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Federal Environmental
Assessment Review Office

Boundary Bay Airport Reactivation

Report of
the Environmental
Assessment Panel



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**REPORT OF THE
ENVIRONMENTAL ASSESSMENT PANEL**

**BOUNDARY BAY
AIRPORT REACTIVATION**



NOVEMBER 1979

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Government
of Canada

Gouvernement
du Canada

Environmental Assessment Examen des évaluations
Review environnementales

**The Honourable John Fraser, P.C., M.P.
Minister of the Environment
Confederation Building
House of Commons
Ottawa, Ontario
K1A 0X2**

Dear Minister:

In accordance with the federal Environmental Assessment and Review Process, the Environmental Assessment Panel for the Boundary Bay Airport reactivation project is pleased to submit its report for your consideration.

After reviewing Transport Canada's Environmental Impact Statement and assessing all submissions received, the Panel concludes that the Boundary Bay Airport can be reactivated without significant adverse ecological or social impacts providing the Panel's recommendations are implemented and providing Transport Canada's commitments are met.

This report discusses the Panel's assessment of the issues, impacts and mitigating measures associated with the Boundary Bay Airport reactivation project and presents the Panel's recommendations for your consideration.

Respectfully yours,

**F. G. Hurlubise
Chairman
Environmental Assessment Panel
Boundary Bay Airport Reactivation**

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EXECUTIVE SUMMARY

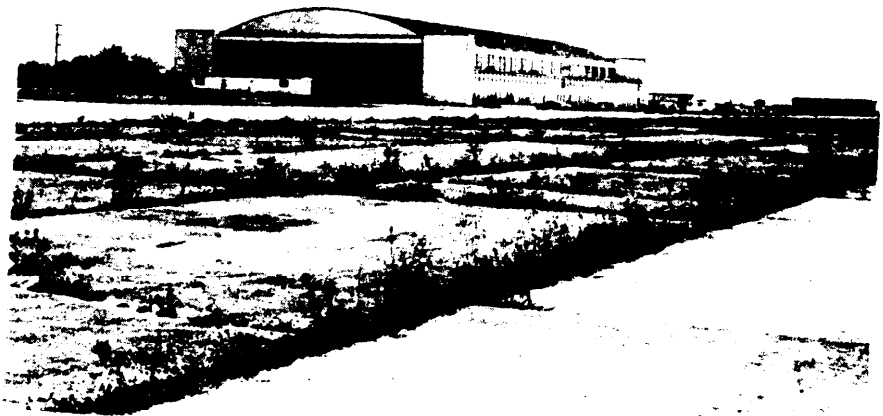
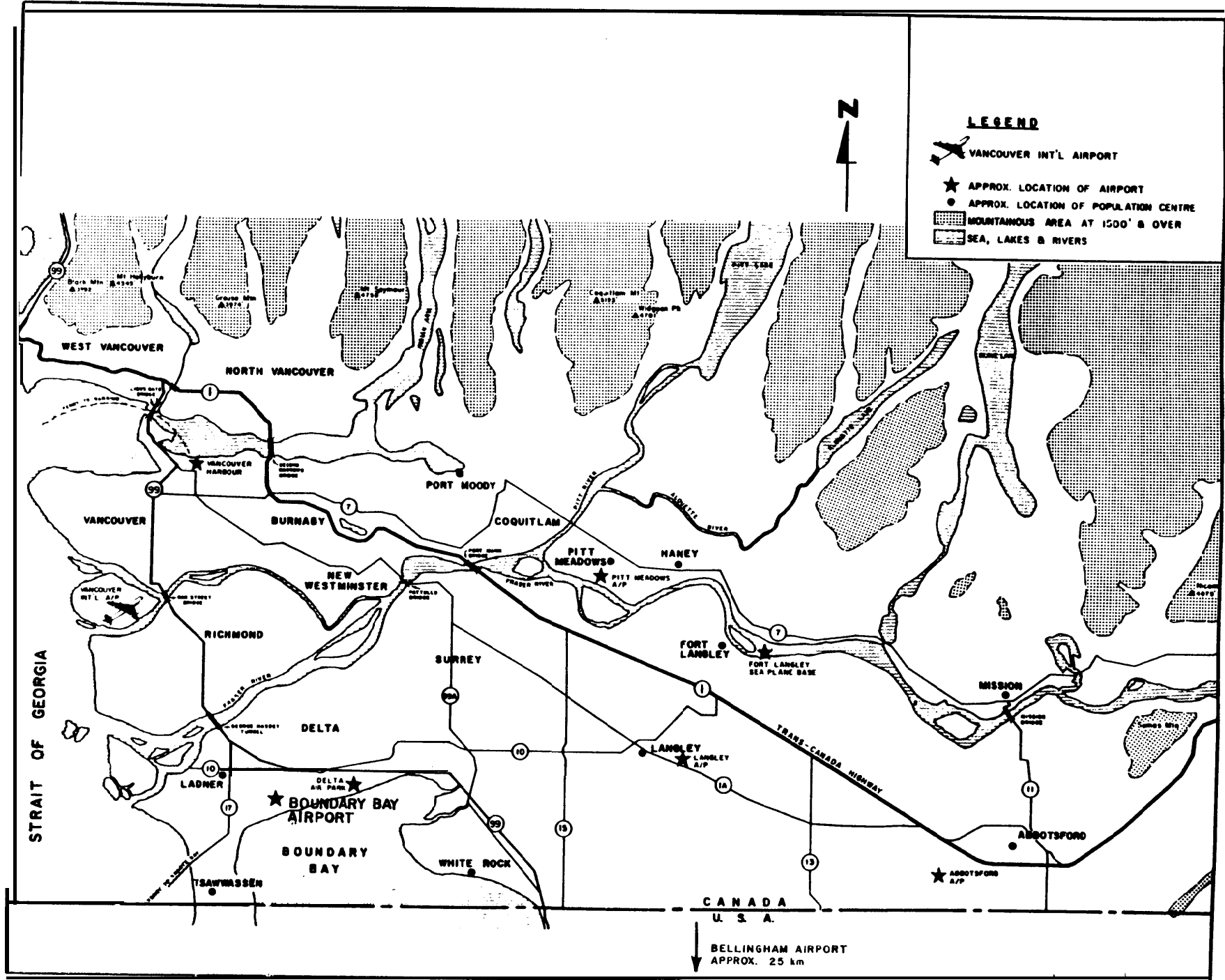


FIGURE 1 — LOWER MAINLAND AIRPORT LOCATIONS



EXECUTIVE SUMMARY

The Boundary Bay Airport project, as proposed by Transport Canada, involves the reactivation of a World War II Air Force base for use as a general aviation airport. The airport is located south of Vancouver within the municipality of Delta on a site adjacent to Boundary Bay. The land use surrounding the airport is primarily agricultural and recreational. The Panel conducted its review of the project with input from the public, the aviation community and government agencies. This input was provided through written briefs to the Panel and participation in the five days of public meetings held by the Panel in Delta.

After reviewing all information submitted to it, the Panel has concluded that the airport can be reactivated without significant adverse ecological or social impacts providing the Panel's recommendations are implemented and providing Transport Canada's commitments are met.

Transport Canada's rationale for reactivating Boundary Bay Airport is based largely on its desire to relocate some of the light aircraft now stationed at Vancouver International Airport to a more suitable facility. The large number of light aircraft currently using the international airport are incompatible with the heavy commercial jets and represent a potentially serious safety hazard. Meeting forecast demands for additional Lower Mainland general aviation airport facilities is also part of Transport Canada's rationale for reactivating the airport.

There was general agreement among participants at the public meetings that the air traffic mix problem at Vancouver International Airport is serious and needs to be resolved. However, not all

reactivation of Boundary Bay Airport as the only acceptable alternative for alleviating this problem and some argued that utilizing existing spare capacity at Abbotsford Airport would be a more practical alternative.

The Boundary Bay area contains some of the most important wildlife habitat found in the Lower Mainland of British Columbia. Of particular importance especially in light of the proposed airport reactivation is its use as a major resting, staging and wintering area for migratory birds.

In order to protect bird habitat, the Panel recommends that the airport property seaward of the dyke be assigned to an appropriate agency and managed for wildlife purposes.

Concerns were expressed throughout the public review regarding the disturbance to birds resulting from aircraft noise and movement. In order to minimize this disturbance, the Panel recommends that a number of airport operational procedures be adopted with regard to flight circuit patterns, flight elevations over the Bay and avoidance of flights over the sensitive portions of the Bay. The Panel also recommends that additional studies be undertaken to adequately document the populations and habitat use of birds using the Boundary Bay area, to evaluate the effectiveness of proposed mitigation measures and to identify new mitigation measures if required.

The regular and large-scale movement of birds, especially gulls, over the airport site presents a risk of collision with aircraft. The magnitude of this risk has as yet to be established. The Panel recommends that studies be undertaken to define the magnitude of this safety problem

The impacts of noise on people were considered by the Panel. Two aspects of noise from general aviation airports can result in particular annoyance. The first aspect concerns residents near the designated flying training circuits being subjected to small aircraft passing overhead at frequent intervals. The second relates to the high mobility of small aircraft which can make any residential or recreational area subject to aircraft noise. This second aspect is a present source of serious concern to some residents of South Surrey. Irresponsible pilots flying within Transport Canada's designated Training Area CYA 125(A) (Fig. 2, p. 6) and in the general Boundary Bay area are subjecting these residents to disturbance through dangerous and illegal low flying manoeuvres.

The Panel recommends that an Airport Liaison Committee be established to review the airport operational procedures and to recommend changes to these procedures where appropriate. The Panel is also recommending changes to the use of Training Area CYA 125(A).

The Panel is concerned about The Corporation of Delta's plans for a substantial residential development to the north-west of the airport, and is of the opinion that a reactivated Boundary Bay Airport would not be compatible with a major residential development in this area.

The lands in and around the Boundary Bay Airport are farmed and their soils are

highly rated for agricultural pursuits. The Panel is of the opinion that reactivation of the airport would continue to permit the use of a substantial area of the site for agricultural purposes. With effective land management and land husbandry practices, there are opportunities for both general aviation and agriculture to benefit: the former by the maintenance of a well managed open space area around the runways and the latter by enhanced agricultural productivity.

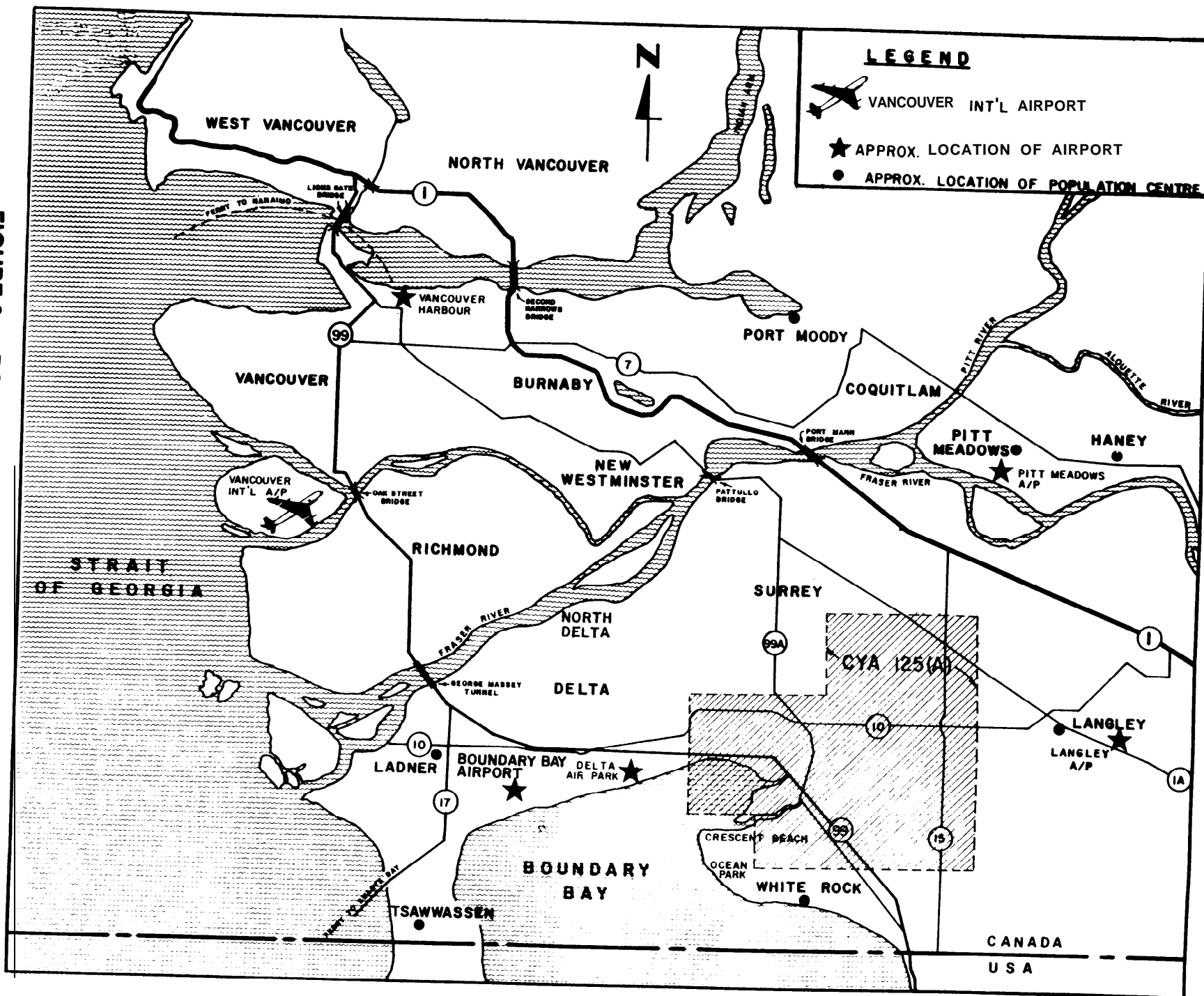
During the public review process, conflicting views were expressed regarding the desirability of possible industrial development resulting from the airport reactivation. Particular attention was drawn to the potential for development of the 40 hectare site on airport property north of the B.C. Railway track. Transport Canada has stated that it has no plans for this area at this time. The Panel is of the opinion that no development or designation of this portion of the airport property should take place until it has been examined for land use suitability, development feasibility and environmental impact.

The Panel considers the formation of a Boundary Bay Airport Review Committee to be an essential component of the airport reactivation. The primary function of this Committee would be to monitor the project construction and early operation of the airport with emphasis placed on ensuring that the Panel's recommendations are implemented.

INTRODUCTION



FIGURE 2 — BOUNDARY BAY AIRPORT SETTING



INTRODUCTION

Boundary Bay Airport was constructed by the Royal Canadian Air Force as a flight training airport at the beginning of World War II. At the end of the war, the base consisted of one 1,525 metre runway and two 1,830 metre runways in a triangular configuration, along with support facilities and housing for military personnel.

In 1945, the base was closed as an airport. From 1948 to 1968, the Department of National Defence operated a communications centre on the site. In 1972, Transport Canada acquired the responsibility for the administration and management of the property and in 1977 obtained title to the 500-hectare site.

At present, the airport property is used by a number of tenants operating under leases from Transport Canada. These include the 6.C. Safety Council, Variety Farms, a mobile home manufacturing plant, a radio controlled model aircraft flying club, and several agricultural operations.

Reactivation of the property for use as a general aviation airport for light non-jet powered aircraft under 5,680 kilograms (12,500 pounds) has been proposed by Transport Canada. The proposal involves the upgrading and operation of two of the three runways. The proposed project configuration is illustrated in Figure 3 (P.8).

A number of alternatives for expanding light aircraft general aviation facilities in the Lower Mainland, including reactivation of Boundary Bay Airport and expansion of Abbotsford Airport, were analysed by Transport Canada. Of these alternatives, only the reactivation of

Boundary Bay Airport was considered acceptable by Transport Canada.

Project Setting

The Boundary Bay Airport is located south of Vancouver within the municipality of Delta and is approximately 16 kilometres south east of Vancouver International Airport. The airport property is situated on Boundary Bay and extends beyond the dyke into the foreshore.

The land use immediately surrounding the airport is primarily agricultural and recreational. There is no large scale industrial development in the vicinity of the airport. However, there is some light industrial activity currently taking place on the airport property. Delta Air Park, a small private air strip located 3 kilometres east of Boundary Bay Airport, has been in operation for a number of years. The nearest residential area is approximately 1.5 kilometres from the airport and the nearest substantial urban centre, Ladner, is approximately 5 kilometres from the airport.

The municipality of Delta has undergone a dramatic growth in the past twenty years changing from what was basically a rural community to what is, today, a largely suburban community with substantial areas of active farmland. Delta's three centres of population are Ladner, Tsawwassen and North Delta. Other communities located near the airport are identified in Figure 2 (P.6).

Project Description

The proposal to reactivate Boundary Bay Airport calls for the use of a portion of

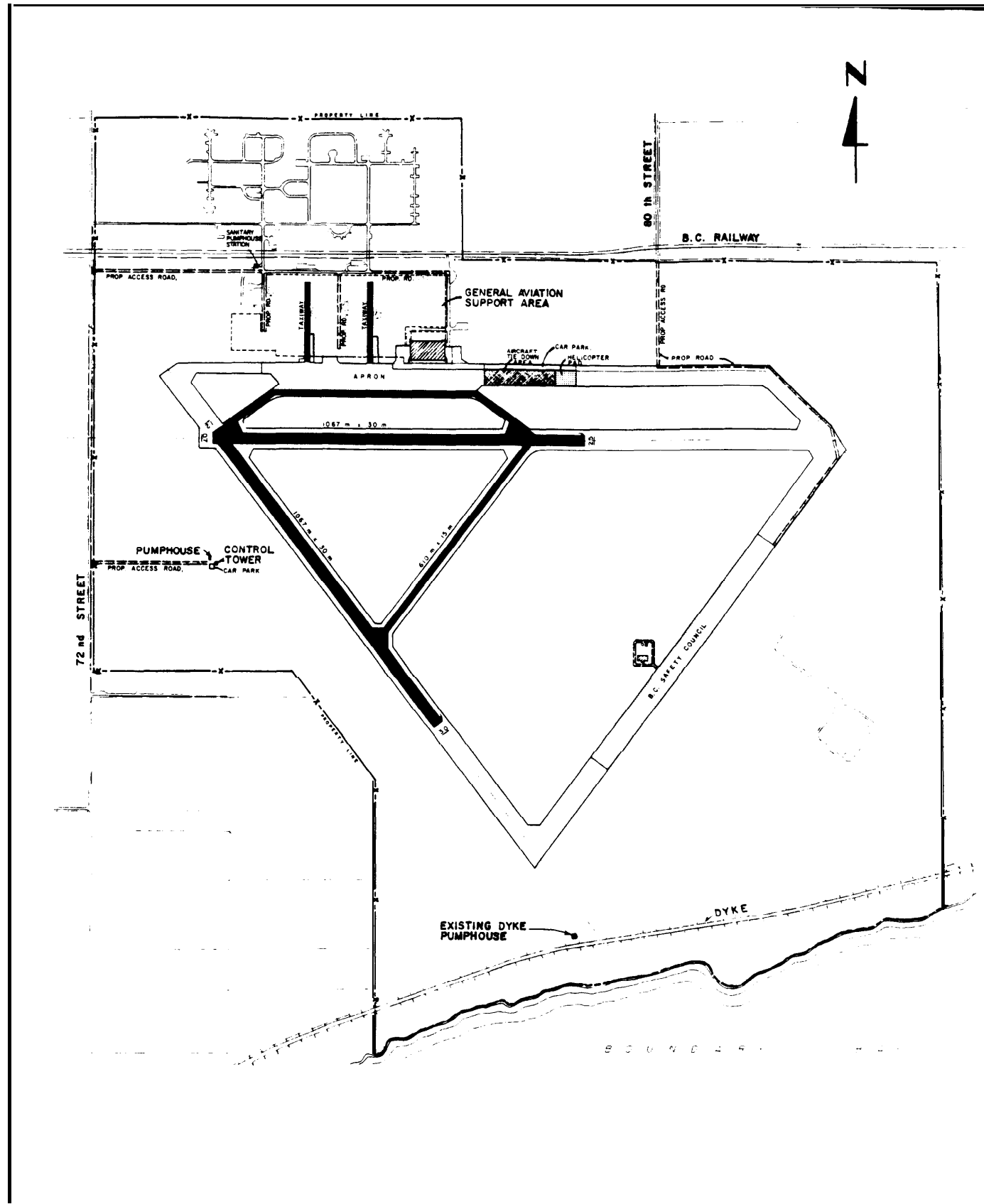


FIGURE 3 — PROPOSED AIRPORT LAYOUT

two of the three existing paved runways. Runways 07/25 and 12/30 would be repaired and made serviceable to a length of 1,067 metres. Taxiways would be upgraded and a general aviation support area for hangars, maintenance shops, offices and aircraft parking developed. In addition, an air traffic control tower would be added and new access roads constructed (Figure 3). All the proposed facilities would be within the existing airport boundaries and within the dyke.

Use of the reactivated airport would be restricted to piston and turbo prop aircraft under 5,680 kilograms (12,500 pounds) and to helicopters. Airport users could include flying training schools, recreational flyers, light aircraft commercial services and light business aircraft.

At design capacity, the airport would be able to handle 250,000 movements per year. Approximately 70 per cent of these movements are expected to result from flying training.

In addition to the current proposal for the reactivation of the Boundary Bay Airport, Transport Canada has noted a number of possibilities for future development on the airport property. These include, among others, the development of the 40-hectare site north of the British Columbia Railway track for light industry and a new runway parallel to Runway 07/25, but still within the dyke.

These and other possible developments are not part of the project as described by Transport Canada in the Environmental Impact Statement and they have not, therefore, been reviewed in detail by this Environmental Assessment Panel. The Environmental Assessment and Review Process would be implemented in the event that any of these developments were to be

proposed by Transport Canada. The environmental significance of these developments would determine the need for a formal environmental review by an Environmental Assessment Panel.

Environmental Review

The federal Environmental Assessment and Review Process (EARP) which was established by Cabinet Directive in 1973, calls for an assessment of all federal projects for which there is a possibility of an adverse impact on the environment. For those projects deemed to have a potentially major impact, an Environmental Assessment Panel is established to review the environmental consequences of the project and to evaluate the significance of the impacts that might result from the project.

The Boundary Bay Airport reactivation project was referred by Transport Canada (Canadian Air Transportation Administration) to the Federal Environmental Assessment Review Office in late 1976 for a formal review by an Environmental Assessment Panel. This report to the federal Minister of the Environment is the result of the Panel's review.

The Panel was established in early 1977. Its first task was to develop guidelines for the preparation of an Environmental Impact Statement (EIS) by Transport Canada. Draft guidelines were prepared by the Panel and were subjected to a public review culminating in a public meeting held in Delta on July 26, 1978. Following the meeting, the Panel considered all of the comments received, both at the meeting and in writing, and amended the guidelines. The finalized guidelines were issued to Transport Canada on September 11, 1978.

Transport Canada, with the assistance of F.F. Slaney and Company Limited, prepared the EIS based on the Panel's guidelines. In the process of preparing the EIS, Transport Canada conducted a public consultation and information program. This program included staffing of an information office on the airport site for an eight-week period to provide information on the project and record public views. The program was advertised in city and local newspapers, by direct mailing to individuals, groups and agencies and by mailings and telephone calls to 350 households within three kilometres of the airport. The EIS, in five volumes, was submitted to the Panel in February, 1979.

Upon receipt of the EIS, the Panel distributed over 300 copies of the document and invited public and government agency comments. Participation in the review was invited through media advertisements and direct mailings.

The Panel completed its review by holding a series of public meetings. The purpose of the meetings was to allow for a wide ranging discussion of the ecological and social impact issues associated with the reactivation proposal. The meetings were held in Delta between June 24 and June 28, 1979, and consisted of ten separate sessions. All sessions were attended by representatives of Transport Canada and their consultants. Also in attendance were a number of specialist Panel advisors.

During the course of the meetings, the Panel heard presentations from a total of 36 individuals, groups and government agencies.

The meetings were recorded and a complete transcript of the proceedings is avail-

able from the Federal Environmental Assessment Review Offices in Vancouver and Hull. One hundred and forty-three written briefs were received by the Panel during the course of the final review. These briefs have been reproduced in a compendium and this compendium is also available from the Federal Environmental Assessment Review Offices.

A listing of all individuals, groups and government agencies that submitted briefs to the Panel or participated in the meetings may be found in Appendix A. A list of all documents associated with the review is found in Appendix B.

This report has been prepared by the members of the Environmental Assessment Panel. They are:

Mr. Fernand G. Hurtubise (Chairman)
Federal Environmental Assessment
Review Office
Hull, P.Q.

Mr. Al A. Bach
Transport Canada
Vancouver, B.C.

Dr. V.C. (Bert) Brink
Vancouver, B.C.

Mr. Laszlo I. Retfalvi
Environment Canada
Vancouver, B.C.

Mr. Jonathan P. Sector
B.C. Ministry of Environment
Victoria, B.C.

Ms. Suzanne Veit
Esquimalt, B.C.

Brief biographies of the Panel members may be found in Appendix C.

BACKGROUND ISSUES



"As I'd like to emphasize the point, the Boundary Bay area is the last remaining relatively uninhabited area available to us."

Mr. E. Bachelor, Flying Instructor

"...we do not feel that despite the weighty and occasionally hysterical arguments for removal of light aircraft from Vancouver International Airport sufficient indisputable evidence has been presented that justifies Boundary Bay as the home for those same aircraft."

Mrs. J. Cromarty, Citizens' Association of Delta

"...comments that Boundary Bay is one of the last areas which is relatively uninhabited in the Lower Fraser Valley or the Fraser Estuary in particular, and that this might be of great importance to many other people besides flying training schools and recreational flyers."

Mr. Gregory Reif, SPEC

BACKGROUND ISSUES

Current Status of Vancouver Area Aviation

Runway utilization at Vancouver International Airport is the highest of any major airport in Canada. This heavy utilization is complicated by the fact that 60 per cent of aircraft movements are by light aircraft flying under Visual Flight Rules (VFR). This compares to 20 - 30 per cent VFR movements at Malton and Dorval Airports.

The proponent's position is that this mix of high density light and heavy aircraft traffic presents a potentially serious safety hazard. Light and heavy aircraft do not mix well because they have different speed and performance characteristics and because the pilots of light aircraft on average have less experience than those in command of large commercial airliners. The use of the same air space and runway system particularly when there is a preponderance of light aircraft, results in a difficult air traffic control situation with increased danger of a mid air collision.

In addition to the safety considerations, the mix of light and heavy aircraft causes poor runway utilization with resultant delays and increased operating costs and fuel consumption for both the airline and general aviation aircraft. This is due to the greater aircraft separation on approach and on take-off which is required to avoid the hazard for light aircraft of wake turbulence created by the passage of large aircraft. The proponent's position is that this inefficient use of the existing runway capacity at Vancouver will bring forward by several years the requirement for a parallel

runway estimated to cost \$40 - \$50 million, unless the traffic mix problem is alleviated in the near future.

During the course of the public meetings, the Panel heard considerable support for Transport Canada's concern for the traffic mix problem at Vancouver International. Virtually all those commenting on this issue at the public meetings accepted the contention that there is a traffic mix problem at Vancouver International Airport and that there is an immediate need to resolve it. However, not all participants were prepared to accept that the reactivation of Boundary Bay Airport is the best solution to the problem.

The Panel heard concerns expressed that even if Boundary Bay Airport were to be reactivated, light aircraft operators at Vancouver International might opt to stay where they are and not move. Transport Canada estimates that approximately 40 per cent of the present light aircraft traffic at Vancouver International (made up primarily of flying training operations by 5 flying schools and light recreational aircraft) could be readily relocated to another facility. The proponent has undertaken to terminate the leases of the flying schools presently located at Vancouver International Airport if and when Boundary Bay Airport is reactivated as a light aircraft general aviation airport. A variety of regulatory powers is available to remove light recreational aircraft from Vancouver International Airport. Not all light aircraft operators will find it practical to move from Vancouver International because of the nature of their business which requires that they be located close to the large commercial carrier operations. Therefore, whatever moves do occur, there will continue to be a mixture of light and heavy aircraft

using Vancouver International but it is Transport Canada's intention to reduce this mix to more manageable proportions.

Transport Canada forecasts for general aviation growth in the Lower Mainland indicate that expected demand for facilities will exceed existing capacity by 1982, with the forecast demand exceeding present capacity by 340,000 aircraft movements per year in 1990. The second part of Transport Canada's rationale for reactivating the Boundary Bay Airport is to meet this forecast demand.

Alternatives Considered by the Proponent

Before selecting the reactivation of Boundary Bay Airport as the preferred alternative for alleviating the Vancouver area aviation problems described above, Transport Canada considered a number of other alternatives. Of these alternatives, only reactivating the Boundary Bay Airport was considered acceptable by Transport Canada.

A number of participants at the public meetings argued that one of the alternatives, namely the relocation of some of Vancouver's light aircraft to the existing Abbotsford Airport, was rejected by Transport Canada far too quickly, particularly considering the substantially lower cost of this alternative.

There is unused capacity at Abbotsford Airport now. An additional 100,000 aircraft movements per year could be accommodated without any expenditure whatever. A further 60,000 movements per year could be added through the addition of a parallel runway at an estimated cost of \$800,000. By comparison, the reactivation of Boundary Bay Airport would add

between 165,000 and 175,000 movements per year to the Lower Mainland system capacity. A reactivated Boundary Bay Airport would actually accommodate about 250,000 movements per year but the closure of Delta Air Park would reduce the overall gain to the system by approximately 75,000 movements per year. The cost of reactivating the airport would apparently depend on whether the airport was to be developed and operated by the private sector or Transport Canada. Members of the aviation community and others who commented on the cost issue at the public meetings claimed the airport could be reactivated for a far lower cost than the \$6.3 million estimated by the proponent.

Some also felt that the impacts, in particular the social impacts, associated with expanding the use of an existing airport would be substantially less than those associated with reactivating the old airport at Boundary Bay. Light aircraft operators at Vancouver International Airport who likely would be required to move stated that operating from Abbotsford Airport would be financially detrimental as Abbotsford is too far removed from the markets they now serve in the Vancouver area.

Potentially serious problems associated with shifting more light aircraft operations to Abbotsford Airport were raised a number of times during the meetings. Abbotsford is used as a training facility by airline companies to train pilots on large aircraft such as the Boeing 747. Transport Canada and members of the aviation community pointed out to the Panel that the airlines are presently in an expansion mode and consequently are hiring and training new pilots. The most practical and economically acceptable facility to use for this training is Abbotsford Airport. In addition to its likely increased use as a training

for large jets, Abbotsford Airport will continue to be used as the alternate to Vancouver International during periods of inclement weather. Serious concerns were expressed that any shift of light aircraft from Vancouver International to Abbotsford would only result in the shifting of the traffic mix safety problem from the one airport to the other.

Another factor affecting the use of Abbotsford Airport that was raised during the meetings was the overlapping of the Abbotsford Airport airspace and the Bellingham Airport airspace. Transport

Canada has stated that this potential airspace conflict is controllable but the required control procedures tend to reduce the capacity of Abbotsford Airport.

There was general agreement among intervenors that the air traffic mix problem at Vancouver International Airport is serious and needs to be resolved. However, despite representations by the aviation community, considerable doubt was expressed that the reactivation of Boundary Bay Airport is the only acceptable way of alleviating this problem.

"We are accountable to the aviation community as well as to the travelling public for the safety of this system and part of this mandate calls for us to identify future requirements to meet the demands that are continuing to develop in the aviation community."

Mr. Darrel Smith, Transport Canada

". ..given the huge financial advantages to the taxpayers of the Abbotsford alternative, and given the lack of advantage of Boundary Bay over Abbotsford in all important issues (including safety, capacity, and V.I.A. efficiency), and given the lack of data in crucial areas of comparison, such as financial ones, it is apparent that a more thorough and serious consideration of the alternatives must be made. This serious consideration must include the careful weighing of greater public benefit and the convenience of the few."

"If we wish to aspire to a fair and just share of Canada's aviation business, this is an excellent source of job opportunity for our young people, and let us get on with the re-opening of this Boundary Bay Airport and the creation of an environment that will attract aviation industry."

Mrs. B. Johnson, Citizens' Association of Delta

Mr. William L. Marr, Delta Resident

BIOLOGICAL ISSUES



"Two summers ago... one man came flying over, zoomed, within ten or fifteen feet of people on the beach, probably a hundred mothers rushed, grabbed their children and disappeared for the day. They could not trust these people in the air."

Mr. Frank Mir, Surrey Resident

"Unlike many of the duck species, most geese are rather much more susceptible to being frightened off by aircraft, and brant particularly so."

Mr. Tom Burgess, Fish and Wildlife Branch, B.C. Ministry of Environment

"...we found especially in the Environmental Impact Statement, the whole data base for migratory birds seriously lacking, so if there would be time before the airport would be reactivated, in a sensible way, it would certainly be very advisable to gather data."

Mr. G. Watson, Canadian Wildlife Service, Environment Canada

BIOLOGICAL ISSUES

The Boundary Bay Ecosystem.

The Boundary Bay area contains some of the most important wildlife habitat found in the Lower Mainland of British Columbia. Although it has been much affected by man's activities over the years, it has remained an important habitat for birds. This area, including Mud Bay, serves as a major wintering area for thousands of migratory birds and as a resting and staging area for tens of thousands of birds during their Spring and Fall migrations along the Pacific Flyway. The Bay contains the most extensive eelgrass beds in the Fraser Delta which makes it important for herring spawning and for feeding by juvenile salmonids. It also has high potential for shellfish production.

Of interest is the occurrence of Pacific Brant geese that use the eelgrass beds of the Bay during their northward migration in the Spring. Some winter there as well. In addition, numerous shorebirds depend on the wide mudflats and there are recent indications that an entire sub-population of dunlins may winter in the Bay. Altogether, 186 species of birds have been recorded in the Boundary Bay area, and all species of waterfowl known to occur in the Fraser Delta are present at Boundary Bay.

The lands surrounding the Bay are commonly used by many aquatic migratory birds for feeding and/or shelter during inclement weather. Populations of raptorial birds are uncommonly high and there is a large variety of passerine birds. Several species of birds utilizing the mudflats of the Bay regularly

fly over the airport site to and from feeding areas. Most notably, a daily movement of gulls between the Bay and the sanitary landfill at Burns Bog north of the airport takes place at dawn and dusk. In October and November, as many as 20,000 gulls may be present in the area.

Concerns expressed at the public meetings and in written submissions to the Panel have focussed almost solely on the impact of the project on the avian component of the biological system. The Panel agrees that this is where the emphasis should lie.

Loss and Degradation of Bird Habitat.

The normal aircraft activities associated with an operational Boundary Bay Airport could deleteriously impact on the quality of adjacent bird habitat and on the number of birds present. However, the regulated nature of the proposed aviation activity and the fact that some of the presently unregulated aviation activity would be brought under control, offer opportunities for mitigation.

Transport Canada has stated that areas required for the operation of the airport should be made unattractive to birds. The Panel acknowledges that this action will result in the loss of some bird habitat. Compensating for such loss by making specified areas within the site more attractive to birds, as recommended in the proponent's Environmental Impact Statement, is considered undesirable by the Panel. However, *THE PANEL RECOMMENDS* that airport land inside the dyke and south of the B.C. Railway track, not required for aviation purposes or by present lessees, be retained as open space,

The Panel acknowledges the designation by **Transport Canada** of the airport property seaward of the dyke as a recreational area. **THE PANEL RECOMMENDS** that this area be assigned to an appropriate agency such as the **Canadian Wildlife Service** of **Environment Canada** and managed for wildlife purposes. Such management should recognize the recreational potential of this area.

Published information indicates that noise and movement of aircraft disturb birds and puts them to flight. However, a general lack of scientific information on this problem does not allow for a thorough evaluation of its exact nature and magnitude. Different species of birds appear to react differently to aircraft disturbance. When disturbance does occur, the effect of the disturbance may be more pronounced at different times of day. The magnitude of the disturbance will vary with the type of aircraft causing the disturbance (rotary wing aircraft being more disruptive than fixed wing aircraft), the elevation of the aircraft (generally more disruptive below 500 metres) and the frequency of aircraft movements. Putting birds to flight is a serious disturbance because it adversely affects their energetics, i.e., it forces them to expend energy and prevents them from food intake. Continuous disturbance will force birds to use foraging areas of lower nutritive quality thus adding to the impact. This problem is most serious in winter when the birds' energy level is low.

The Panel has been advised that the Brant goose is the most easily disturbed species of birds using the Boundary Bay area. Movements of aircraft affect this species more than the aircraft noise, and considerably more than do human movements. The numbers of wintering Brant

in Boundary Bay have drastically decreased during past years and now only a few remain. It is believed that the pattern of wintering has shifted further south along the Pacific Coast rather than a general population decline having taken place. The decline in numbers wintering in Boundary Bay may be a result of disturbance. Concerns were expressed that efforts by the B.C. Fish and Wildlife Branch to re-establish wintering Brant in larger numbers to several areas in the Lower Mainland, including Boundary Bay, may prove futile if reactivation proceeds. The Panel believes that commotion and noise from existing aircraft operating in the area may have contributed to the decline in numbers of wintering Brant. The Panel views disturbance caused by hunting activity and by other recreational pursuits also as possible contributing causes to this decline.

The paucity of scientific data on the effect of noise on mammals and birds is disturbing. A few references imply that the energy level of noise is not a sufficient measure of its impact but that it is important, as well, to define the type of noise. Intermittent, sudden and unexpected noises could be more harmful than a steady high level of noise.

Concerns were raised that behavioral changes caused by noise impact at wintering areas could affect birds at their breeding areas thereby reducing reproductive success. Concerns were also expressed that migrants could be more seriously affected than resident birds.

It appears from information presented to the Panel that aircraft movement alone or in combination with noise is more disturbing to birds than noise alone. Habituation to a high disturbance environment is likely to take place but

differences in sensitivities and seasonal variations among species would suggest that modifications in species composition and reduction in densities could result. Again, the scarcity of adequate scientific data prevents the Panel from making a satisfactory evaluation. While both the Canadian Wildlife Service and the B.C. Fish and Wildlife Branch recommended that further studies would be required to better identify mitigation measures, these agencies advised that the sensitivity of the area was not so great as to warrant the cancellation or the deferral of the reactivation.

The Panel concludes that the deleterious impact on the avian fauna may be minimized or avoided by strict adherence to recommendations made in the Environmental Impact Statement in regard to flight circuit patterns, flight elevations over the Bay and a general avoidance of flights below 500 metres over the middle and outer portions of the inter-tidal area. **THE PANEL RECOMMENDS** that the following specific airport operational procedures be adopted:

- Runway 07/25 be used in preference to Runway 12/30 and training circuits be carried out to the north of both runways.
- Flights over Boundary Bay not be permitted within the airport control zone except on approach to Runway 30 or departure from Runway 12.
- Flights over Boundary Bay outside the control zone be limited to a minimum altitude of 500 metres.

The Panel believes that additional studies are required to adequately document the populations and habitat use of birds occurring in the Boundary Bay

area, to evaluate the effectiveness of the above recommended mitigation measures and to identify new mitigation measures if required. Data from such studies would prove invaluable in assessing the additional impact of a possible future parallel runway at the Boundary Bay site. **THE PANEL RECOMMENDS** that these studies be sponsored by Transport Canada and carried out by an appropriate agency such as the Canadian Wildlife Service. The completion of these studies need not be a prerequisite to reactivating the airport, but the studies should be initiated as soon as any decision is made to proceed with the reactivation. Detailed design of the study components should be established by the proposed Boundary Bay Airport Review Committee (see p. 43).

Bird Strikes

The regular and large scale movement of birds, especially gulls, over the site would present a risk of collision with aircraft, the magnitude of which has as yet to be established. The potential loss of birds due to collisions is small and is not of concern ecologically. The aviation community forcibly argues that the threat to human safety of such collisions is minor and would not be greater at Boundary Bay than at other airports. However, the Panel was advised that the risk of bird strikes could be high at this site and could constitute a significant threat to flight safety due to the heavy movement of gulls and to the fact that the majority of flying would be done by student pilots. The threat to ground activities by damaged aircraft is also a consideration.

THE PANEL RECOMMENDS that the movement and feeding behaviour of birds over and

in the vicinity of the airport be examined by Transport Canada to determine if there are times when the concentration of birds represents a high risk of bird-aircraft collision with operating aircraft.

Water and Air Pollution

Pollution concerns associated with the airport reactivation are primarily related to the possibility of accidental spills of hydrocarbons or toxic chemicals reaching the waters of Boundary Bay via the airport drainage system. Such spills could occur as the result of aircraft fuelling operations or from chemicals

stored on the airport, such as insecticides used by agricultural aerial spraying operators. The proponent has stated that an environmental emergencies contingency plan would be prepared and implemented to deal with all potential spill situations. In addition, fuel separators would be placed on the ditches draining the apron fueling area and traps for oil and grease provided on all drains from the buildings. *The Panel endorses these measures and considers that their implementation should prevent any major water pollution problems.*

The Panel concludes that there will be no significant air pollution impacts resulting from the reactivation of Boundary Bay Airport.

NOISE AND DISTURBANCE



"...this particular site has quite an advantage over many airport sites, in that at the present time and in the scale of sound propagation for light aircraft, there's relatively little community in the surrounding area."

Mr. Ken Harford, Harford, Kennedy, Wakefield Ltd.

"One particular chap, I don't know - I haven't got his numbers, but the airplane is gaudily painted, a large white star on the end of each wing tip, an arrowhead design on the upper surface, that boy loves irritating us in that Ridge area."

Mr. E. Koch, Concerned Citizens of Panorama Ridge

"We are betting our lives and the conviction based on a lot of practical experience that the hazards at Vancouver International and Abbotsford due to the mix of traffic, is greater than the risk from bird strikes at Boundary Bay, and it seems to me that it's a bet you have to accept."

Mr. Ron Heath, British Columbia Aviation Council

"...many of us chose the South Delta/Ladner area as a place to live because of its quiet, relaxed atmosphere, proximity to beaches, walks and remoteness from the bustle of industrial and commercial areas. To inflict an airport on us with its incumbent safety, noise and traffic problems is grossly unfair."

Mrs. J. Cromarty, Citizens' Association of Delta

NOISE AND DISTURBANCE

Introduction

Important social struggles have taken place during the last two decades in residential areas surrounding jet airports concerning the impact of noise on people. Techniques have been devised to estimate this impact: contours of equal average noise level are plotted on a map and the area within the contour giving appreciable impact on an individual is known as the "noise footprint" of the airport. Thousands or tens of thousands of people commonly reside within this footprint. Around Vancouver International Airport, for example, about 15,000 residents are subjected to an average day-night sound level (Ldn) of 60 decibels (dB) or greater, which is sufficient to significantly affect normal activities of people.

As a result of the increased consciousness of this noise problem, a substantial new technology is now in place, which reduces the noise output of the jet aircraft mechanically and reduces the noise levels in the communities by means of flight procedures. There has also been a great deal of research relating the measured noise levels with effects on people. The currently accepted measure of these effects is the number of people who report by questionnaire during social surveys that they are "highly annoyed". The annoyance is the result of the interference of noise with normal activities of the individual, mostly interference with speech communication, for example, during conversation, use of the telephone and watching TV, and interference with sleep. Annoyance due to noise is now recognized to be a subjective measure of the stress on the individual.

In contrast to jet airports, even the busiest of general aviation airports generate a small noise footprint and therefore seem to function in relative harmony with the activities of the surrounding residents. For example, only one residence now exists within the Ldn 60 contour predicted for capacity operation of the two runways at Boundary Bay. Therefore, the noise problem associated with the reactivation of Boundary Bay Airport would be comparatively small.

As a result of the lower noise levels associated with general aviation airports, few studies have been undertaken on the prediction of social effects from the operation of such airports. It is noted also that a potential exists for reducing the noise from propeller driven aircraft through increased technical development and application of regulations.

The problem of general aviation noise often can be masked by road traffic noise. Because the small propeller driven aircraft is a much less intense noise source than the jet aircraft, one needs to consider carefully the role of other less intense sources of noise, particularly road traffic. The measurements of Transport Canada show Ladner to be already heavily impacted by noise from Highways 99, 17 and 10. The direct impact of noise from operations at Boundary Bay is therefore restricted essentially to areas away from these ground transportation corridors, where few people reside due partly to the Agricultural Land Reserve.

Two aspects of noise from general aviation airports, which do not apply to large airports, have been considered by the Panel. The first is the large amount of training done at general aviation

airports. Residents near the training circuits proposed at Boundary Bay may be subjected to small aircraft passing overhead at approximately one minute intervals for most of the day. Although the average noise level here is not high, the peak level may be sufficient to interrupt conversation outdoors.

The second aspect is the mobility of small aircraft. This mobility greatly increases their potential to annoy, because, although they do not make a lot of noise and are therefore not heard from afar, they can bring the noise to any residential or recreational area. Thus there is a need for discipline on the part of pilots both in training circuits at the airport and in practising elsewhere to avoid low overflights of residential and recreational areas. The current lack of discipline of some pilots practising away from airports, particularly near South Surrey, was a major concern expressed at the public meetings.

Specific Concerns

Several residents of South Surrey and Delta, including representatives of the South Surrey Residents' Association, reported that ineffective enforcement of Transport Canada regulations in their vicinity permits substantial disturbance at present by pilots flying at very low altitudes and practising aerobatics. They fear that reactivating Boundary Bay Airport nearby will increase the number of aircraft practising in their vicinity and hence increase the disturbance. These areas would be outside the proposed control zone for the airport. In addition, a number of South Surrey residents reported substantial disturbance by aircraft practising in Training Area CYA 125(A) (see Figure 2, p. 6) directly over

their residential areas as allowed by the Transport Canada regulations. The Panel agrees that both of these concerns represent very real problems and that a solution must be found whether or not the Boundary Bay Airport is reactivated.

THE PANEL RECOMMENDS that if the airport is to be reactivated, an Airport Liaison Committee be established comprised of representatives from Transport Canada, The Corporation of Delta and the aviation community. The formation of this Committee should be initiated by Transport Canada and it should report to the Pacific Regional Administrator, Canadian Air Transportation Administration, Transport Canada. The functions of this Committee would include the review of airport operational procedures that could result in disturbance to residents and the development of recommendations to change these procedures and activities as required. The Committee should actively encourage local residents affected by the airport operation to submit written or oral presentations to the Committee outlining their concerns. In addition to its primary function of reviewing airport activities, the Committee should also review the activities in Training Area CYA 125(A). In order to fulfil this additional function, the Committee should solicit the participation of residents and elected representatives of South Surrey.

In Training Area CYA 125(A), THE PANEL RECOMMENDS that the minimum flying altitude be raised and consideration be given to restricting aerobatics. If after a suitable trial period, the recommended changes to CYA 125(A) and increased surveillance have not achieved an acceptable reduction in the disturbance to the residents, then the Training Area should be moved to a less populated area.

THE PANEL **ALSO** RECOMMENDS that, even if the airport is not reactivated, Transport Canada should initiate an Aviation Liaison Committee to deal with the problems residents are faced with in relation to Training Area CYA 125(A). Existing Transport Canada regulations should be strictly enforced to reduce the **incidences** of dangerous and illegal flying operations.

There are approximately 50 homes in an area north west of the airport and south of Highway 10 (in this report this area will be referred to as the Anderson Place area) which are close to the path of the training circuits proposed for Runways 07/25 and 12/30 (see Figure 4). The proponent's report "Aviation Noise Impact Review" indicates that the residents of these homes will be impacted by noise from aircraft in these circuits, principally through interference with conversation outdoors. The Panel was advised that the shape of these circuits could be adjusted to reduce noise impacts on these residents.

THE PANEL RECOMMENDS that the flying training operations be closely monitored by Transport Canada and the shape of the circuits adjusted where necessary to minimize noise impacts on the affected residents. Any changes to the training circuits should be discussed with the proposed Airport Liaison Committee before they are implemented.

The Anderson Place area has been zoned by Delta for further residential development. This residential development could eventually accommodate as many as 400 single family homes. The possibility of further residential development in this area is of considerable concern to the Panel in view of the potential adverse noise impacts on this area from airport operations. In the Panel's opinion, a

major residential development in the Anderson Place area would not be compatible with a **reactivated Boundary Bay Airport** and, therefore, further construction of homes in this area should be actively discouraged.

The presence of a hospital beside the municipal offices close to the direct approach to Runway 07 was pointed out. The proponent has stated that the impact of aircraft noise on the hospital would be masked by the noise from the nearby Highway 17, and that noise abatement procedures, such as immediate direction changes after takeoff or angled approaches for landings, would minimize the impact of aircraft noise on the built-up area of Ladner, including the hospital.

THE PANEL RECOMMENDS that the above noise abatement procedures be adopted and that the effectiveness of these procedures be monitored by the proposed Airport Liaison Committee.

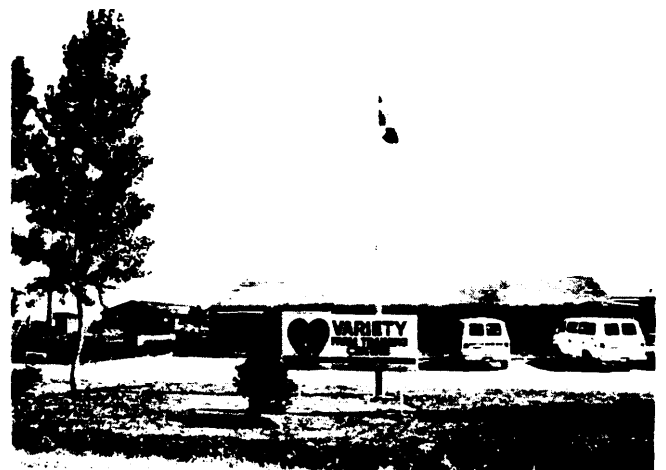
Helicopters have a great potential for disturbance. Helicopters are now centered at the Delta Air Park and there is an existing noise impact resulting from their operation. It is not known whether these helicopters would continue to use Delta Air Park once the Boundary Bay Airport is reactivated or whether reactivation would result in an increase in helicopter activity in the area. The Panel believes, however, that the establishment of the airport control zone would, to a large extent, alleviate the impact of any increased helicopter movements associated with the airport reactivation.

There were a number of additional concerns expressed regarding the inadequacy of the analysis of noise impact in the Environmental Impact Statement. Such concerns were reflected

in the submissions of the Citizens' Association of Delta and the Community Forum on Airport Development. The proponent submitted additional noise measurements and analysis at the time of

the public meetings. In the Panel's opinion, this supplementary information has adequately answered the additional questions raised during the review.

LAND USE CONSIDERATIONS



"If the Department of Transport is serious in its desire to reopen Boundary Bay Airport as a civic airport, it has an excellent Opportunity within its grasp to redress many years of agricultural neglect."

Mr. Ian Paton, British Columbia Institute of Agrologists

"Their current five year lease is too short for long term efficient management of the land for farming purposes. Pride in farming and management suffers under these leasing arrangements. Fifteen to twenty year leases are more appropriate to encourage good farming practices."

Mr. E. W. Walker, B.C. Ministry of Agriculture

". . .the Chamber is of the opinion that with proper planning, effective and reasonable controls in the local level, that Boundary Bay Airport can become a major economic benefit to Delta."

Mr. C.F. Taylor, B.E.M., Delta Chamber of Commerce

LAND USE CONSIDERATIONS

Agriculture

The lands in and around the Boundary Bay Airport site are fanned and their soils and climate are highly rated for agricultural pursuits. These lands, located in the provincial Agricultural Land Reserve (A.L.R.), make important contributions to agricultural production but do not approach their potential.

Less than half of the farm land around the airport site is operator-owned. Most of it is held by the Governments of Canada and of British Columbia and by non-resident corporate and private owners. The distribution of land ownership is approximately as follows:

Government of Canada (Boundary Bay Airport)	500 hectares
B. C. Harbours Board	1,600 hectares
B. C. Green Belt	160 hectares
Private and corporate absentee-owned	500 hectares
Owner-operated	500 hectares

Most of the land held by government and by absentee owners is leased under short term tenancies. A common consequence of such short term tenancy is that there is little incentive for landlord or tenant to develop or maintain drainage, soil fertility, fencing and buildings, to control pests, diseases and weeds, or to consider other land uses that might be compatible with agricultural activities.

THE PANEL RECOMMENDS that those portions of the airport site allocated for agricultural purposes be leased out on a long term basis. Such leases should have

provisions that would encourage sound and husbandry.

Reactivation of the airport for the use of light aircraft would continue to permit the use of a substantial area of the site for agricultural and related activity*. If the proponent supported effective husbandry practices, both general aviation and agriculture could benefit: the former by the maintenance of well managed open space and the latter by greatly enhanced production. Supportive measures could include:

- a) improvements to the airport farm lands through the provision of under drainage, some improved ditching and the construction of culverts.
- b) co-operation with the farmers and the municipality of Delta to improve area drainage and irrigation water supply.

A plan developed jointly by the Water Investigation Branch of the B.C. Ministry of Environment, the B.C. Ministry of Agriculture and the municipality of Delta to improve drainage and to supply water of good quality for irrigation in eastern Delta is in an advanced stage. The Panel has been assured that the airport site could be readily included.

It is expected that the project, known as the East Delta Water Management Project, would be funded under the federal-provincial Agriculture and Rural Development Sub Agreement (A.R.D.S.A.), with the municipality of Delta and land holders contributing, subject to negotiation, about one-third of the cost. A cost-benefit analysis undertaken by the B.C. Ministry of Agriculture states that charges to the land can be reasonably amortized over a few years through increased crop yields and return at the farm gate.

THE PANEL RECOMMENDS that Transport Canada undertake drainage and irrigation improvements to the airport property to improve the agricultural productivity of the land. These should go beyond the basic improvements required in order to reactivate the airport and should be designed to lower the water table in areas designated for agricultural purposes and to improve the irrigation facilities for these areas. Such efforts should be carried out in concert with the East Delta Water Management Project.

Reactivation of the airport would place some minor restraints on the kinds of agricultural production which might be undertaken near the runways. Fur farming and poultry production, presently not of importance in the community, are best undertaken where loud noises are rarely experienced.

From the point of view of general aviation, the location of an airport in an agricultural setting with a relatively low human population is desirable. It should be stressed that additional benefits of such a setting accrue from the maintenance of a rural landscape as a buffer between the considerable bird populations and passive outdoor recreational pursuits of the Boundary Bay area and the heavily developed residential areas. Maintenance of land as farmland is also a means of keeping options open for the future.

Recreation

The Boundary Bay foreshore from the dyke seaward is a potentially important recreational area for the Lower Mainland. Presently, it is used variously for hiking, bicycling, horseback riding, hunting, nature study and other forms of

recreation. The Panel believes that the nature and extent of some of these current recreational activities could be impaired by both the noise and disturbance of increased aircraft activity over the Bay, in particular in the vicinity of the threshold of Runway 30. However, the Panel notes that the airport and its operations would provide new recreational opportunities of a different sort, such as flying and aircraft watching.

A number of plans for the recreational use and enhancement of the area have been proposed by various groups and agencies. However, the status of these plans is uncertain at this time.

The assignment by the proponent of the airport property seaward of the dyke to an agency such as the Canadian Wildlife Service as recommended by the Panel (see p. 47) would help to compensate for both lost recreation and conservation opportunities.

The proponent plans to use Runway 07/25 as the airport's main runway. Training circuits on this runway and on Runway 12/30 would preferentially be conducted to the north of the two runways. The Panel believes that such operational procedures should be adopted to minimize the impacts on birds and recreational activities by curtailing flights over the Bay and foreshore.

Associated Developments

During the public review process, conflicting views were expressed regarding the desirability of possible industrial development resulting from the proposed reactivation of the airport facility. These views related to development both on and adjacent to the airport property.

Onsite Development

It is recognized that aviation support services located immediately north of the existing apron facilities will constitute an integral part of the reactivated airport. These will include hangars, maintenance shops, offices, aircraft parking facilities, flying schools and operational bases.

Furthermore, it is noted that most existing lessees such as the B.C. Safety Council and the Variety Training Farm will continue their tenure on the site at present levels of intensity, generally undisturbed. Possible continued use of the site by the Radio Controlled Flying Club of B.C. would be the subject of negotiation with Transport Canada.

The Panel agrees that those portions of the property south of the B.C. Railway track and north of the dyke which are not required for aviation purposes and are not part of the existing runway system are best suited for agricultural uses or for retention in their present state as wildlife habitat.

The Panel understands that the operation of the Experimental Aircraft Association, Chapter 85, now located at the Delta Air Park, could be accommodated on the Boundary Bay Airport site.

The 40-hectares of Airport property located north of the B.C. Railway track and containing a network of roads, services and foundations has not yet been examined for land use suitability, development feasibility, or environmental impact. It is the Panel's opinion that no development or designation of this portion of the Airport property should take place until the necessary studies

are carried out. Accordingly, if Transport Canada elects to lease the Airport site to the private sector to effect the reactivation of Boundary Bay Airport in advance Of these investigations, THE PANEL RECOMMENDS that this area be excluded from the lease arrangement.

Off site Development

The Panel acknowledges that the responsibility for guiding developments on properties in the vicinity of the Airport site lies with The Corporation of Delta and the B.C. Agricultural Land Commission. However, based on concerns expressed at the public meetings, it is the Panel's view that any development allowed in this vicinity should exclude residential subdivision, and development activities in this area should be confined to those which are compatible with aviation and agriculture. Therefore, municipal services provided to the airport property should be scaled accordingly.

Other Land Use Considerations

Road Traffic

The airport reactivation would increase road traffic on 72nd Street and Ladner Trunk Road. The increased traffic load will exacerbate the present safety hazard caused by slow moving farm traffic using the same roads as other traffic. The present need to upgrade Ladner Trunk Road is recognized by the Panel.

THE PANEL RECOMMENDS that prior to airport reactivation, Transport Canada take

the initiative, in consultation with the B.C. Ministry of Transportation, Communications and Highways, to ensure that the intersection of 72nd Street and Ladner Trunk Road is safe and has adequate capacity,

The possible requirement for a second access to the airport along 80th Street was brought to the attention of the Panel. The Panel believes that this second access should be provided if it is found that airport traffic is resulting in serious congestion on 72nd Street.

Location of Control Tower

The Panel was advised by the management of the Variety Club Training Farm that the proposed location of the airport control tower to the south and west of the runways could interfere with their agricultural operations, and that this location would result in the removal of a portion of their carefully developed agricultural lands. The Panel believes that the need to locate the tower in the

proposed location should be re-examined in view of the disruption which this location would cause.

Relocation of Highway 10

The Panel was advised that the B.C. Ministry of Transportation, Communications and Highways has been examining a number of alternate proposals for the relocation of Highway 10. One of the alternatives being considered is a relocation to the south of the airport just inside the dyke.

Objections to this alignment were expressed by a variety of sources including the B.C. Ministry of Agriculture and the Citizens' Association of Delta and centered around the negative impacts on agriculture, wildlife and recreation. Transport Canada also expressed disfavour with this proposal. The Panel concurs with these objections and is of the opinion that no further consideration should be given to this alternative.

COMMUNITY IMPACTS



"...I would expect that there would be bird strikes occurring, and especially at a training airport I would consider bird strikes an added hazard in the training program. Even though the damage done by a bird strike may be slight, the disturbance effect on an inexperienced pilot may lead to unusual behaviour and that can contribute to accidents."

**Dr. V. Solman, Canadian Wildlife Service,
Environment Canada**

"I've sat at the end of the runway in Vancouver with the 747, which is a large airplane, burning a great deal of fuel and waited while there were four or five, six, eight light aircraft departures."

Captain W.E. Dunn, CP Air

"Any decision making process that allows public input must be a good thing, but the public must be able to see in some tangible way that they have been listened to, otherwise the process becomes damaging, as it siphons off efforts that might be employed elsewhere, and is regarded as an instrument to stifle the individual's right to be heard."

**Mrs. J. Cronarty, Citizens' Association
of Delta**

COMMUNITY IMPACTS

Introduction

There are two basic questions to be addressed in assessing the social impacts of the proposed reactivation of the Boundary Bay Airport. First, would the proposed reactivation impose any changes to the quality of life of the residents of Delta and, if it would, to what extent would these changes be beneficial or harmful? Second, does the proposed reactivation alter, in any significant way, the character of the community or its future development?

Quality of Life

The Panel has concluded that the proposed reactivation would impose some changes on the people of Delta but that these would not significantly affect the quality of life of the great majority of residents. The specific changes that are associated with the project have been detailed in other sections of this report. They include: an increase in noise levels potentially significant for residents to the north west of the airport in the vicinity of Anderson Place, some loss of relatively quiet recreational areas, some potential gains to the agricultural community, and the possibility of associated developments which is favoured by some and opposed by others. The reactivation would not require any property acquisition, expropriation or forced relocations. Nor would it involve a large or extensive construction phase or a permanent influx of residents to that community.

For these reasons, the Panel has concluded that the direct impacts of the

project on the people of Delta would be relatively mild. The exception is the noise impact on some residents of East Delta, namely, those around Anderson Place. The reactivation would impose some degradation to the quality of life residents presently enjoy if mitigation measures to minimize the airport-related noise in their area are not successful.

The Panel has considered the opinions of the people of Delta as expressed during the proponent's consultation program as well as the concerns and expectations of those who participated in the public meetings and those who submitted written submissions to the Panel. The Panel agrees with those who took the view that public meetings should have been part of the proponent's consultation program and the fact that they were not reduces the reliability of the consultation process. Nonetheless, the combined activities and public exposure related to both series of Panel meetings and the proponent's consultation program were sufficient, in the Panel's view, to obtain a reasonable cross-section of opinion on the project.

Future Development of the Community

In the short term and considered alone, there is no reason for expecting the project to influence the character of the community. However, when the project is considered in a broader extent, as one of many possible developments in the Delta area, it is important to recognize that it is part of a larger question related to the future development of the community. Agriculture and the farming community exist side by side in Delta with large suburban residential developments, and commercial/industrial activities. In recent years, the farming community has been threatened by increasing demands for residential use of agricultural lands.

Some residents fear that the air-port reactivation would act as a catalyst for attracting other industrial developments to the Boundary Bay area, thereby changing the balance of land use in that area from farming to other purposes. Only a small area of Delta would be affected but similar kinds of pressures on agricultural lands are being felt in other parts of the community. Any change in the balance among farming, residential and industrial land uses would inevitably alter the character of the community. The Planning Department of the municipality of Delta expressed its views on the nature of Delta in the following words:

"The unique character of Delta is the result of a reasonably harmonious co-existence of a number of conflicting and contradictory facets. The traditional and the modern, the countryside and the city, the land and the sea, the quiet of residential neighbourhoods and the bustle of commerce, industry and the environment. All must live side by side in harmony."

While the Panel does not consider that the Boundary Bay reactivation would change this balance per se, it notes that it is one of several potential developments that might modify the future character of the community. For these reasons, the Panel considers it essential for the proponent to become and remain involved with the citizens and local government of Delta in an effort to ensure harmonious relations between the airport facility and the community at large. The Airport Liaison Committee proposed by the Panel (see p. 26) could help to fulfil this objective.

This type of essential co-operation would likely be complicated if Transport Canada leases the airport property to private interests who would become the operators. Regardless of this possibility, it must be stressed that the final responsibility for the inclusion of environmental terms and conditions in the lease lies with the federal government as the owner of the property.

IMPLEMENTATION OF PANEL RECOMMENDATIONS



"I would call it the bumble bee effect, if you're trying to enjoy a barbecue in your front yard and every sixty seconds a light aircraft buzzes over your house, can you quantify that?"

Mr. Tom Siddon, Member of Parliament -
Richmond-South Delta

"...if God wanted to create the perfect flying training environment, Boundary Bay would be one he would pick out..."

Mr. A.E. Harvey, Pacific Flying Club

"Gulls, as you know, are scavengers. They live off man's wantonness and waste. Other birds have more specific diets. In other words, they won't eat leftover McDonald's burgers..."

Mr. David Aldcroft, Vancouver Natural
History Society

IMPLEMENTATION OF PANEL RECOMMENDATIONS

Many of the Panel's recommendations require actions or commitments on the part of Transport Canada. However, some of the recommendations, if they are to be successfully implemented, will require co-ordination among various federal, provincial and municipal government bodies, as well as the direct involvement of the aviation community and the citizens of Delta and South Surrey. The proponent indicated, during the course of the public meetings, that the airport may be operated by the private sector. While the basic responsibility for implementing the Panel's recommendations would rest with Transport Canada if this occurs, the airport operators would be involved with the implementation of a number of the recommendations.

Monitoring is an important aspect of environmental impact assessment review. It includes: advising the proponent on the implementation of the Panel recommendations, determining the effectiveness of the mitigation and compensation measures and reporting on the actual ecological and social impacts of the project.

For these reasons the Panel is of the opinion that a mechanism should be established to ensure the co-ordination and monitoring of activities resulting from its recommendations.

THE PANEL RECOMMENDS the formation of a Boundary Bay Airport Review Committee. This Committee would report annually to the federal Ministers of Environment and Transport and should consist of representatives from the Canadian Wildlife Service of Environment Canada, the B.C. Ministry of Environment, the B.C. Ministry of Agriculture, The Corporation of Delta and Transport Canada. THE PANEL

FURTHER RECOMMENDS that this Committee be chaired on a permanent basis by the representative from Environment Canada.

The terms of reference of the Committee would be:

1. To review and report on the manner in which the Panel's recommendations and Transport Canada's commitments are being implemented both during the construction phase of the project and during the first three years of operation of the airport.
2. To co-ordinate the review and evaluate the adequacy of further studies and resultant mitigation measures required for the project.
3. To exercise an ombudsman function when existing channels of communication among groups interested in the project appear to be ineffective.
4. To seek and entertain advice and opinion from interested members of the public.

THE PANEL RECOMMENDS that the Secretariat to this Committee be provided by the Federal Environmental Assessment Review Office, Vancouver. It is suggested that this office be the contact point between groups and individuals wishing to communicate with the Committee.

The Panel has recommended the formation of two committees to address the environmental concerns associated with this project. They are the Airport Liaison Committee (see p. 26) and the Boundary Bay Airport Review Committee discussed above. The Panel is of the opinion that both are necessary to ensure that aviation related activities in the Boundary Bay area are carried out in an ecologically and socially acceptable manner now and in the future.

CONCLUSION AND SUMMARY OF RECOMMENDATIONS



"We feel that what we should really be examining here is not this particular proposal but the whole Lower Mainland region master plan for general aviation."

**Dr. J. Stewart Tyhurst, Community Forum
on Airport Development**

"I would like very briefly to reiterate what our proposal was all about basically, it's to reactivate Boundary Bay and operate an airport consisting of two runways, associated ramps, and taxiways, road and utility accesses, air traffic control tower, and a 25-acre industrial area. Any other development on the 1200 acre site would be subject to another Environmental Impact Analysis and this includes the 102 acres to the north of the railway track. I felt that we should make that very clear."

Mr. Darrel Smith, Transport Canada

". ..we acknowledge the problem of nuisance flying, and I would say that one of the most useful aspects of these hearings has been to direct attention to that problem "

**Mr. J. Burns, British Columbia Aviation
Council**

CONCLUSION AND SUMMARY OF RECOMMENDATIONS

Conclusion

The Panel concludes that Boundary Bay Airport can be reactivated without significant adverse ecological and social impacts providing that the recommendations of this Panel are implemented and providing that Transport Canada's commitments are met.

Summary of Recommendations

Biological Issues

- 1. Airport lands inside the dyke and south of the B.C. Railway track, not required for aviation purposes or by present lessees, should be retained as open space.**
- 2. Airport property seaward of the dyke should be assigned to an appropriate agency such as the Canadian Wildlife Service of Environment Canada and managed for wildlife purposes. Such management should recognize the recreational potential of this area.**
- 3. The following specific airport operational procedures should be adopted to minimize deleterious impact on birds:**
 - Runway 07/25 be used in preference to Runway 12/30 and training circuits be carried out to the north of both runways.**
 - Flights over Boundary Bay not be permitted within the airport control zone except on approach to**

Runway 30 or departure from Runway 12.

- Flights over Boundary Bay outside the control zone be limited to a minimum altitude of 500 metres.**

- 4. Additional studies should be undertaken to adequately document the populations and habitat use of birds using the Boundary Bay area, to evaluate the effectiveness of the mitigation measures recommended above (Recommendation No. 3) and to identify new mitigation measures if required. These studies should be sponsored by Transport Canada and carried out by an appropriate agency such as the Canadian Wildlife Service of Environment Canada. The completion of these studies need not be a prerequisite to reactivating the airport, but the studies should be initiated as soon as any decision is made to proceed with the reactivation. Detailed design of the study components should be established by the proposed Boundary Bay Airport Review Committee (Recommendation No. 15).**
- 5. The movement and feeding behaviour of birds over and in the vicinity of the airport should be examined by Transport Canada to determine if there are times when the concentration of birds represents a high risk of bird-aircraft collision with operating aircraft.**

Noise and Disturbance

- 6. If the airport is to be reactivated, an Airport Liaison Committee should be established comprised of representatives from Transport Canada, The**

Corporation of Delta and the aviation community. The formation of this Committee should be initiated by Transport Canada and it should report to the Pacific Regional Administrator, Canadian Air Transportation Administration, Transport Canada. The functions of this Committee would include the review of airport operational procedures that could result in disturbance to residents and the development of recommendations to change these procedures and activities as required. The Committee should actively encourage local residents affected by the airport operation to submit written or oral presentations to the Committee outlining their concerns. In addition to its primary function of reviewing airport activities, the Committee should also review the activities in Training Area CYA 125(A). In order to fulfil this additional function, the Committee should solicit the participation of residents and elected representatives of South Surrey.

7. In Training Area CYA 125(A), the minimum flying altitude should be raised and consideration should be given to restricting aerobatics. If after a suitable trial period, the recommended changes to CYA 125(A) and increased surveillance have not achieved an acceptable reduction in the disturbance to the residents, then the training area should be moved to a less populated area.
8. Even if the airport is not reactivated, Transport Canada should initiate an Aviation Liaison Committee to deal with the problems residents are faced with in relation to Training Area CYA 125(A). Existing Transport Canada regulations should be strictly

enforced to reduce the incidence of dangerous and illegal flying operations.

9. Flying training operations should be closely monitored by Transport Canada and the shape of the training circuits adjusted where necessary to minimize noise impacts on the affected residents. Any changes to the training circuits should be discussed with the proposed Airport Liaison Committee.
10. Noise abatement procedures such as immediate direction changes after takeoff or angled approaches for landings to minimize the impact of aircraft noise on the built-up area of Ladner should be adopted by Transport Canada. The effectiveness of these procedures should be monitored by the proposed Airport Liaison Committee.

Land Use Considerations

11. Those portions of the airport site allocated for agricultural purposes should be leased out on a long-term basis. Such leases should have provisions that would encourage sound land husbandry.
12. Transport Canada should undertake drainage and irrigation improvements to the airport property to improve the agricultural productivity of the land. These should go beyond the basic improvements required in order to reactivate the airport and should be designed to lower the water table in areas designated for agricultural purposes and to improve the irrigation facilities for these areas. Such efforts should be carried out in

Such efforts should be carried out in concert with the East Delta Water Management Project.

13. If Transport Canada elects to lease the airport site to the private sector to effect the reactivation of Boundary Bay Airport prior to investigations taking place on the land use suitability, development feasibility or environmental impact of developing the 40-hectare site north of the B.C. Railway track, then this area should be excluded from the lease arrangement.
14. Prior to airport reactivation, Transport Canada should take the initiative, in consultation with the B.C. Ministry of Transportation, Communications and Highways, to ensure that the intersection of 72nd Street and Ladner Trunk Road is safe and has adequate capacity.

Implementation of Panel Recommendation

15. A Boundary Bay Airport Review Committee should be formed. This Committee would report annually to the federal Ministers of Environment and Transport and should consist of representatives from the Canadian Wildlife Service of Environment Canada, the B.C. Ministry of Environment, the

B.C. Ministry of Agriculture, The Corporation of Delta and Transport Canada. This Committee should be chaired on a permanent basis by the representative from Environment Canada. The terms of reference of the Committee would be:

- a) To review and report on the manner in which the Panel's recommendations and Transport Canada's commitments are being implemented both during the construction phase of the project and during the first three years of operation of the airport.
- b) To co-ordinate the review and evaluate the adequacy of further studies and resultant mitigation measures required for the project.
- c) To exercise an ombudsman function when existing channels of communication among groups interested in the project appear to be ineffective.
- d) To seek and entertain advice and opinion from interested members of the public.

The Secretariat of this Committee should be provided by the Federal Environmental Assessment Review Office, Vancouver.

ENVIRONMENTAL ASSESSMENT PANEL
BOUNDARY BAY AIRPORT REACTIVATION

A handwritten signature in black ink, appearing to read 'F. G. Hurtubise'.

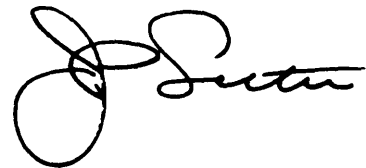
Fernand G. Hurtubise
(Panel C chairman)

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Laszlo I. Retfalvi

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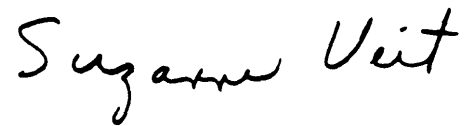
Al A. Bach

A handwritten signature in black ink, appearing to read 'Jonathan P. Sector'.

Jonathan P. Sector

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V.C. (Bert) Brink

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Suzanne Veit

APPENDICES

APPENDIX A:

**PARTICIPANTS IN THE REVIEW OF THE
ENVIRONMENTAL ASPECTS OF THE REACTI-
VATION OF BOUNDARY BAY AIRPORT**

A Groups

1. **Aero Club of B. C.**
2. **Bay Air Ltd.**
3. **Bayside Environmental Society**
4. **British Columbia Aero-Para Sportsmen**
5. **British Columbia Aviation Council**
6. **B. C. Institute of Agrologists**
7. **B. C. Wildlife Federation**
8. **Canadian Air Line Pilots Association**
9. **Canadian Owners' and Pilots'
Association, Flight 16**
10. **Canadian Museum of Flight and
Transportation**
11. **Citizens' Association of Delta**
12. **Community Forum on Airport
Development**
13. **Concerned Citizens of Panorama
Ridge, Ocean Park, Crescent Beach and
South Surrey**
14. **Crescent Beach Property Owners
Association**
15. **Delta Chamber of Commerce**
16. **Delta Sportsman Flying Club**

17. **Experimental Aircraft Association,
Chapter 85**
18. **Merritt Flying Club**
19. **Ocean Park Community Association**
20. **Pacific Flying Club**
21. **P. S. L. Flying Club**
22. **Radio Controlled Flying Club of B. C.**
23. **South Surrey Residents Association**
24. **Southwestern British Columbia
Tourist Association**
25. **Canadian Scientific Pollution and
Environmental Control Society (SPEC)**
26. **Tsawwassen Business Association**
27. **Vancouver Airport Business
Association**
28. **The Vancouver Board of Trade**
29. **Vancouver Natural History Society**
30. **Westview Flying Club**

B Individuals

1. **Mr. D. E. Anderson, P. Eng.**
2. **Miss C. A. Baker**
3. **Mr. F. P. Bernard**
4. **Mr. F. Bianco**
5. **Mr. G. Blair**
6. **Mr. R. Blakely**

7. Mrs. Charel Blakleys
8. W.T. Boyd
9. C.W. Brown
10. Mr. George A. Brown
11. Mr. Gordon W.E. Brown
12. R.C. Catt
13. Mr. J. Arthur Charpentier
14. Mr. Ronald Laird Cliff
15. Mr. E.P. Callison
16. Mr. Walter Davidson, M.L.A.
17. Mr. Peter De Boer
18. Mr. Peter Dyck
19. Eldon & Judy Elliott
20. Mr. W.T. Floyd
21. The John V. Friesen Family
22. Mr. William D. Friesen
23. Mr. Bruce H. Gelhorn
24. Mr. Dick Goldammer
25. Mr. John D. Graham
26. R.K. Graham
27. Dr. Andrew R.S. Gray
28. Miss H.D. Green
29. Mr. Joseph A. Groenewegen
30. G. Grover
31. Mr. Stephen Henningson
32. H. Henri
33. R.C. Henwood
34. Mr. Robert C. Hoglund
35. Norman, Carel and John Hopper
36. Mr. L.B. Howard
37. Mr. William H. Irvine
38. Mr. Wilfred Jenkins
39. Miss Elaine Johnston
40. Mr. David L. Killam
41. Dr. B.A. Leach
42. Mr. G. Blair Ledingham
43. Frank Leitner and Joan Barnes
44. G.N. Lloyd
45. Mr. Gordon Lowes
46. D. McCartney
47. Mr. Robert N. McCollum
48. F.J. MacDonald
49. Mr. Peter D. McWilliams
50. Mr. William L. Marr
51. Captain D.F. Mbir (Retired)
52. Mr. Dugald J. Morrison

- 53. **Mr. Veryl M Nouch**
- 54. **A.W 01 dhaver**
- 55. **Mrs. Muriel H Plommer**
- 56. **Mr. A.M Poje**
- 57. **Mr. Peter J. Power**
- 58. **D.F. Prentice**
- 59. **Captain R.K Rausch**
- 60. **R.B. Reavill**
- 61. **C. Riemer**
- 62. **Mr. Stephen Rogers, M.L.A.**
- 63. **Dr. Wm A. Rozecki**
- 64. **Mr. Bruce C.E. Russell**
- 65. **Mr. Peter W Schreiber**
- 66. **N.E. Sharpe**
- 67. **Mr. T. Siddon, M.P.**
- 68. **Mr. V.C. Simmons**
- 69. **Captain J.H. Spronk**
- 70. **Mr. Bill Stewart**
- 71. **Mr. Jim Stoddart**
- 72. **Mr. C.F. Taylor, B.E.M**
- 73. **Dr. Gordon E. Tonn**
- 74. **Mr. Horst Toporzysek**
- 75. **Mrs. Margareta Toporzysek**

- 76. **Joan Trout**
- 77. **I. Turbitt**
- 78. **W.S. Thomas**
- 79. **Mr. Bernard Wadsworth**
- 80. **Bert & Loretta Ward**
- 81. **W.M. Williams**
- 82. **R. Winkelman**
- 83. **Mr. Roger Yorke**

C Federal Government Agencies

- 1. **Environment Canada**
- 2. **Transport Canada**

D Provincial Government Agencies

- 1. **Ministry of Agriculture**
- 2. **British Columbia Agricultural Land Commission**
- 3. **Ministry of Environment**
 - **Fish & Wildlife Branch**
 - **Environmental Studies Division**
- 4. **Ministry of Transportation, Communications and Highways**

E Municipal and Regional Government Agencies

- 1. **The Corporation of Delta**

2. **Greater Vancouver Regional District**
3. **Village of Port McNeill**
4. **The District of Surrey**
5. **City of Vancouver**

F Companies

1. **V.W Aero-Flite Ind.**
2. **Aircair Services Ltd.**
3. **Air Canada**
4. **Airspan Enterprises Ltd.**
5. **AirWest Airlines Ltd.**
6. **Assoc. Flying Schools**
7. **Blue Sky Lease Ltd.**
8. **British Columbia Telephone Company, Flight Operations**
9. **Canadian Aircraft Products Ltd.**
10. **CP Air, Flight Operations**
11. **Collins Manufacturing Co. Ltd.**
12. **Conair Aviation Ltd.**
13. **Delta Cable Television Ltd.**
14. **The Delta Town & Country Inn**
15. **Glen River Industries Co. Ltd.**
16. **Gulf-Air Aviation Ltd.**
17. **Helicopter Welders of Canada Ltd.**
18. **Interior Mill Equipment Ltd.**
19. **International Aviation Terminals Ltd.**
20. **Okanagan Helicopters Ltd.**
21. **Quest Consultants Limited**
22. **R.R. Lake General Contractors Ltd.**
23. **SR Aviation Support Services Ltd.**
24. **Tracer 1 E.L.Ts. & Power Paks Ltd.**
25. **West Coast Air Services Ltd.**

APPENDIX B:

LIST OF PANEL DOCUMENTS

Transcripts of Public Meeting held in Delta on July 26, 1978, to hear comments on draft guidelines for the preparation of an Environmental Impact Statement (\$3.00) - Federal Environmental Assessment Review Office

A Compendium of Written Submissions on Draft Environmental Impact Statement Guidelines to the Environmental Assessment Panel, August 14, 1978 - Federal Environmental Assessment Review Office

Environmental Assessment Panel - Guidelines for Preparation of an Environmental Impact Statement on the Proposed Reactivation of Boundary Bay Airport, September 11, 1978 - Federal Environmental Assessment Review Office

Transport Canada - Environmental Impact Statement on the Reactivation of Boundary Bay Airport, February, 1979

Volume 1 - Summary

Volume 2 - Project Background

Volume 3 - Review of Related Developments

Volume 4 - Environmental Impacts

Volume 5 - Public and Government Perceptions

Transport Canada Commitments Pertaining to the Boundary Bay Airport E.I.S. Recommendations - June 1979

Harford, Kennedy, Wakefield Ltd. - Aviation Noise Impact Review Related to the Reactivation of Boundary Bay Airport, June, 1979. (Report prepared for Transport Canada)

Boundary Bay Airport Reactivation - A Compendium of Written Submissions to the Environmental Assessment Panel, July, 1979 - Federal Environmental Assessment Review Office

Transcripts of Public Meetings held in Delta between June 24, 1979 and June 28, 1979 to hear comments on the proposed reactivation of Boundary Bay Airport (six volumes) (\$5.00) - Federal Environmental Assessment Review Office

These documents can be viewed at the Federal Environmental Assessment Review Office in Vancouver, B. C.

APPENDIX C: PANELMEMBER BIOGRAPHIES

FERNAND G. HURTIBISE (Panel Chairman)

Mr. Hurtubise graduated in Chemistry from Carleton University in 1951. He later furthered his studies in Chemistry and Physics at several Canadian and American Universities. He is a fellow of the Chemical Institute of Canada and member of several other professional and scientific associations. He also holds the Diploma in Industrial Administration from the University of Geneva.

On graduation, he joined Canadian International Paper Research Limited and remained until 1971, at which time he was Manager of the Process Development Division. He then entered the Environmental Protection Service of the newly formed Department of the Environment and occupied various positions prior to his appointment as Director General, Environmental Conservation Directorate in 1975.

In 1976, Mr. Hurtubise was appointed Executive Chairman of the Federal Environmental Assessment Review Office.

AL A. BACH

Mr. Bach graduated from the University of Toronto in 1954 with a Bachelor of Arts degree in Mathematics and Physics. He joined the Geophysical Service Incorporated where he was involved in oil exploration in Western Canada, Australia, Italy and Indonesia. From 1960 to 1972, Mr. Bach was employed as a management consultant with the firm of Kates, Peat, Marwick and Co., and was elected a partner in 1969. He then joined Transport Canada as Director of Urban and Regional Transportation for three years, and Director-General, Current Policy Development for two years.

In August 1977 Mr. Bach was appointed Director-General, Highways, and in February 1978 he became Pacific Regional Administrator of the Canadian Air Transportation Administration.

V.C. (BERT) BRINK

Dr. Brink graduated from the University of British Columbia with a B.S.A. in 1934 and M.S.A. in 1937. He received his Ph.D. from the University of Wisconsin (Applied Plant Physiology) in 1940. Dr. Brink joined the U.B.C. faculty in 1940 as an instructor in the Agronomy Department, became full professor in 1951 and was Chairman of the Division of Plant Sciences from 1954 to 1970. He is a former member of the B.C. Land Commission.

Dr. Brink is a member of many organizations, including the Agricultural Institute of Canada, B.C. Institute of Agrology, Ecological Society of America, Vancouver Natural History Society and B.C. Federation of Naturalists. He is the author of over 50 technical and popular publications. Dr. Brink retired from the U.B.C. faculty in the Spring of 1978.

LASZLO I. RETFALVI

Mr. Retfalvi received a BSF degree from the University of British Columbia in 1961 and an MF degree in wildlife biology from the same university in 1965. He started working for the Canadian Wildlife Service in 1964 on bird hazards to aircraft at the Edmonton International Airport and with the exception of a short tour of duty with Parks Canada at Cape Breton Highlands National Park he has been in the employ of the Canadian Wildlife Service to the present.

Between 1966 and 1973, stationed at Edmonton, Mr. Retfalvi worked as a

research biologist on management problems of large mammals in the western National Parks. He transferred to C.W.S. headquarters in Ottawa in 1974 as Coordinator of Biological Impact Studies in connection with the proposed MacKenzie Highway.

He was appointed in 1976 as Head, Habitat and Ecological Assessment in the Pacific and Yukon Region of the Canadian Wildlife Service in which function he is serving to the present.

JONATHAN P. SECTER

Mr. Sectar received a Bachelor of Science in Agriculture degree from the University of British Columbia in 1965 and a Master of Science degree in wildlife biology from Utah State University in 1970. Before returning to Canada, he furthered his studies at the doctoral level in systems ecology, resource management, and environmental planning at Utah State University.

Mr. Sectar is Head of the Environmental Services Section of the British Columbia Ministry of Environment's Environmental Studies Division with responsibilities for environmental services relating to land and resource development in British Columbia.

From 1973 through 1977 he served as Senior Ecologist and Co-ordinator of Environmental Services for the Land

Management Branch of the B.C. Ministry of Environment. Previously (1971-73) he was employed as a Research Biologist with the Canadian Wildlife Service in Saskatoon working on the use of and demand for wildlife resources in Western Canada.

SUZANNE VEIT

Ms. Veit received a Bachelor of Social Sciences degree in Sociology from Ottawa University (St. Patrick's College) in Ottawa in 1965 and a Master of Social Work degree with a concentration in Social Policy from the University of British Columbia in 1972.

For the past five years, Ms. Veit has been working as a consultant. She is a partner in the firm Suzanne Veit and Associates. She has designed and implemented social impact assessment studies of large developments including hydro-electric, coal mining, and highway improvement projects. The firm has recently completed a major study for the Provincial Government on community stability and labour turnover in northern resource communities.

Prior to her work as a consultant, Ms. Veit served as Project Director for the Canadian Council on Social Development in Ottawa (1972-73). From 1968 to 1970, she was Co-ordinator of Student Services at St. Patrick's College and prior to that she spent two years in West Africa with cuso.

APPENDIX D:

LIST OF ADVISORS TO THE PANEL

1. **Dr. J.E. Piercy**
National Research Council
Ottawa, Ontario.
2. **Mr. R.D. Jakinchuk**
R.D. Jakinchuk Management
Associates Ltd.
Sidney, B.C.

3. **Dr. Peter L. Arcus**
Vancouver, B.C.
4. **Mr. W.C. McNeal**
McNeal, Hildebrand and
Associates Ltd.
Vancouver, B.C.
5. **Mr. G.A. Constable**
Canadian Resourcecon Limited
Vancouver, B.C.

APPENDIX E:

ACKNOWLEDGEMENTS

The Panel wishes to thank the general public, the aviation industry and government agency representatives for their contributions to the review, as well as the following Panel staff for their assistance during the review process:

John Herity	Panel Secretary (up until August, 1979)
Paul Scott	Panel Secretary (from August, 1979)
Gwen Saund	Secretariat support
Margaret Davidson	Secretariat support
Bud Elsie	Publicity and photography