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Federal Environmental  
Assessment Review Office

# AIR TRAFFIC MANAGEMENT IN SOUTHERN ONTARIO

Executive Summary  
of the Interim Report  
of the Environmental  
Assessment Panel

November, 1992

Canada

**EXECUTIVE SUMMARY**  
**of the Interim Report of the**  
**Environmental Review Panel Examining**  
**Air Traffic Management in Southern Ontario**

This document consists of a highly condensed version of the first four chapters of the Panel's report, followed by the complete text of Chapter Five containing the Panel's conclusions and recommendations. The first chapter provides the setting for the review; the second reviews Transport Canada's presentation in support of its proposal; the third, the reactions of other stakeholders; and the fourth, the Panel's analysis.



The full report is available by writing to the address below.  
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The Honourable Jean Charest  
Minister of the Environment  
House of Commons  
Ottawa, Ontario

The Honourable Jean Corbeil  
Minister of Transport  
House of Commons  
Ottawa, Ontario

Dear Ministers:

I have the honour to transmit herewith the interim report of the Environmental Assessment Panel appointed to review proposals on air traffic management in southern Ontario, together with an executive summary of it. This interim report, as required by the Panel's terms of reference, examines the Transport Canada proposal to construct three new runways at Lester B. Pearson International Airport.

The report is quite extensive. Much of its technical detail, including a number of tables, figures and appendices, is likely to be of interest to only a relatively small number of parties directly involved.

The executive summary has been prepared as a separate, self-standing document. It is intended to meet the needs of those requiring the Panel's conclusions and recommendations, supported by sufficient background information for these findings to be fully understood and accurately interpreted, but without extensive technical detail.

Yours sincerely,



David Kirkwood  
Chairman  
Air Traffic Management in Southern Ontario  
Environmental Assessment Panel

## Chapter 1

### THE REVIEW

In the late 1980s, Transport Canada concluded that air traffic congestion at Toronto's Lester B. Pearson International Airport (LBPIA) required urgent corrective action, and in August 1989 announced a two phase strategy for dealing with this growing problem. The first phase would be the development of LBPIA to its "optimum" capacity to the year 2011, as a medium-term measure; the second phase would address traffic growth for the longer term, through the development of other airports in the area in accordance with a system-wide plan for air transportation in southern Ontario.

The government also announced, as an aspect of the first phase of this strategy, its intention to increase capacity at LBPIA by the construction of additional runways. This proposal, involving potentially significant positive and negative environmental and socio-economic impacts, called for a full federal environmental assessment review.

This report is issued by the Environmental Assessment Review Panel appointed to conduct this review. The Panel's mandate, in addition to the review of the proposed construction of additional runways at LBPIA, calls for review of Transport Canada's long-term plan for aviation in southern Ontario, which is not available at the time of writing. The latter review will be the subject of a further report at a later date.

#### The Panel

Appointed by the Minister of the Environment on November 22, 1989, the Panel originally was chaired by Robert Connelly and had as members Ross Gray, Mel Hagglund, Peter Homenuck and Pamela Welbourn. Following Mr. Connelly's withdrawal to other responsibilities, he was replaced as chairman on December 10, 1990 by David Kirkwood.

The Panel's terms of reference require a review of the implications of constructing additional runways at LBPIA, that considers noise, air and water emissions, other impacts resulting from construction and operation of additional runways, and economic benefits and costs.

#### The Review Process

In August, 1990 the Panel issued guidelines for the preparation by Transport Canada of an environmental impact statement (EIS) on the airside development project, i.e. the proposed construction of additional runways, at LBPIA. The guideline document reflected comments by the public on a draft which the Panel had

released following six days of hearings, termed scoping sessions, in the spring of 1990.

The EIS, submitted on May 3, 1991, was the subject of public comments as well as detailed review by the Panel. On August 27, 1991, the Panel requested additional information, which was provided by Transport Canada during the course of that autumn in a series of supplementary documents. The EIS, together with those supplementary reports, became the subject matter for review in a series of public hearings extending from December 3, 1991 to February 7, 1992.

During the hearings there were 255 presentations by a wide range of intervenors; in addition, the Panel reviewed thousands of written expressions of opinion, including over 400 detailed briefs. The complete documentation on the review is public.

#### Historical Development of LBPIA

Established originally in 1938, over the years LBPIA has served a steadily growing volume of traffic. Its facilities have evolved more or less in parallel with this growth, the present three-runway configuration being completed in the early 1970s.

At that time it was decided not to expand further the facilities at LBPIA; instead provision for further growth in traffic would be made by constructing a new Toronto international airport, for which land was expropriated at Pickering. However, strong public opposition to the Pickering project resulted in a decision by the Ontario government not to provide the necessary support facilities, and plans for the new airport were halted.

A federal government policy decision to reduce economic regulation of the transportation industry, reflected in an amendment of the National Transportation Act in 1987, led to increased airline competition resulting in the replacement of jet aircraft services to regional communities by more frequent turbo-prop commuter services. This resulted in a further increase in demand for air movements at LBPIA.

During the 1980s, traffic demand continued to grow steadily at LBPIA — as did the congestion resulting from that growth. By 1988 Transport Canada concluded that measures to handle this situation were urgently needed. As a short-term measure to relieve congestion, a cap and slot system of reservations for arrivals and departures at LBPIA was introduced in December, 1988. The government also announced its intention to provide additional capacity at LBPIA for the short to medium term, i.e. until the year 2011, by constructing

three additional runways. The review of this latter proposal is the subject matter of this interim report.

### **The Role of LBPIA**

LBPIA plays a key role in the North American air route structure and is the central connecting point in Canada's national air network. Its location, its large local market, and its proximity to the United States' market ensure its importance for both mainline and feeder services of major Canadian and international airlines. LBPIA serves about one-third of all scheduled domestic flights and one half of Canada's scheduled transborder and international flights.

The "hub and spoke" concept, which increasingly dominates scheduled air services, involves major centres or "hubs" linked by mainline carriers and regional or "spoke" communities linked to their "hub" by commuter airlines. In Canada these commuter airlines, usually affiliated with a mainline carrier, generally use relatively

small turbo-prop aircraft. LBPIA is such a hub airport, providing commuter service to a number of spoke communities throughout southern, central and north central Ontario, and linking them through connecting flights with other major centres both in and outside Canada.

Its traffic volume, the variety of services it offers, and the important range of commercial activities supporting it or dependent on it, ensure that LBPIA is of major economic importance not only in the Greater Toronto Area and southern Ontario more generally, but also nationally.

Six other airports (Hamilton, Toronto Island, Toronto-Buttonville, Oshawa, Toronto-Markham and Brampton) service the metropolitan Toronto area in addition to LBPIA; of the total number of passengers arriving at or departing from these seven airports in 1988, 96% travelled through LBPIA.

## Chapter 2

### THE CURRENT PROPOSAL

This chapter is based on the EIS and other documentary material provided by Transport Canada, supplemented by information obtained from Transport Canada representatives during the public hearings and in a subsequent public release.

The chapter presents Transport Canada's traffic forecasts for LBPIA, and its analysis of the airport's current and prospective capacity. It explains Transport Canada's conclusion that a capacity shortfall will shortly emerge at LBPIA, perhaps as early as 1996. It reviews various possible measures to address this problem, and reports Transport Canada's conclusion that the only effective solution which can be implemented soon enough to prevent serious congestion is to increase LBPIA's capacity by constructing three new runways. The chapter then examines Transport Canada's perception of the implications of proceeding with such a construction program.

#### Demand

The EIS forecasts annual growth in passenger traffic at LBPIA of 3.5%, starting from 21 million passengers in 1989. This leads to a projection of 30 million passengers by the year 2000 and 40 million by 2007. Translated into aircraft movements, this analysis forecasts an increase in aircraft movements from approximately 350,000 in 1989 to nearly 470,000 by the year 2000 and to 550,000 by 2011.

Through a rather complex set of calculations, the forecast of annual aircraft movements is translated into a figure representing the number of hourly aircraft movements required during peak periods. This figure represents, therefore, the hourly movement capacity required in order to respond satisfactorily to traffic demand.

On the basis of these calculations, the EIS projects that the hourly movement capacity required by 1996 will be 111, by 2001 will be 126 and by 2011 will be 139.

In April, 1992, following the public hearings, Transport Canada issued a preliminary update of passenger forecasts for LBPIA. This reflected the effect of the recession, which caused a passenger decrease from 1990 to 1991 of almost 10%. This revised forecast deferred by several years the dates forecast in the EIS for particular traffic levels, and thus by implication of particular levels of demand for air movements.

#### Capacity

The theoretical and practical determination of runway capacity is complex, being influenced by a number of

variables. In general terms, however, the theoretical capacity of a single, fully independent runway, under favourable operating conditions, is regarded as 48 movements per hour. The two parallel east/west runways at LBPIA are sufficiently far apart to be operated independently, and their combined hourly capacity is therefore, in theory, 96 movements under favourable conditions. The single north/south runway has an effective hourly capacity of 50 movements. These figures are reduced under less favourable operating conditions.

At present the theoretical east/west capacity of 96 hourly movements cannot be achieved because of a number of practical constraints. First is a continuing shortage of air traffic control (ATC) staff, which is gradually being overcome; Transport Canada expects that this problem will be resolved by 1994. Secondly, a number of improvements in the technological support facilities for air navigation are in the process of implementation. Thirdly, improvements are being made in the physical infrastructure of the airport, including high speed turn-offs, taxiways, and manoeuvring areas. These various improvements are all expected to be completed by 1996, permitting the theoretical capacity of the two east/west runways system of 96 hourly movements to be realized in practice, and thus bringing into effect what is termed the "base case".

Since operations are possible in an east/west direction some 95% of the time, this figure of 96 hourly movements constitutes the effective capacity of LBPIA's present three-runway system. For 5% of the time strong cross winds preclude east/west operations, and traffic is confined to the north/south runway with its capacity limit of 50 hourly movements; at such times the reduction in available capacity leads to temporary traffic disruptions.

The cap and slot reservation system, introduced in 1988 to constrain traffic to levels which LBPIA could accommodate without undue congestion, originally limited movements to 70 per hour. This figure was subsequently raised to 76, and earlier this year was raised again to the present figure of 82. As the aforementioned improvements are implemented, it is anticipated that further increases will lead to the 96 hourly movement limit by 1996.

#### Potential Solutions

Apart from increasing LBPIA's capacity, first by means of the base case improvements and then by construction of additional runways, consideration was given to a number of other possible ways of reducing demand

pressures. These included the use of pricing mechanisms, limiting access to LBPIA, measures to divert traffic to other airports, and construction of a new airport in the Toronto area. In the EIS and supplementary documentation, the various considerations relating to these possibilities were reviewed in general terms.

Some of these possibilities were rejected by Transport Canada as impractical or unlikely to be effective. Others were deemed suitable for consideration for the longer term, but because of the lead times involved were judged to be incapable of providing a timely response to the forecast need for additional capacity.

Transport Canada's conclusion, therefore, was that construction of new runways at LBPIA should be undertaken immediately.

### **Proposed New Runways**

The EIS outlined a range of possible proposals for additional runway construction, and reviewed the analytical processes by which Transport Canada's preferred option was selected. This preferred option is a proposal to construct two new east/west runways, each parallel and in close proximity to one of the existing east/west runways, and one new north/south runway parallel to the present one. Each of these proposed runways would be 8500 feet in length.

The new pattern of four east/west runways would constitute a so-called quad configuration, consisting of two fully independent pairs of runways with each pair consisting of two fully dependent runways. One runway in each pair is normally used for arrivals only, the other for departures only. While a number of factors are involved in determining the effective capacity of such a quad system, a representative figure for LBPIA under favourable operating conditions is 126 hourly movements. This compares with the east/west capacity foreseen for the present system of 96 hourly movements by 1996.

The proposed north/south runway would be far enough from the present one to permit semi-independent operation, but not far enough to permit fully independent operation under current restrictions. However, the separation proposed might permit fully independent operation in the future if the results of current experiments in the United States lead to revision of those restrictions. This runway, which Transport Canada proposes to use for arrivals only, and only when east/west operations are precluded, would increase capacity in the north/south direction from the present 50 hourly movements to 70.

### **Airport Operations**

The EIS and supporting material provided detailed information, relevant for assessing the implications of the proposed construction of new runways, on a number of aspects of airport operations at LBPIA. These include air traffic control services and the airspace structure which governs them, the translation of traffic demand forecasts into anticipated capacity requirements, waste management and disposal, and noise management.

### **Noise**

Because of the importance of aircraft noise in community reactions to LBPIA activities, a number of considerations relating to noise were examined in detail in Transport Canada's documentary and oral presentations.

Among the topics covered were the methodology of noise measurement and the various "metrics" used to express noise phenomena in quantitative terms. In particular, the Panel received explanations of the basic unit for expressing sound intensity, the decibel or dB, and of a variant of this (weighted to reflect the frequency response of the human ear) represented by the symbol dBA. Other commonly used metrics, expressed numerically in dB or dBA, are the Sound Exposure Level or SEL (often referred to as the Single Event Level), the day-night noise level or  $L_{dn}$  (a cumulative metric representing a 24-hour accumulation with a night noise weighting factor), and the Noise Exposure Forecast or NEF which is another cumulative metric calculated by means of a formula including both a night noise weighting factor and a frequency weighting factor. These two cumulative metrics, related approximately by the formula  $NEF+35dBA=L_{dn}$ , are often used to prepare noise "contours" as indicators of noise exposure in areas surrounding airports.

Information on the effects of noise on people included evidence that noise levels in airport neighbourhoods are well below those which have the potential to cause auditory damage. Transport Canada consultants asserted that there is no reliable clinical evidence to support claims that such levels of noise exposure can give rise to non-auditory health effects. They recognized, on the other hand, that noise levels encountered near airports can cause significant behavioral effects (e.g. speech and sleep interference, annoyance) and their influence on quality of life can cause social effects. There are wide differences in individual sensitivity to noise exposure, as reflected in "the Schultz curve" which aggregates the results of various studies that relate expressed annoyance to defined levels of noise exposure.



Other topics relating to noise which were addressed in the EIS include the effects of the on-going conversion of aircraft fleets from the older, noisier Stage 2 aircraft to more modern, more efficient and quieter Stage 3 aircraft. Projected noise contours for various dates and various runway configurations were examined in some detail. The EIS reviewed the noise patterns expected to result from the proposed new runways and their effects on the quality of residential life, schools, businesses, and the value of residential properties. The EIS concluded that such effects are acceptable.

### **Ecological and Historical Resources**

Transport Canada submitted material on the impact of current LBPIA operations, and of the proposed new runways, on air quality in the area, on hydrology and water quality and on aquatic and terrestrial wildlife resources. The area's ecological resources are already seriously degraded as a result of the extensive urbanization and industrialization of the territory surrounding LBPIA, and Transport Canada concluded that the proposed runway expansion would have little or no adverse ecological impact as a result of various current and proposed measures to monitor and protect the natural environment.

The Fifth Line Cemetery, privately owned but enclosed within LBPIA property, is a historic parish cemetery dating back to 1833. The base case improvements will not

disturb it, but construction of the proposed new north/south runway would require its removal. Transport Canada gave assurances during the hearings that, in this event, "the removal of the cemetery will be carried out in a very sensitive manner... and that it will be done to meet all.... within reason.... the requirements of the Archdiocese (of Toronto) or of the (Roman Catholic) Cemeteries Board".

### **Cost/Benefit Analysis**

Consultants had prepared for Transport Canada a cost/benefit analysis which produced a positive net present value of approximately \$1 .1 billion, relative to the base case, for the proposed runway expansion. A sensitivity analysis of the effects of changes in such factors as capital costs, discount rates, implementation time, traffic growth stagnation, and other inputs confirmed Transport Canada's conclusion that, under all reasonable changes in such variables, the proposal survives as a viable and attractive option.

The EIS expressed Transport Canada's view that its proposal, as a means of accommodating the anticipated growth of traffic demand at LBPIA in the short to medium term, represents the best available balance among the various operational requirements and environmental considerations which must be taken into account.

## Chapter 3

### STAKEHOLDER POSITIONS

This chapter summarizes the positions expressed, both in written submissions and in oral presentations during the hearings, by a wide variety of intervenors both individual and institutional. In addition to many residents of the area surrounding LBPIA and other individuals who earn their living in ways dependent on the operations of the airport, the Panel heard representatives of public interest groups, of schools and boards of education, of regional communities in southern and central Ontario, of business associations of several kinds, of the various components of the aviation industry, and of all three levels of government.

Many of these intervenors vigorously supported the proposal, basing their case broadly on the ground that the air transportation services offered by LBPIA — and the employment which its operations provide — are essential to the economic life of its immediate neighbourhood, of the Greater Toronto area, of Ontario, and indeed of Canada. They argued that traffic congestion poses a threat to the effective performance of these vital functions, and that additional runway capacity is urgently needed to ensure that such congestion would not arise.

Variants of this case were presented by individuals whose businesses are dependent on the airport's services or linked to its operations, and by a wide range of business associations representing manufacturing, distribution, transportation, tourism and service industries. Boards of trade, the Ontario Ministry of Transportation representing several provincial government departments, and a number of municipal governments presented similar arguments. Special concerns were expressed by representatives of the spoke communities, which feel threatened by the possibility that congestion at LBPIA might lead to a reduction or diversion of their commuter services. The governments of municipalities immediately adjacent to LBPIA, however, either opposed the proposal (Etobicoke) or were prepared to approve it only subject to fairly stringent conditions (Mississauga and Brampton).

Intervenors opposing the proposal were mainly local residents, acting either individually or as representa-

tives of community associations. They expressed vigorous concern about the adverse effects of current LBPIA operations, and especially of aircraft noise, on their lifestyle. Other effects attributed to the airport, such as air emissions and oily deposits on swimming pools, patios and laundry, were the subject of real but somewhat secondary complaints.

The proposed construction of additional runways is perceived as the cause of increased distress in future, and has given rise to particular concern in residential areas south of the proposed new north/south runway. These areas are not currently exposed to high noise levels, but the residents fear that they will become so.

The attitude of many residents concerned about effects of airport operations, especially noise, is marked by mistrust and hostility towards both the LBPIA management and the governmental representatives supporting the proposal. This is because they perceive themselves as having suffered increasing distress over the years as LBPIA operations grew; they have been given assurances against further expansion which have not been fulfilled, and their concerns appear to them to have been ignored.

The local residents seek assurances that the capacity of LBPIA will not be expanded beyond the base case level. They wish to be kept better informed of LBPIA developments likely to affect them, and to be consulted about noise abatement procedures. Many of them believe they are entitled to tax adjustments to compensate for the presumed effects of LBPIA operations on their property values, and to financial contributions from Transport Canada either to assist in measures to mitigate — for example through improved sound insulation — the effects of aircraft noise, or to compensate them for impacts which cannot be mitigated.

A few intervenors raised other issues, including various ecological concerns, but by far the greater part of the material presented to the Panel either supported the proposed runway expansion on economic grounds or opposed it on the basis of local community impacts.

## Chapter 4

### THE PANEL'S ANALYSIS

#### General

The Panel's analysis began with the identification of a number of factors which constituted a background for its consideration of the more specific issues.

The first of these was the incremental nature of the proposal. This meant that its environmental impacts could not properly be assessed in isolation, but only on the basis of their cumulative effect when added to the impacts of current operations at LBPIA.

The second general factor was the strong opposition to the proposal expressed by a considerable number of local residents. The Panel judged this opposition to be based more on the distress caused by past and current operations, and indignation that the resulting complaints appeared ineffective, than on an accurate assessment of the effects, especially in terms of aircraft noise, of constructing and operating the proposed runways.

A third background factor was an apparent procedural contradiction, which placed representatives of Transport Canada in a difficult position and complicated the Panel's task. On the one hand, Transport Canada was expected to present freely all relevant information on the proposal regardless of whether it was favourable or unfavourable, while at the same time the advocacy role inevitably created pressures to be selective. This is a general feature of the environmental assessment review process, not limited to the present proposal.

Finally, the EIS in fact presented not one, but two proposals, each designed to address a different problem and each capable of independent implementation. One proposal was to build two new east/west runways, in order to increase the capacity of LBPIA under normal operating conditions; the other was to build a new north/south runway, to reduce the present directional imbalance in capacity. As a pair, they are not entirely compatible. The Panel accordingly chose to address the two proposals independently.

#### The Short Term Situation

The Panel reviewed the various improvements currently proposed or being implemented by Transport Canada with regard to air traffic control staffing, air traffic control and air navigation support facilities, and airside physical infrastructure. It recognized that these are desirable, not only in terms of increasing capacity and thereby exploiting more fully the potential of the present three runways, but also in terms of enhancing the safety and

efficiency of operations. It identified certain other possible improvements, not currently proposed, relating to noise management, waste management, and air pollution. It identified concerns relating to de-icing and other safety issues. It also examined the prospective benefits, with regard to aircraft noise, of the replacement of Stage 2 by Stage 3 aircraft.

#### Directional Imbalance and North/South Capacity

The Panel shared Transport Canada's concerns about the traffic disruptions which are experienced when weather conditions restrict operations to the single north/south runway, and agreed that this current problem could be mitigated by the construction of additional north/south runway capacity. It reviewed the three options for such construction which had been given substantial consideration by Transport Canada, and explored further a fourth option, mentioned but not developed by Transport Canada. Limited information on this fourth option was made available during the hearings, as a response to the Panel's expression of interest in it. The Panel's conclusions and recommendations on these matters are set out in Chapter Five of this report.

#### East/West Capacity

The Panel gave careful consideration to the traffic forecasts provided by Transport Canada, and noted that the most recent of these projected a considerably longer period than was foreseen in the EIS before the emergence of a capacity shortfall at LBPIA. The Panel's views on the implications of this fact, with regard both to the proposed construction of east/west runways and to the development of longer term plans, are set out in Chapter Five of this report.

#### Noise

The Panel carefully reviewed the information submitted to it with regard to noise metrics, noise profiles (or contours), and the noise patterns of various runway configurations. It also examined the effects of noise on health and variations in human sensitivity to noise. The material presented to it on these subjects proved very helpful in assessing the effects of current and prospective LBPIA operations on the neighbouring residential communities.

#### Social Issues

The impacts of LBPIA operations on adjacent communities, and especially the effects of aircraft noise, were considered very carefully by the Panel. It was evident

that such operations are the cause of considerable distress, but it was not easy to determine how much weight should be given to this fact. One factor contributing to this difficulty was the variation in individual sensitivity to noise; a second was in assessing the extent to which the distress caused by levels of noise exposure was the result of neglect or of unfulfilled promises by various public authorities, as opposed to past voluntary decisions by residents themselves.

There was evidence that a number of schools are now exposed, and regardless of the decision on new runways will continue to be exposed, to noise levels which interfere with their effective operation. In many cases this situation could be significantly improved, if the buildings involved — especially the portables — had better sound insulation. Retrofitting is therefore a possible form of mitigation. It can be argued that both the school boards which authorized the existing buildings, and Transport Canada as the agency responsible for aircraft noise, should have some degree of responsibility for the cost of any retrofitting which may be undertaken.

### **Ecological and Historical Resources**

These matters, while not discussed in the hearings with the same intensity as the economic and social implications of the proposal, were the subject of a number of interesting observations on which the Panel came to certain conclusions. These are outlined in the following chapter of this report.

### **Economic Considerations**

The importance of LBPIA's economic role was emphasized by supporters of the proposal in a great many submissions and presentations, and was not disputed by opponents. However, opinions varied as to the emphasis that should be given in decision making to economic factors.

Transport Canada and other supporters of the proposal were in agreement that, if approved, the construction of new runways and related costs would be paid for through user charges. It was not clear, however, how the initial construction would be funded, pending the accumulation over time of offsetting revenues from such user charges.

The Panel reviewed the cost/benefit analysis which projected a substantial net benefit for the proposal. While not disputing this conclusion, the Panel noted that the quantitative findings were dependent on assumptions about a range of variables, such as future traffic growth rates, which were inherently not subject to verification. It also noted that some relevant considerations, such as issues of social justice, do not lend themselves readily to quantitative analysis.

### **The Spoke Communities**

The Panel considered the situation of the spoke communities, taking into account both economic and social factors. It examined probable consequences for these communities of possible future air services scenarios, including the possible re-emergence of serious congestion at LBPIA.

### **Policy Turbulence**

Aviation policy is currently in a state of flux in several areas. Among these is the trend in Canada toward the privatization of facilities, global restructuring of the airline industry in a period of over-capacity, the prospect of reduced economic regulation of transborder air traffic, and the movement in Canada towards the creation of local airport authorities. The Panel examined these issues, and sought to assess their probable effect on the growth of air traffic demand at LBPIA.

### **General Aviation**

In light of presentations by a number of intervenors during the hearings, the Panel examined the manner in which the traffic management system at LBPIA currently responds to access requests by components of the general aviation sector.

### **Impact Management**

Recognizing the extent and intensity of the concerns of local residents, the Panel considered what steps, not now being taken, might appropriately be instituted in response. It came to a number of concrete conclusions, which in the following chapter are set out in some detail and are followed by recommendations on specific measures which it believes should be undertaken in this area.

## Chapter 5

### I. INTRODUCTION

Two general considerations regarding the nature of the proposal before the Panel, namely the construction of three additional runways at Lester B. Pearson International Airport (LBPIA), substantially influenced its views on the more specific issues. These considerations are identified in this introduction to provide a background and a frame of reference for the more detailed conclusions and recommendations which follow. Additional detail underlying these conclusions and recommendations can be found in Chapter Four.

As a first consideration, the proposal clearly consists of two components: respectively the construction of two new east/west runways and the construction of one new north/south runway. These two components involve significantly different considerations, and the Panel has therefore addressed them separately.

The second consideration is the fact that the proposal is incremental. In other words, the proposed construction of one or more new runways at LBPIA would not create an entirely new facility, but rather would transform the airport's existing three runway system into a new system involving four, five or six runways. The assessment of the proposal's environmental impact must therefore involve the cumulative effect of adding the impact of the proposal to that of the existing operations at LBPIA, rather than an assessment of the impact of the proposed new runways in isolation.

The proposal calls for a major commitment of capital resources; it is strongly supported by some, strongly opposed by others. It was therefore incumbent on the Panel to assess the strength of the case for proceeding at this time with either or both of the proposal's two components, together with the environmental impacts (including the economic, social and ecological impacts) of doing so. Since opposition to the proposal on the part of many local residents is very intense, the Panel felt a responsibility to focus on the causes of this opposition and to assess the weight which should be given to it.

The Panel's conclusions on these matters are set out in Part II of this chapter. Its recommendations follow in Part III.

### II. CONCLUSIONS

#### A. Demand Prospects

1. The passenger demand forecasts presented in the EIS were based on data up to 1989, that did not

take account of the effects of the recession. The interim update of demand forecasts, which was released in April of 1992, projects a delay until 2001 in reaching the demand level projected in the EIS for 1996.

2. The April 1992 update, while taking account of the fall-off in demand in 1990 and 1991 caused by the recession, assumed an early economic recovery. The intervening months, however, have provided little or no supporting evidence for this assumption. If the demand forecast scheduled for release in November, 1992, shows any change from the April forecasts, it seems likely that the change will be in the direction of further delay in reaching demand levels forecast in the EIS.
3. The only current policy development likely to significantly affect future aircraft movement demand is the extensive re-structuring now taking place in the airline industry, and in particular in the relationship between Canada's two mainline carriers. While the precise outcome is not clear at the time of writing, it is likely to involve a decline in the recent intense competition for market share. This reduction in turn is likely to lead to a further reduction in demand for aircraft movements at LBPIA from levels previously forecast.
4. Regardless of the changing relationships among carriers, the Canadian airline industry clearly is experiencing considerable over-capacity at present. It is inevitable that sooner or later the market will correct this situation in some way that involves a reduction in the number of flights.
5. In summary, there is now no likelihood that passenger or aircraft movement demand will reach the levels projected in the EIS for 1996 before the year 2001; it may be even later.

#### B. Capacity Considerations

1. There is no serious and continuing problem of traffic congestion at LBPIA at present. There was such a problem in the late 1980s, but as a result of two developments it has virtually disappeared. The first was the introduction of the cap and slot reservation system of demand management in 1988, and the second was the decline in demand caused by the recession.

2. Even in 1988 when congestion was a serious problem, the primary cause was the shortage of air traffic control staff, rather than a shortage of runways. This led to the inability to utilize fully and on a sustained basis the potential capacity of the existing runway system.
3. Measures already taken to enhance the efficient utilization of the existing runway system have made it possible to raise the cap on aircraft movements from the 1988 figure of 70 per hour to the 1992 figure of 82 per hour, and related measures being introduced or contemplated should increase the east/west capacity to some 96 movements per hour by 1996. This enhanced system, with an hourly capacity some 37% higher than the 1988 capacity, is called the base case.
4. These measures, together with the lower demand for air movements now foreseen, should permit the present runway system to respond adequately to traffic demand into the next decade. The Panel fully expects that the emergence of a requirement for additional capacity will not occur until at least five years after the year 1996, identified in the EIS as the date by which such additional capacity might become necessary.
5. Transport Canada argued that the proposal to construct three new runways was the only way to provide additional capacity in time to meet the prospective need; other options, while perhaps suitable for future consideration, could not be developed and implemented soon enough. In light of point II.B.4 above, the Panel is satisfied that there is in fact adequate time to consider other options.
6. Taking account of these considerations, it is possible and desirable without significant risk to defer, for at least two or three years, a decision on increasing the capacity of LBPIA by the construction of additional east/west runways. This would allow time for the completion and environmental review of Transport Canada's longer term proposals for aviation in southern Ontario. Consequently, the Panel has not reached any conclusion concerning the merits of the specific Transport Canada proposal regarding east/west runways.
7. Deferral is desirable for three main reasons:
  - (a) It would permit the detailed consideration of several possible ways to accommodate larger traffic volumes, rather than limiting consideration only to the single option now proposed of expanding east/west runway capacity at LBPIA. One or more of these possible alternatives might, for various reasons, be found preferable.
  - (b) The construction of additional east/west runways at LBPIA would perpetuate, and perhaps increase, the present directional imbalance in runway capacity. Because this imbalance is the cause of infrequent but nonetheless real, and probably growing, disruptions, it is important that alternatives should be seriously considered.
  - (c) To proceed at this time with construction of additional east/west runways, when there is clearly no present necessity to do so, would seriously increase the already difficult problems in community relations, arising from the adverse social impacts of LBPIA operations, which are identified in Part II.E below. To defer the provision of additional east/west capacity until the need for it can be clearly demonstrated would, in contrast, serve to reduce community opposition in two ways. It would avoid imposing a burden on local residents in the absence of a demonstrated need to do so. Furthermore, if east/west capacity at LBPIA is eventually found to be desirable, the local residents would at least know that all other options had been fully and fairly examined and found to be unsatisfactory.
8. While it has at present no serious and continuing problem of traffic congestion, LBPIA, like other airports, from time to time experiences temporary periods of traffic disruption. These are attributable to a variety of causes, including equipment malfunctions, labour disputes, and shutdowns mandated by weather.
9. In particular, traffic disruption is caused at LBPIA when strong crosswinds, in conjunction with heavy traffic volumes, preclude operation of the two east/west runways and thus restrict all movements to the lower capacity single north/south runway. This situation arises only during a small fraction of annual operating time, but when it does occur the resulting disruption can have significant impacts not only on traffic at LBPIA but also at many other airports. Directional capacity imbalance is a significant inherent defect in LBPIA's existing runway system, not caused by traffic growth although exacerbated by it.
10. Action to reduce the directional imbalance will respond to a significant current problem, one which will become steadily more serious with future traffic growth. At present, flow control procedures must be invoked to deal with the problem, with particularly adverse consequences for the spoke communities and general aviation. Corrective action should be initiated without delay.

11. At present the two east/west runways can accommodate 82 hourly movements, and this figure governs current flight scheduling. When peak period operations must be transferred to the single north/south runway, with a capacity of only 50 hourly movements, there are up to 32 scheduled flights which must be subjected to the disruptions resulting from flow control. By approximately 1996, when all key elements of the base case are implemented and the east/west capacity has risen to 96 movements per hour, the number of scheduled flights that might be subject to disruption will rise to 46 if no new north/south capacity is provided. The Transport Canada proposal would increase the north/south capacity to 70, and thereby reduce the figure of 46 to 26, a reduction of 20 movements, or 43%, in the disruption index. However, there would still be 26 flights per hour subject to disruption.
12. The Transport Canada proposal would also expose residential areas, such as Rockwood and Orchard Park, to significant incremental aircraft noise, albeit for only 5% of the time. The community perception of this noise increment, occurring 5% of the time in the form of 30 to 35 noise intrusions per hour, is one of environmental unacceptability, and has led to intense community opposition to the proposal. This perception and opposition are considered by the Panel to be reasonable. These factors, in combination with the relatively modest reduction in potential flight disruptions, render unacceptable the Transport Canada north/south runway proposal for resolving the directional imbalance problem.
13. A fully independent parallel north/south runway, suitably located and no more than 4500 feet in length, offers a more satisfactory solution. If feasible on operational and safety grounds, it would provide a much greater reduction in potential traffic disruption. This reduction might well be as much as 78% (from 46 to 10 disrupted flights per hour) where the Transport Canada proposal offers only a 43% reduction. At the same time, this short runway would be limited to smaller, quieter aircraft, with a resulting reduction in the size of its SEL noise footprint; this fact, together with its location, would lead to a significantly smaller noise impact on residential areas.

### C. Airport Operations

1. The Panel believes that commercial general aviation, as opposed to recreational flying, plays an important role at LBPIA and has valid reasons to be

accorded full access to LBPIA runways. For most general aviation users in this category, there is no viable alternative to LBPIA. Full access is not now being provided to this group, primarily because of the design and operation of the cap and slot reservation system, even though the runways are not currently operating at their full capacity.

2. The slot management system is not being well-managed at LBPIA. The underlying distribution of slots is unduly biased in favour of the airlines, at the expense of general aviation. Furthermore, a measure of discipline is absent from the slot management process. The result is that airlines are able to keep unused slots, and to use and abuse the slot system to their advantage, while other potential users are turned away.
3. The Panel has concluded that a lack of true public involvement in, or even understanding of, LBPIA operations contributes significantly to the difficult relationship that LBPIA experiences with its neighbours. While this would be partially reduced through the creation and operation of the Community Liaison Committee, proposed later in this report (III.E.2), the Panel believes the situation would be further ameliorated by the implementation of a Local Airport Authority (LAA). Under an LAA, decisions affecting LBPIA's neighbours would be made by a local entity that should be more responsive to the interests of those neighbours than is the present Transport Canada management.
4. Present arrangements for management of domestic and international waste at LBPIA and improvements in these areas are addressed in very general terms in the LBPIA Environmental Management Plan. The intentions are admirable, but there are not clear commitments concerning the timing of their implementation. The present situation is unsatisfactory with respect to the handling of international garbage, for which responsibility is shared by various governmental authorities.

### D. Safety Considerations

1. The Panel fully endorses Transport Canada's stated policy that safety requirements must take precedence over all other considerations.
2. In the course of its review, however, the Panel became concerned that the application of this policy appeared at times to be ineffective.

3. For example, the Panel was surprised that Transport Canada provided no information on action taken in response to the urgent recommendations, by the commissioner on the inquiry into the Air Ontario crash at Dryden, with regard to defects in the de-icing facilities and procedures at LBPIA.
  4. As a further example, it became publicly known after the close of the hearings that intrusions of white-tailed deer into the LBPIA runway area are the cause of a serious safety hazard. The Panel was concerned by reports of failure to deal promptly and effectively with this situation.
  5. As a final example, the various base case improvements, in addition to increasing effective capacity and improving operational efficiency, are expected to enhance the safety of operations. The Panel was not satisfied that these improvements are being implemented as vigorously as they deserve. The systematic and planned use of overtime by ATC staff is not a satisfactory means, except to deal with very temporary situations, of alleviating the shortage of air traffic controllers.
  6. The Panel regards it as unacceptable that effective actions to deal with safety hazards and enhance the safety of operations are delayed, impeded or compromised by administrative indecision, inadequate budgetary provisions, political pressures or other such extraneous factors.
4. Upon implementation of base case improvements, the overall number of flights at LBPIA and hence the cumulative noise impacts are likely to be very much the same, whether the three runway scenario or the expanded runway system scenario prevails. In general terms, the incremental noise effects of the proposed new runways would be quite minor in relation to the substantial social impacts of LBPIA's current operations.
  5. These minor increments are not sufficient to explain the extent and intensity of the opposition to the expansion proposal which was expressed to the Panel. However, to some extent this discrepancy may be attributable to a perception that doubling the number of runways must inevitably lead to a major increase in noise levels. The Panel does not share this perception.
  6. The cumulative distress, anger and frustration which has built up over the years as a result of steady growth in LBPIA operations, coupled with the absence of response to subsequent complaints, was evident in the hearings. The establishment of an environmental review panel offered, for the first time, a recognized forum for expression of the concerns of local residents.

## **E. Social Impact**

1. The important economic role of LBPIA gives rise to widespread but indirect and, for the most part, diffuse social benefits. These indirect benefits are enjoyed wherever the airport contributes significantly to personal or governmental revenues, and also in localities (such as the spoke communities) where the services it provides give access to otherwise unavailable social facilities and resources.
  2. In contrast, the direct social costs of LBPIA fall almost exclusively on residential areas in close proximity to the airport. In these affected areas, many people suffer severe distress, attributable mainly to aircraft noise. In addition, there are special considerations applicable to certain institutions with sensitive populations such as schools, nursing homes and hospitals.
  3. Future traffic growth at LBPIA, whether confined to the present three runways or alternatively accommodated through an expanded runway system, will result in a gradual increase in aircraft noise in surrounding residential areas. In the short- to medium-term, the rate of noise increase is likely to be somewhat less than the rate of traffic increase, because of the progressive introduction of quieter aircraft.
7. These deep seated feelings, and the accompanying hostility and mistrust towards both government and airport management, constitute a serious social problem which should not be ignored. The present relationship between LBPIA and many residents of the adjacent communities will remain unsatisfactory unless and until effective measures are put in place to address the causes.
  8. This conclusion is independent of any decision about the construction of new runways. However, any decision to proceed with construction of currently unnecessary runways will be perceived as a signal that the concerns expressed before the Panel, like previous efforts to mitigate the adverse social impacts of LBPIA, have fallen on deaf ears. If this happens, the existing social problems would be exacerbated.
  9. The cumulative noise metrics, NEF or  $L_{dn}$ , are in common use, worldwide, to relate aircraft noise levels to community annoyance and compatible land use planning. For these two specific purposes,



the cumulative metrics do not now, despite their shortcomings, have a suitable replacement as a single measure of the noise regime around LBPIA. When the cumulative NEF metric is combined with the frequency and magnitude of single event noise intrusions, particularly in areas with infrequent overflights, measured as SELs occurring over a given area, residents affected will be able to determine how realistic are the contentions about their future noise regimes.

10. The increase in noise due to the increase in flight frequencies will be offset by the changeover from Stage 2 to Stage 3 aircraft. From an examination of SELs for various aircraft, it is apparent that the conversion from Stage 2 to Stage 3 will provide little relief from the noise impact of aircraft in the approach mode, but there will be a dramatic reduction in noise from comparable individual aircraft on take-off. Overall, the two offsetting features of increased flight frequency and reduced noise from Stage 3 aircraft appear to have little incremental effect, when combined, on the future NEF values around LBPIA.
  11. A satisfactory criterion to assess the effects of noise on people through the behavioural response known as annoyance is provided by the shifted Schultz curve (shifted by 5 dBA), as described by Transport Canada. The use of this assessment criterion represents a very conservative approach. It will provide protection against other behavioural impacts such as speech or sleep interference, as well as any possible non-auditory health effects. The possibility of hearing loss caused by LBPIA aircraft noise is remote.
  12. There is a need for a blanket overnight curfew on airport operations between the hours of midnight and 0600 hrs. In addition, there is a need to continue to restrict operations of noisier aircraft, as Transport Canada now does, during the so-called "shoulder periods" of 2300 hrs. to midnight and 0600 hrs. to 0700 hrs.
2. Adverse economic effects, such as depreciation of real estate values in the more immediately surrounding area, are not clearly demonstrable and, if they exist, are relatively minor.
  3. The Panel shares the view of supporters of the proposal, which was endorsed as well by many of the opponents, that for compelling economic reasons the effective functioning of LBPIA must be protected and supported. Nevertheless, the Panel does not believe, for reasons set out in Section II.B above, that this effective functioning is currently threatened by any general shortage of runway capacity. This view is however qualified, as previously explained, with regard to runway capacity in the north/south direction.
  4. The cost/benefit analysis cited in the EIS projects a substantial net economic benefit resulting from the proposed increase in east/west runway capacity. This is based on the assumption that traffic growth will lead, in the absence of that increase, to serious congestion and resulting large delay costs. The prospect that such growth will be significantly delayed means that the congestion and delays will also be delayed, and that the net benefit of early east/west construction will not be realized. Moreover, the delay provides an opportunity to more fully assess the merits, including the cost/benefit ratios, of other possible means of accommodating future traffic growth taking account of market and operational adjustments.
  5. The Panel is not aware of any specific plans for funding the initial construction costs of the proposal.
  6. The economic aspects of the proposal are clearly important. Any conclusions to which they might point, however, must be tempered by a recognition of other relevant factors, relating for example to considerations of social justice, which cannot so readily be expressed in quantitative terms.

## F. Economic Impact

1. In economic terms, LBPIA is the source of major and widespread benefits. These accrue to the three municipalities immediately adjacent to LBPIA, to the Greater Toronto Area, to a number of other Ontario communities directly dependent on LBPIA's air services, to the economy of Ontario and more generally to that of Canada.

## G. Ecological Impact

1. The presentations to the Panel, both in written submissions and in oral statements during the hearings, for the most part constituted a vigorous debate between committed supporters and fervent opponents of the proposed runway expansion. Most presenters based their case on the perceived economic benefits, or on the anticipated adverse social impact. Few presentations gave much attention to matters concerning the natural environment.

2. Undoubtedly the existence of LBPIA, through the air operations and other activities conducted there, contributes to some degree to the degradation of the natural environment in the area. The extent of this contribution, in an area already heavily impacted by widespread and intensive urbanization and industrialization, while not easy to measure, is clearly relatively minor.
  3. The Panel accepts the proposition of Transport Canada that, provided the proposed protective measures are vigorously pursued, the adverse impact of the proposal on the natural environment would be at most marginal and mainly temporary; the longer term effect might in fact prove to be less harmful than the present situation.
  4. Regulations exist for emissions which come from airplanes and from other airport operations. In a relative sense, the contribution of the airport in the urban area in which LBPIA is situated, is not great, and currently no harmful effects can be attributed to LBPIA. Nevertheless air pollutants are potentially harmful and all the major ones should be monitored.
  5. The quality and quantity of surface water affected by LBPIA under the base case and under the preferred option do not represent serious concerns. A major issue, however, is the potential pollution of soil and surface water by runway and airplane de-icing materials. For other pollutants, the fact that the local surface water quality is already degraded means that LBPIA operators need to be conscientious in monitoring water quality as a routine procedure and addressing exceedances of water quality objectives.
  6. The Fifth Line Cemetery will not be affected by the base case improvements or by the short north/south runway proposed by the Panel; it is therefore expected to remain undisturbed.
3. Three significant consequences flow from the fact of this degree of commitment:
    - (a) It is difficult for the proponent's officials to reconcile objectivity in their preparation and presentation of the EIS and supporting material with the pressures to be supportive of a proposal publicly endorsed by their organization.
    - (b) It is almost inevitable that the relationship between those officials on the one hand, and intervenors seeking the withdrawal or amendment of the proposal on the other, will become to a greater or lesser degree adversarial, even through the review process is not intended to proceed adversarially.
    - (c) Some members of the public believe that the review process is largely *pro forma* and that the proposal is unlikely to be significantly altered regardless of the review's findings. There is thus understandable public scepticism about the effectiveness and relevance of the review process.
  4. The resources available to the proponent for the preparation and presentation of the case for the proposal are usually far greater than those available to its critics and opponents.
  5. With these considerations in mind, the Panel tried to:
    - (a) provide ample opportunity for intervenors, through a process of questioning, to seek clarification, amplification and, if appropriate, correction of information and arguments presented in support of the proposal;
    - (b) give broad latitude for the expression of a wide range of views, and not to inhibit this by overly rigorous insistence on relevance or avoidance of repetition; and
    - (c) examine most carefully the material put before it, and to seek any necessary clarification or amplification, in order to ensure that the Panel fully understood all perspectives on the issues involved and that its findings were soundly based.
  6. The Panel believes that it achieved these goals to a degree that will satisfy at least the great majority of those participating in the review, despite the aforementioned elements of asymmetry and conflict inherent in the review process. It is confident that the

## H. The Environmental Review Process

1. The decision to undertake a project subject to environmental review is, formally speaking, a provisional one only, until the outcome of the review is available. The review's findings, however, are advisory only, are not binding on the proponent, and the latter is not legally required to await them.
2. The initial announcement of the intention to undertake the project is widely regarded as a substantial political commitment.

government will share this view, and will accordingly find acceptable the conclusions and recommendations set out in this report.

7. The Panel also believes that the foregoing observations on the current review process will be helpful to those preparing regulations to govern reviews to be conducted under the new environmental review legislation.

### III. RECOMMENDATIONS

#### A. Capacity Improvements

1. Measures to increase ATC staffing must be vigorously pursued, with additional resources committed, if necessary, to ensure that the necessary staffing level is achieved not later than the end of 1994. The necessary level is that required to utilize fully and on a continuing basis, without the use of planned overtime, LBPIA's existing potential capacity of 96 movements per hour.
2. Transport Canada must take the necessary measures to ensure the implementation of proposed improvements in air navigation technology at LBPIA.

Specifically, this calls for:

- (a) the commissioning of the two phases of the Canadian Automated Air Traffic System (CAATS) by the target dates of 1994 and 1996 respectively;
  - (b) the installation at LBPIA of the Microwave Landing System (MLS) capability by 1996; and
  - (c) the immediate implementation at LBPIA of the Radar Modernization Project (RAMP), already behind schedule.
3. Construction of proposed improvements to the air side physical infrastructure such as high speed turnoffs, taxiway system capacity and geometry, and manoeuvring areas, should be accelerated, to ensure their completion not later than 1996.

#### B. Runways

1. No decision should be taken at this time with regard to the construction of one or more additional east/west runways at LBPIA. The possible future need for such runways, together with other options

for the accommodation of traffic growth, should be examined in the context of Transport Canada's long term plan for aviation in Southern Ontario.

2. The proposal to construct the runway 15R-33L as described in the EIS, should not be further pursued, as the adverse social impact which it would create would outweigh the modest increase in north/south capacity it would provide.
3. Transport Canada should immediately undertake detailed studies to determine the safety and operational feasibility, as well as the capacity, noise profile and cost/benefit implications, of a new 4500 foot north/south runway. This runway would be located parallel to and 4300 feet southwest of the existing north/south runway and would be displaced toward the northwest airport boundary, so that its northerly and southerly thresholds are equidistant from the closest residential areas of Brampton and Mississauga respectively. The runway would be operated simultaneously with, but fully independently of, the existing north/south runway, and would serve all arriving and departing aircraft that are capable of safe operation to and from its limited length.
4. The Panel believes that such studies will demonstrate that such a runway would:
  - (a) be operationally feasible without compromise of safety standards;
  - (b) increase north/south capacity from the present 50 hourly movements to approximately 86, thus reducing the existing directional imbalance very substantially;
  - (c) have a positive net present value; and
  - (d) have a noise impact in residential areas, expressed in SEL terms, approximately 5 dBA below that of the runway 15R-33L proposed in the EIS.

The Panel therefore recommends that such a runway be constructed promptly provided that studies (a) to (d) above confirm the Panel's belief that this runway is a satisfactory solution to the problem of directional imbalance in capacity at LBPIA.

5. If these studies prove conclusively that such a runway is not feasible, this would make it more urgent to proceed with the consideration of Transport Canada's long-term plan referred to in B.I above.

### C. Airport Operations

1. Transport Canada should **recognize** commercial general aviation as a legitimate user of LBPIA, and should take the steps and introduce the measures necessary to ensure that this sector of the aviation community is guaranteed the same degree of freedom of access to LBPIA as is now afforded to other users, particularly the airlines. The distribution of slots within the cap system should more equitably reflect demand from legitimate users.
2. In particular, Transport Canada should completely overhaul the management of the slot reservation system. Slot reservations at present are assigned in hourly blocks. This is not nearly precise enough to avoid “bunching”; a much shorter period should be used. Reservations should not be allocated unless the need for them is fully established, and should be monitored to ensure they are used. Slot allocations not currently needed or not used should be withdrawn.
3. Transport Canada should immediately commence the process leading to the establishment of a Local Airport Authority (LAA) that would be given responsibility not only for LBPIA, but also as a minimum for all airports serving the GTA now and in future.
4. Measures to improve the standard and coordinate the practices of waste management at LBPIA should proceed, regardless of any expansion at the airport. This should be handled through a subcommittee of the Community Liaison Committee working with the Airport General Manager’s Office. Re-use and recycling should be required formally of all tenants as well as of government operations.

### D. Safety Considerations

1. The measures recommended in III.A. 1, 2 and 3 above are important, not only because they will increase the operating efficiency and effective capacity of the existing three runway system, but also because they will significantly enhance operational safety.
2. Transport Canada should review its various programs affecting air operations at LBPIA, to identify all situations which may not be fully satisfactory from a safety point of view. In its conclusions relating to safety, as set out in Section II.D of this chapter, the Panel has identified several examples which it believes fall in this category; there may well be others.

3. Transport Canada should immediately determine and implement the corrective action necessary in all such cases.
4. If Transport Canada’s existing authority and resources are not sufficient for such implementation, the government should immediately make whatever adjustments are necessary.
5. It is essential that the policy of giving precedence to safety over all other considerations be made totally effective in practice.

### E. Community Relations

1. Transport Canada should immediately develop and implement a comprehensive program to improve LBPIA’s relationship with neighbouring residential communities.
2. The keystone of this program should be the early establishment of the “LBPIA Community Liaison Committee”. Its general mandate should be to consider all matters relating to LBPIA development and operations which might impinge in an adverse sense on the quality of life in neighbouring residential areas.
3. The Committee should be chaired by an independent person, neither a local community representative nor a current employee of any government, nominated by the Minister of Transport and confirmed by the Minister of the Environment.
4. Given the mandate to deal with the quality of life in neighbouring residential areas, the composition of this committee should be the following: (1) the airport manager; (2) the air traffic control manager; (3) one representative from the airline companies; (4) one representative from the Canadian Airline Pilots Association; (5) one representative from senior staff in each of Mississauga, Brampton and Etobicoke; and (6) one representative of local residents in each of Mississauga, Brampton and Etobicoke who have concerns about the impact of LBPIA on their quality of life. The latter should be designated by community groups, such as those which appeared before the Panel to express the environmental concerns of local residents, rather than by municipal governments.
5. The Committee should meet at least quarterly, and more frequently as necessary. It should have sufficient financial and staff resources, provided by Transport Canada, to enable it to function effectively.

6. A budget should be proposed by the chairperson for approval by Transport Canada.
7. The Committee should have the power to appoint sub-committees.
8. No proposed changes in LBPIA airside equipment, facilities or operational procedures which might appreciably alter aircraft noise impacts should be authorized, until such changes and their probable consequences have been discussed in the committee.
9. The meetings should normally be open to the public and each meeting should provide an appropriate opportunity for questions and answers from the public. All reports and financial statements of the committee should be publicly available and the committee should operate using the principles of consensus decision-making.
10. In conjunction with the establishment of the Community Liaison Committee, LBPIA should develop an enhanced and substantially more effective program for informing local residents of developments or proposals likely to be of interest or concern to them. To be effective, this program must be allocated sufficient resources.
11. Activity reports from the noise complaints office should be given regularly to the committee.
12. At an early meeting of the Community Liaison Committee, LBPIA management should present a review of current noise abatement procedures required in connection with arrivals and departures, to include an outline of optional changes which might further reduce noise impacts.
13. With the assistance of the improved navigational aids to be introduced shortly, the observance of noise abatement procedures should be monitored on a continuing basis and periodic reports on infractions, with full information on follow-up action, should be submitted to the Community Liaison Committee.
14. Transport Canada should intensify its current efforts to abate aircraft noise during the shoulder periods, between 2300 hrs. and midnight and between 0600 hrs. and 0700 hrs. During these periods runway allocations should be governed by noise abatement considerations, and all operations by Stage 2 aircraft should be prohibited except in declared emergencies.
15. An overnight curfew should be introduced by April 1, 1993 prohibiting all departures and all arrivals between midnight and 0600 hrs. except for declared emergencies in the same period.
16. Transport Canada should seek to expedite the conversion from Stage 2 to Stage 3 aircraft; in this connection it should introduce a regulatory requirement to parallel that being introduced by the United States.
17. Continuous noise monitoring should be mandatory. This should be done in all areas within a 10 mile radius of LBPIA perimeter, or which are within an SEL 75 contour for areas that are subjected to noise only 5% of the time, using a network of permanent stations concentrated in known noisy areas and supplemented as needed by portable monitors. The results should be provided to the public, and reviewed periodically in the Community Liaison Committee.
18. Regular air quality monitoring at several stations in different neighbourhoods should be undertaken; the results should likewise be made public, and reviewed periodically in the Committee.

#### **F. Mitigation of Noise Effects**

1. Transport Canada should, on request, contribute to the cost of appropriate retrofitting with sound insulation of residences and schools, including portables, exposed to high levels of aircraft noise, with an independent investigation on a case-by-case basis to determine what retrofitting is appropriate, as follows:
  - (a) above 30 NEF, Transport Canada to pay 25% of cost of retrofitting;
  - (b) above 35 NEF, Transport Canada to pay 50% of cost of retrofitting.
2. Municipalities should endorse and support property tax adjustments for residential properties exposed to levels of aircraft noise of 30 NEF and above.
3. The owners of residences located at or within the 40 NEF contour should have the option of selling their property to Transport Canada, at an "unaffected fair market price".
4. Residents living within the 30 NEF contour, of whom it has been medically certified that their health is being damaged by aircraft noise, should have the option of relocating, with the full costs of

relocation being recoverable from Transport Canada.

5. When a resident or school board has benefited from a mitigation program as recommended in 1 and 3 above, a notation must be added to the deed or property assessment roll information with a provision that no future claim can be made against Transport Canada.
6. In the event of a disagreement that cannot be resolved by the parties, either party can require binding arbitration, the costs of which will be shared jointly by the parties.

### **G. Ecological Measures**

1. A decision should be made by 1995 and implemented by 1999 concerning the best practicable

means for incineration of garbage from international flights.

2. The measures relating to air and water quality, including arrangements for ongoing monitoring and for ameliorative action to prevent further deterioration, which were referred to in the EIS as elements of the airport's Environmental Management Plan, should proceed forthwith.
3. Collection of airplane and runway de-icing materials to prevent their run-off, onto and beyond airport property, and contaminating soil, surface or ground water should be implemented by winter 1993-94.
4. Transport Canada should take whatever measures may be found necessary to control safety hazards attributable to birds, deer or other wildlife.