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ACE 31/95
for advice

PROPOSAL TO OPTIMISE KAI TAK CAPACITY

PURPOSE

The Administration launched a public consultation exercise in December 1994 to assess public opinion on the proposed implementation of certain measures to optimise the operating capacity of Kai Tak Airport. The purpose of this paper is :

- (a) to advise Members of the outcome of the consultation process and the Administration's response thereto; and
- (b) to seek Members' support of the Administration's revised proposal to optimise capacity at Kai Tak by increasing aircraft movements within the airport's existing operating hours, subject to the introduction of additional noise mitigation measures to reduce the impact of aircraft noise disturbance on residents.

BACKGROUND

The Problem

2. Air traffic demand at Kai Tak continues to increase, yet there are virtually no useable runway slots available to satisfy new demand. Since winter 1993, the Civil Aviation Department (CAD) has been unable to accommodate all flight applications. During the 1994/95 winter scheduling season, CAD had to turn down some 300 flight applications for slots per week, equivalent to approximately 2.5 million passengers a year.

3. At present, airlines may programme a maximum of 29 aircraft movements per hour at Kai Tak. However, between 6.30 am - 7.00 am and between 9.00 pm - 11.30 pm an average of only 18 movements per hour are currently programmed. The overall daily slot utilisation currently stands at around 93%.

4. CAD have continued their efforts to identify measures to enable further increases in the handling capability of the runway. With the completion of a new runway exit later this year and improvements to the air traffic control system, it may be possible to increase the current level of aircraft movements that can be programmed to 30 movements per hour.

5. Unfortunately there is little more which can be done within the existing operating arrangements. The current summer schedule indicates that, on average, there are about 30 unused slots per day, of which 23 are in the period between 7.00 am - 8.30 am. While, in theory, this equates to about 210 (30 x 7) available slots per week, as the majority of these are in the early morning hours, they are of little practical use because of :-

- (a) scheduling difficulties : inbound passengers from nearby Asian cities would have to depart in the very early hours of the morning in order to arrive in Hong Kong;
- (b) turn-around times : while inbound flights from North America, and to a lesser extent Europe, can be programmed to arrive in the early morning, Hong Kong time, there is insufficient time for them to turn-around before 8.30 am;
- (c) early morning slots may be used for departures if sufficient aircraft have arrived the previous evening (or first thing in the morning). However, present operating restrictions as described in paragraph 3 above make it difficult to use these slots.

The Original Proposal

6. In light of the above constraints and the increasing demand, the Administration examined possible measures to increase the number and utilisation of slots available. The Administration invited the public's response to a proposal to optimise the airport's operating capacity by :

- (a) providing a total of 26 additional slots within the airport's existing programming hours (i.e. from 6.30 am - 11.30 pm) in the periods between 6.30 am - 7.00 am and between 9.00 pm - 11.30 pm; and
- (b) extending the present programming hours at Kai Tak by one hour from 11.30 pm to 12.30 am to provide 6 additional departure slots - thereby extending the airport's operating hours to 1.00 am.

7. The original proposal would make available an additional 32 slots per day as follows :

	<u>Existing Slots</u>	<u>Proposed Additional Slots</u>
Part a :		
(6.30 am - 7.00 am	9	6
(9.00 pm - 10.30 pm	33	10
(10.30 pm - 11.30 pm	12	10*
Part b:		
11.30 pm - 12.30 am	0	6*
	Total	32 per day

* Departures only

8. The proposal would not only provide additional capacity to meet part of the growing demand but would also improve the utilisation of the otherwise unuseable morning slots as additional aircraft would be able to arrive in the evening, overnight and subsequently depart using the available slots in the following morning.

Public Response to the Proposal

9. As at 30 June, the Administration have received over 100 submissions, including 8 from District Boards (DBs) and 73 from other groups and organisations. Some 54% of these responses were supportive of the proposal with representations from the business sector, including trade organisations, Chambers of Commerce, travel and tourism and related companies, unanimous in their support of the proposal which they considered would stimulate business, create employment opportunities, and bring substantial direct and indirect economic benefits to the community as a whole. 31% of the responses, including those from 3 DBs, residents groups and a number of non-business organisations, were opposed to any increase in the number of flights programmed. A further 12% of responses were opposed to the proposed one hour extension of the airport operating hours, but did not rule out some increase in capacity during existing operating hours. The remaining 3% had no strong views on the proposal.

10. At the Legislative Council sitting on 19 April 1995, the Honourable Martin Lee moved a motion on "Aircraft Movements at Kai Tak Airport" opposing, in totality, the Administration's proposal on the grounds that such measures would seriously affect residents living under the aircraft flight paths.

11. In reply to the Hon. Martin Lee's motion, the Secretary for Economic Services announced that, in the light of the strong body of public opinion, particularly concerns expressed about the possible impact on the health of residents, the Government had decided not to pursue the one hour extension to the operating hours of the airport. The Government also undertook to examine ways of reducing still further the noise disturbance to residents from both existing aircraft movements and the possible introduction of additional flights (i.e. part (a) of paragraphs 6 and 7). The motion was voted down.

NOISE MITIGATION MEASURES

12. In light of the views expressed during the course of the consultation process, the Administration has re-examined the proposal and undertaken a further, more comprehensive study of the noise effects on particular districts and noise sensitive receivers caused by aircraft movements. Given the operational constraints at Kai Tak, the only way of increasing capacity within the parameters of the airport's existing operating hours, is to increase the number of programmed aircraft movements. At the same time, we are conscious of the need to do all we can to reduce the impact of aircraft noise disturbance on affected residents to a minimum. A package of additional noise mitigation measures has been identified which will be introduced to reduce still further the impact of disturbance caused by both existing flights and the proposed additional movements.

Existing Measures

13. There are a number of noise mitigation measures adopted to minimise the aircraft noise disturbance caused by existing flights. These will continue to apply, as follows :

- (a) no airlines are permitted to programme their arrivals after 10.30 pm - a measure of particular benefit in minimising the noise disturbance to the residents of North Kowloon, as normally about 90% of aircraft arrive in this direction;
- (b) all aircraft programmed to operate after 9.00 pm must comply with the most stringent noise standards laid down by the International Civil Aviation Organisation (ICAO);
- (c) all airlines must adopt the ICAO noise abatement procedures for take-off;
- (d) late evening aircraft movements are, in particular, strictly monitored and appropriate action is taken with the airlines concerned if their performance does not match scheduled times; and
- (e) since October 1994, the Civil Aviation (Aircraft Noise) Ordinance prohibits the use by Hong Kong operators of aircraft which do not meet the stringent noise requirements recommended by ICAO. This restriction will be extended to all airlines operating to Kai Tak as of November this year.

Additional Measures

14. More recently and as a result of public comments received on the Administration's proposal, the Director of Civil Aviation (DCA) and the Director of Environmental Protection (DEP) have undertaken further studies and identified a number of additional noise mitigation measures which will help to reduce further the noise impact of disturbance caused by both the existing flights and the proposed additional movements, as follows :-

6.30 am - 7.00 am

- (a) we propose that to help minimise noise disturbance to residents of North Kowloon, only arrival aircraft will be programmed between 6.30 am and 7.00 am and that they be required to approach over the sea via the Lei Yue Mun Gap during this half hour period, whenever in the judgement of the air traffic controllers and airline pilots it is safe to do so (subject to acceptable tail winds and weather minima). Whilst this arrangement will affect up to 4,000 residents of Hong Kong East at "wake-up" noise levels, the overall effect of aircraft noise is reduced.

9.00 pm - 10.30 pm

- (b) despite the fact that no arrivals are permitted to be scheduled after 10.30 pm, some concerns have been expressed by residents of Kowloon City and Sham Shui Po districts that the proposed increase in the number of arrivals would increase the number of late evening landings over North Kowloon. In order to allay these concerns, we intend to maximise the utilisation of available slots in the 9.00 pm - 10.00 pm hour for arrivals, before granting approval for programming additional arrivals in the 10.00 pm - 10.30 pm half hour. This will reduce the likelihood of delayed arrival aircraft disturbing North Kowloon residents.

10.30 pm - 11.30 pm

- (c) Over 90% of the departures leave over the Lei Yue Mun Gap and thus have a noise effect on the residents in Hong Kong East, Kwun Tong and Kowloon City. It should be noted, however, that even with the 10 proposed departures in the 10.30 pm - 11.30 pm hour, the total number of aircraft movements after 9.00 pm is still 7 fewer than it was during the period before 29 October 1993 when the "opposite runway" mode of operation was in place (i.e. which required arrivals and departures to operate over the Lei Yue Mun Gap in the early morning and late evening).

Night Closure

- (d) To reduce further noise disturbance caused by late night movements, the Administration is considering the possibility of introducing an "absolute curfew" on all aircraft movements for a certain number of hours per night, save for emergency situations, to ensure a "guaranteed" quiet period for residents under the flight path.

Noise Complaints Office

- (e) To establish a noise complaints office within CAD, with participation from EPD, for recording, investigating and taking appropriate action on aircraft noise complaints from the public.

Monitoring System

- (f) Develop an aircraft noise, flight track and altitude monitoring system. The system, which may include additional noise monitoring stations in noise sensitive districts, would identify the flight track and noise level generated by each aircraft movement to ensure that noise abatement procedures and scheduled times are strictly complied with by the airlines. DCA would be in a position to identify and take appropriate action against offenders.

THE REVISED PROPOSAL

15. We consider that the package of noise mitigation measures and the operational arrangements, taken collectively, will alleviate the additional noise disturbance caused by the proposed increase in aircraft movements. In order to maintain Hong Kong's position as a regional and international centre of aviation and in the long term economic interests of the territory, the Administration recommends we should proceed with the proposal to introduce measures to enhance Kai Tak's capacity. Specifically, we recommend that the proposal to increase the number of programmed aircraft movements in the hours between 6.30 am - 7.00 am and between 9.00 pm - 11.30 pm be implemented beginning this winter scheduling season, as described in paragraphs 6(a) and 7(a).

ENVIRONMENTAL IMPLICATIONS

16. According to the Environmental Protection Department, the noise impact of flight movements at Kai Tak can be categorised into two types :

- (a) Noise Annoyance; and
- (b) Wake-Up-From-Sleep

17. The aggregate of "Noise Annoyance" due to aircraft flyovers is best described by the Noise Exposure Forecast (NEF), a number which takes into account the duration of flyovers, maximum noise levels, tonal characteristics and the number of movements. NEF 30 is the planning standard adopted for use at Kai Tak in respect of residential developments. As a result of withdrawing the proposed one hour extension to the operating hours, the number of additional residents affected by the enlarged NEF 30 noise footprint will fall from 58,000 to 45,000.

18. "Wake-Up-From-Sleep" noise levels are those above 82 dB(A). Generally speaking, the landings and take-offs of Boeing-747s produce such noise levels. Their landings affect some 250,000 people in Sham Shui Po and Kowloon City and their take-offs affect up to 90,000 people in Hong Kong East, Kwun Tong and Kowloon City at "wake-up-from-sleep" noise levels. 10% of these landings reach a "shocking" noise level of over 105 dB(A) in the worst area of Kowloon City. However, DCA envisages that less than one-third of the proposed 26 additional movements would be B747 aircraft. The rest would be of the quieter type of aircraft (e.g. B777*, A330, A340, B767) with a noise level of 3-6 dB(A) lower than the B747 aircraft. The "wake-up-from-sleep" noise levels of these aircraft will affect fewer residents than the B747 aircraft. DEP estimates that their landings will affect 187,000 people in Sham Shui Po and Kowloon City and their take-offs 33,000 people in Hong Kong East, Kwun Tong and Kowloon City.

* to be operated to Hong Kong by certain carriers after March 1996.

19. The proposed increase in flight movements will affect particular districts as follows :-

(a) Kowloon City and Sham Shui Po Districts

The additional noise impact on the residents in these two districts mainly comes from an increased frequency of arrivals between 9.00 pm and 10.30 pm from an average of one every 5 minutes to one every 3 minutes. The aircraft operating in this period will themselves be no noisier than those at present, they may be on average a little quieter due to the new generation engines and twin-engined aircraft replacing three- and four-engined aircraft. CAD strictly monitors the time-keeping performance of late evening flights. The number of delayed arrivals after 10.30 pm in the first quarter of 1995 was 2.6 per evening on average and over 80% of which arrived before 11.00 pm. In other words, the frequency of the aircraft noise disturbance to the residents in North Kowloon after 11.00 pm will be minimised.

(b) Hong Kong East, Kwun Tong and Kowloon City Districts

Residents of Hong Kong East and Kwun Tong will be affected by an increased frequency of a) arrival aircraft in the morning period 6.30 am - 7.00 am from an average of one every 3 minutes to one every 2 minutes and b) departure aircraft affecting mainly Hong Kong East in the late evening period 10.30 pm - 11.30 pm. from an average of one every 5 minutes to one every 3 minutes. This will also have an impact on residents in parts of Kowloon City, near the airport

However, it should be noted that :-

- (i) "Wake-up-From-Sleep" level of noise of landing aircraft in the morning will only marginally affect residents living in the sea-front blocks of Heng Fa Chuen in Hong Kong East and scattered low rise houses in Lei Yue Mun. DEP assessed that the number of residents affected would be up to 4,000; and
- (ii) even taking into account the proposed increase of 10 additional departures between 10.30 pm - 11.30 pm hour, the total number of aircraft movements operated over the Lei Yue Mun Gap after 9.00 pm is still 7 fewer than the total (arrivals and departures) during the period before 29 October 1993 when the "opposite runway" mode of operation was in place.

ASSESSMENT

20. We have looked carefully at the options available. CAD estimate that they will have to turn down approximately 400 applications for slots per week in the forthcoming winter scheduling season 1995/96. The revised proposal will provide an additional 182 slots (26 x 7) per week thereby accommodating, in part, the growing air traffic demand placed on Kai Tak. The proposal will not only increase the number of slots available each day, but would have the added benefit of improving the utilisation of the otherwise unused morning slots as incoming flights would have sufficient turn-around time to depart using the available morning slots before 8.30 am. Likewise, additional arrivals in the evening would enable aircraft to overnight at Kai Tak before departing the following morning.

21. If we do not take any steps to provide additional capacity, there are significant disbenefits to the community at large. An efficient airport is essential to our manufacturers, traders and exporters, as well as our tourism industry. It also offers an important service to the travelling public and business community. The airport currently provides direct employment for some 26,000 people and many times more employed in aviation, tourism and travel-related industries such as freight forwarders; air cargo handlers; ground tour operators and travel agents. Increases in traffic and passenger volumes will create additional opportunities for employment in these fields. The Hong Kong Tourist Association estimates, for example, that for every 50 visitor arrivals, one new job opportunity will be created locally. The proposed increase in capacity will bring in another 0.5 million visitors per year and would therefore have the potential to create 10,000 new jobs.

22. On the other hand, we estimate that if more capacity is not made available by introducing the additional 26 slots a day, the economy will forfeit some HK\$3.3 billion per annum in visitor receipts, as well as revenue from aircraft landings (HK\$80 million) and air passenger departure tax (HK\$45 million). Businesses may face constraints to growth and be unable to meet consignment dates. Traffic turned away from Kai Tak is increasingly likely to be accommodated elsewhere. It will be difficult to re-capture the diverted air traffic in the short term and this demand may not return to Hong Kong, even after additional capacity becomes available with the opening of the new airport. The development of new or expanded air links may also be frustrated.

23. The Administration has honoured its commitment to undertake a full and comprehensive consultation exercise to assess the public's response to the proposal. We have continued to make positive efforts to identify means to reduce the impact of aircraft noise on those living under the flight path. DCA will introduce operational and programming arrangements, wherever possible, to help minimise the noise disturbance caused by the additional movements in the early morning and late evening periods. A more sophisticated aircraft noise, flight track and altitude monitoring system will be developed and a mechanism will be established for receiving and handling complaints from the public.

Advice Sought

24. Members' views are sought on the Administration's revised proposal to enhance the capacity of Kai Tak, beginning this winter scheduling season which commences on 29 October, and the package of measures to reduce further the noise disturbance from both existing and additional aircraft movements.

**Economic Services Branch
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