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5880	0.5880	0.5000
33	0.0420	0.0080	0.0000

Assigned GSE/AGE:

GSE	Op Time

Aircraft Name	Engine Type	Aircraft Category	Identification
B. 99A	PT6A-27	SCTP	Other Commercial

Annual LTO: 42000
TGO: 0
Annual Average Taxi Time: 5.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
06	0.0560	0.0090	0.0000
08	0.3010	0.2830	0.5000
15	0.0090	0.0970	0.0000
24	0.0040	0.0170	0.0000
26	0.5880	0.5880	0.5000
33	0.0420	0.0080	0.0000

Assigned GSE/AGE:

GSE	Op Time
Diesel Fuel Truck	35.00

Aircraft Name	Engine Type	Aircraft Category	Identification
Falcon 50	TFE731-3	SGJB	Business Jet

Annual LTO: 5200
TGO: 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate: Term
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
08	0.4000	0.4000	0.4000
24	0.6000	0.6000	0.6000

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36 (60HP)	26.00
Diesel Fuel Truck	35.00
Gasoline Ground Power Unit	30.00

Aircraft Name	Engine Type	Aircraft Category	Identification
Canadair Reg-100	DEFAULT	LCJP	Commuter Jet

Annual LTO: 27560
TGO 0
Annual Average Taxi Time: 0.00
Annual Average Queue Time: 0.00
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT
Assigned Gate:
Aircraft does not use configurations
Assigned Taxiways:
Assigned Runways:

	T/O Factor	Landing Factor	TGO Factor
08	0.4000	0.4000	0.4000
24	0.6000	0.6000	0.6000

Assigned GSE/AGE:

GSE	Op Time
APU GTCP 36-150[RR]	26.00
Diesel Belt Loader	46.00
Diesel Fuel Truck	35.00
Gasoline Baggage Tug	85.00

Parking Lots:
Terminal Lot
Coordinates: (-850.00,100.00)
(-750.00,100.00)
(-750.00, 0.00)
(-850.00, 0.00)
Release Height: 1.00
Annual number of vehicles: 104000
Average Speed: 10 MPH

Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Old Lots
Coordinates: (0.00, 0.00)
(100.00, 0.00)
(100.00,150.00)
(0.00,150.00)
Release Height: 1.00
Annual number of vehicles: 39000
Average Speed: 10 MPH
Average Idle Time: 1.5 minutes
Average Distance Traveled: 250.00
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Roadways:
Access Road
End 1 coordinates: (-750.00, 0.00)
End 2 coordinates: (-750.00,625.00)
Annual number of vehicles: 106000
Average speed: 25 MPH
Round trip distance: 0.777
Hourly Profile: TCCA
Daily Profile: TCCA
Monthly Profile: DEFAULT

Gardiner
End 1 coordinates: (-1750.00,750.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 38552760
Average speed: 40 MPH
Round trip distance: 2.485
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Lakeshore
End 1 coordinates: (-1750.00,250.00)
End 2 coordinates: (250.00,750.00)
Annual number of vehicles: 10143400
Average speed: 35 MPH
Round trip distance: 2.561
Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Queen's Quay
End 1 coordinates: (-750.00,625.00)
End 2 coordinates: (1000.00,1000.00)
Annual number of vehicles: 1700000
Average speed: 25 MPH
Round trip distance: 2.224

Hourly Profile: DEFAULT
Daily Profile: DEFAULT
Monthly Profile: DEFAULT

Stationary Sources:
Training Fires:
Runways:
08-26
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-1000.00,-500.00)
Queue coordinates at peak length: (-20.00,-20.00) , (-980.00,-480.00)

15-33
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (-1000.00,-250.00) to (-500.00,-750.00)
Queue coordinates at peak length: (-980.00,-230.00) , (-480.00,-730.00)

06-24
Time in queue at peak: 0.00 minutes
Queue time profile: TCCA
Queue length profile: TCCA
Runway coordinates: (0.00, 0.00) to (-750.00,-625.00)
Queue coordinates at peak length: (-20.00,20.00) , (-770.00,-605.00)

Taxiways:
Gates:
Term (-750.00,-100.00)

Configurations:
Receptors:
Terminal Landside (-750.00, 0.00, 1.80)
Bathhurst/QQ (-750.00,625.00, 1.80)
Village Ferry Slip (2500.00, 0.00, 1.80)
Union Station (750.00,1500.00, 1.80)

Cartesian Receptor Networks:
Polar Receptor Networks:

EDMS 4.0 Emissions Inventory Report

Study Name: TCCA EDMS 24 Aug

Airport: Toronto City Centre Airport

Report Date: 08/27/01

SUMMARY

(Tons/Year)

NAME	CO	HC	NOx	SOx	PM10
Aircraft	489.373	34.880	57.808	6.286	.000
GSE/AGE/APU	664.771	14.484	48.877	2.727	1.494
Roadways	2,765.387	361.379	399.834	15.927	19.805
Parking Lots	.930	.108	.033	.001	.001
Total	3,920.461	410.851	506.552	24.941	21.300

AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
B. 99A	PT6A-27	TAXI	26.242	20.572	.996	410	.000
B. 99A	PT6A-27	TKOF	.223	.000	1.718	.220	.000
B. 99A	PT6A-27	CLMB	.370	.000	2.156	.308	.000
B. 99A	PT6A-27	APCH	28.452	2.674	10.220	1.221	.000
B. 99A	PT6A-27	APU	.000	.000	.000	.000	.000
B. 99A	PT6A-27	GSE	4.861	1.458	13.368	.297	.621
Canadair Reg-100	DEFAULT	TAXI	2.003	.186	.180	.047	.000
Canadair Reg-100	DEFAULT	TKOF	.000	.076	14.642	1.261	.000
Canadair Reg-100	DEFAULT	CLMB	.000	.050	8.403	.829	.000
Canadair Reg-100	DEFAULT	APCH	3.116	.213	11.249	1.640	.000
Canadair Reg-100	DEFAULT	APU	7.934	.535	5.781	1.093	.000
Canadair Reg 100	DEFAULT	GSE	573.481	10.984	24.268	.968	.796
Cessna 150	O-200	TAXI	3.655	.165	.009	.001	.000
Cessna 150	O-200	TKOF	10.330	.222	.052	.001	.000
Cessna 150	O-200	CLMB	22.673	.491	.115	.003	.000
Cessna 150	O-200	APCH	38.332	1.072	.037	.004	.000
Cessna 150	O-200	TGO	346.917	8.714	.983	.036	.000
Cessna 150	O-200	APU	.000	.000	.000	.000	.000
Cessna 150	O-200	GSE	.000	.000	.000	.000	.000
Falcon 50	TFE731-3	TAXI	.205	.039	.016	.002	.000
Falcon 50	TFE731-3	TKOF	.186	.010	3.245	.092	.000
Falcon 50	TFE731-3	CLMB	.187	.008	1.675	.063	.000
Falcon 50	TFE731-3	APCH	4.277	.388	1.902	.148	.000
Falcon 50	TFE731-3	APU	.510	.037	2.515	.249	.000
Falcon 50	TFE731-3	GSE	77.985	1.470	2.845	.120	.077

** Denotes User Created Aircraft

EDMS 4.0 Emissions Inventory

VEHICULAR EMISSIONS

(Tons/Year)

Source	CO	HC	NOx	SOx	PM10
Access Road	2.551	.307	.255	.010	.013
Gardiner	2,036.083	268.239	306.257	12.145	15.102
Lakeshore	609.643	78.747	81.610	3.293	4.095
Queen's Quay	117.111	14.087	11.711	.479	.596
Old Lots	.930	.108	.033	.001	.001

EDMS 4.0 Emissions Inventory