

(TRANSLATION)

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Convenor of Aircraft Noise Concern Committee
Flat B, 2/F, Kapok Mansion,
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31 August 1998

Dear Mr CHAN,

Aircraft Noise

I refer to your letters to the Chief Executive dated 14 July and to the Secretary for Economic Services dated 15 July. An interim reply was issued by this Bureau to you on 16 July. After consulting with the relevant Government bureaux/departments, I am authorised to issue a consolidated comprehensive reply as follows -

(1) **Flight path**

At the meeting of the Legislative Council Panel on Environmental Affairs on 18 August, we explained in detail the reasons why some of the flight paths proposed in the 1991 consultant study had been adopted but not the others. You were in attendance at the meeting that day. For details, please refer to part (d) and Annex IV of the document tabled at the meeting (copy of the document attached to this letter).

(2) **Time for taking off and landing**

The new airport is designed for 24-hour operation in order to cope with the demand for air transport services and maintain Hong Kong's status as an international and regional aviation centre. Except a small number of

residents in North Lantau (predominately in Sha Lo Wan), other noise sensitive receivers (e.g. residential developments and schools) are outside the Noise Exposure Forecast (NEF) 25 contour and are in compliance with international environmental standards. After the opening of the new airport, the Civil Aviation Department and the Environmental Protection Department have conducted field measurements of the noise levels with parties such as the concerned Provisional District Boards in districts such as Shatin and Kwai Tsing. The results also indicate that the levels of the aircraft noise thereat are in compliance with international standards. As such, the government has no intention of imposing restriction on the taking off and landing of aircraft at the new airport.

(3) **Penalty**

Provisions for matters relating to aircraft noise, including the possession of a noise certificate for any civil aircraft using the Hong Kong International Airport, are contained in the Civil Aviation (Aircraft Noise) Ordinance (Cap.312) and the Civil Aviation (Aircraft Noise) (Certification) Regulations (Cap.312, sub. leg.). If the Director of Civil Aviation believes that any aircraft fails to meet the requirement, he may give direction that he is not to permit the aircraft to make a flight. Any operator of an aircraft who fails without reasonable excuse to comply with such direction is liable to a fine of \$50,000 and to imprisonment for 6 months.

(4) **Aircraft noise and flight track monitoring system**

The Civil Aviation Department has installed a noise and flight track monitoring system which will validate noise contours and collect noise level data in affected areas. The data obtained will be used to ensure that aircraft do not deviate from their assigned routes, thus avoiding further noise exposure for residents.

(5) **Abatement measures**

The noise abatement measures provided for the residents of Sha Lo Wan who are subject to aircraft noise which is considered to be above the standards are set out in part (e) of the document attached to this letter.

Yours faithfully,

(Howard LEE)
for Secretary for Economic Services

Response to questions contained in
LegCo Secretariat's letter dated 31 July 1998

- (a) **To assess the number of persons affected by aircraft noise and the noise impacts when Chek Lap Kok Airport operates with a single runway now, two runways in the near future, and at designed capacity.**

Similar to the territory-wide approach for assessing environmental noise impact of road traffic and train, the noise impact of the operation of the airport is assessed on the basis of the cumulative noise over a period of time instead of the noise of a single event. In line with the practice in many developed countries, Noise Exposure Forecast (NEF) contours are used for assessing the noise impact of the operation of the new airport. The Hong Kong Planning Standards and Guidelines stipulate that for general planning purpose, noise sensitive users such as domestic and educational premises should not be located within the NEF 25 contour for the new airport (a higher standard as against NEF 30 for Kai Tak Airport). This is in line with the standards adopted by many developed countries.

According to the Environmental Impact Assessment completed in 1992 and its update completed in 1998, only a very small number of residents in North Lantau are within the coverage of the NEF 25 contour of the new airport at design capacity and regarded as subject to aircraft noise beyond acceptable level from a planning and land use point of view. The estimated population within the NEF 25 contour for the new airport and for Kai Tak Airport is as follows-

	<u>New airport</u>	<u>Kai Tak Airport</u>
Population within NEF 25 contour	under 200 people	about 760,000 people

- (b) **To inform members of the public the proposed alignment of flight path for the second runway.**

Taking into account all the relevant considerations, the Civil Aviation Department's Airspace Planning Consultant has recommended the main flight paths for the segregated mode and integrated mode of dual runway operation. These flight paths are contained in the New Airport Master Plan Environmental Impact Assessment Update 1998. Copies are attached at Annexes A and B. The segregated mode of operation would be adopted during the initial operation of the second runway. The integrated mode entails more sophisticated coordination of air traffic for dual runway operation and with neighbouring airports. The flight paths will need to be refined

continually in the light of operational experience at the new airport. This mode would be introduced only after the Civil Aviation Department has gained more experience in dual-runway operation and when traffic demand requires increased runway capacity.

(c) To provide information on all possible alignments of flight paths which are in conformity with international standards and the reasons for selecting the current alignment.

The flight paths for the new airport were developed through careful studies in accordance with international standards and recommendations. Their development took into account runway alignment, terrain environment and obstacle clearances, location of navigation aids, aircraft operating criteria, noise considerations, airspace co-ordination with nearby airports, etc. Annex C illustrates the flight path options recommended by the New Airport Master Plan Consultant in 1991 and Annex B illustrates those recommended by the Civil Aviation Department's Airspace Planning Consultant in 1994 following more in-depth studies.

Out of the 24 options recommended by the Master Plan Consultant, 15 have been adopted, with or without modifications, for further development into flight paths for the new airport by the Airspace Planning Consultant and Civil Aviation Department. The rest have been discarded because of safety concerns and operational problems arising from terrain constraint or conflict with the flight paths of nearby airports. The flight paths recommended by the Airspace Planning Consultant will be adopted by the Civil Aviation Department generally subject to some refinement. More detailed descriptions of the acceptability or otherwise of these options are set out in Annex D.

(d) To make remeasurements with affected residents on aircraft noise levels in areas under the flight path.

The following arrangements have been made in respect of remeasurements with affected residents on aircraft noise level in areas under the flight path:

- (i) measurement in Shatin with a member of Shatin Provisional District Board on 7 August 1998.
- (ii) another measurement in Shatin pending advice from another member of Shatin Provisional District Board on the timing.
- (iii) measurement in Kwai Chung and Tsing Yi with the Kwai Tsing Provisional District Board on 12 August 1998.
- (iv) measurement in Ma Wan with a resident of Ma Wan on 13 August 1998.

The results of the above measurements would be provided once they are available.

(e) To introduce mitigation measures to alleviate noise impacts on residents of Sha Lo Wan including relocating the affected residents.

The Government and the Airport Authority have agreed to offer noise mitigation measures for Sha Lo Wan as follows-

- (i) noise mitigation measures (for the installation of double-glazed windows and air conditioners) would be provided to owners of small houses within the village environment and owners of licensed structures in Sha Lo Wan within the 25 NEF contour.
- (ii) for administrative convenience and to give villages maximum flexibility, villagers would be given a lump sum cash payment in lieu of arranging the actual installation of such measures. The cash compensation would be at a standard rate of \$55,000 per storey. The payment will be on an ex-gratia basis and will not include recurrent or replacement costs. This practice is in line with the Government's existing practice in providing noise mitigation to residents who are adversely affected by traffic noise arising from the use of a new road.
- (iii) eligible property owners will be screened via an application process being coordinated by District Officer (Islands). It is anticipated that payments could be made to residents within a few weeks after receipt of appropriate documentation.
- (iv) apart from noise mitigation measures, owners of all existing licensed structures could opt, on a voluntary basis, for clearance. Standard exgratia allowances and rehousing, subject to normal eligibility criteria would apply. This policy is only for licensed structures since it would go beyond existing policy and practices to compulsorily relocate permanent domestic structures on the basis of noise. To do so would have extremely serious policy and resource implications for the community.

(f) To consider prohibiting landing or taking off of flights at the New Airport during a certain period of a day.

The new airport is designed for 24-hour operation in order to cope with the demand of air transport and maintain Hong Kong's status as a centre of international and regional aviation. Except a small number of residents in North Lantau, other noise sensitive receivers (for example residential developments and schools etc.) are outside the NEF 25 contour and this is in

compliance with international environmental standards. For this reason, the Administration has no intention of restricting the taking off and landing of aircraft at the new airport.

- (g) To release the minutes of meetings of the Advisory Council on the Environment at which the findings of the Environmental Impact Assessment Study on the New Airport were discussed, and to advise the Administration's undertaking on implementation of noise mitigation measures at such meetings.**

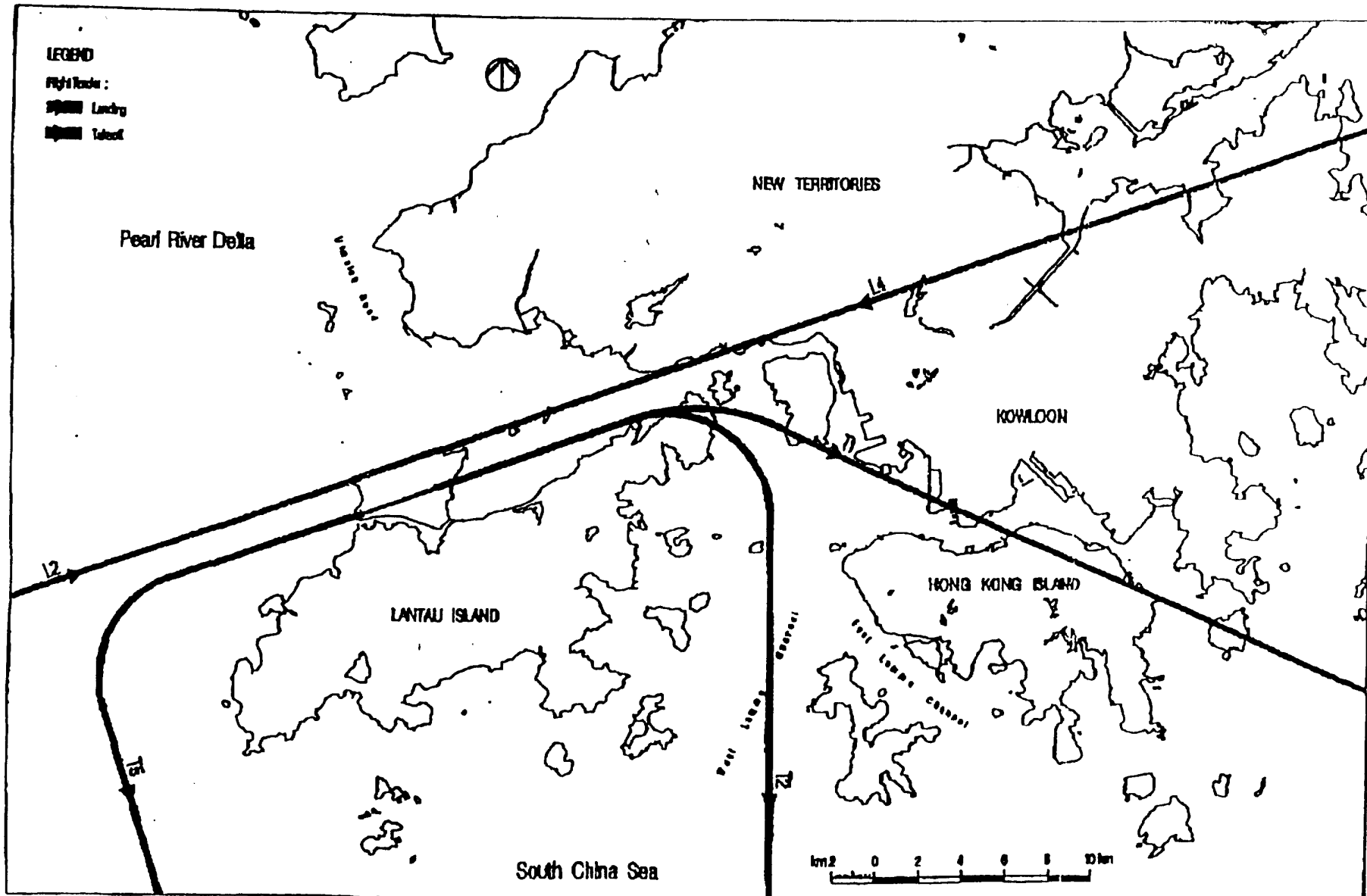
Minutes of all meetings of the Environmental Pollution Advisory Committee and the Advisory Committee on the Environment at which the new airport Environmental Impact Assessment has been discussed are provided in the attached bundle together with copies of the papers presented by the Administration to these meetings. These set out the Administration's views on mitigation measures.

- (h) To provide information pertinent to the subject of aircraft noise in respect of the New Airport such as consultancy reports and findings of investigations, if any.**

One set each of the following reports are enclosed in the attached bundle-

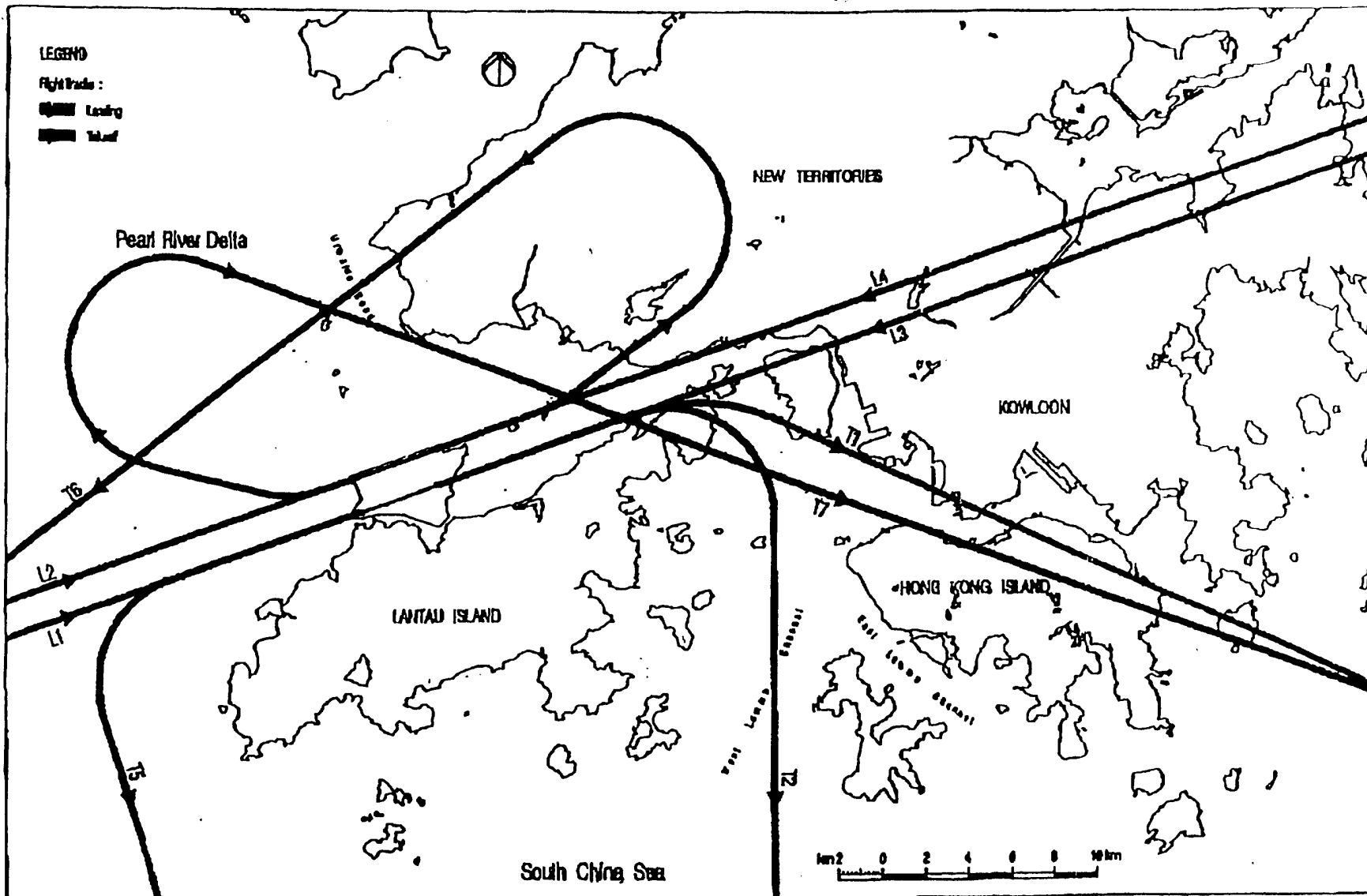
- New Airport Master Plan Environmental Impact Assessment-December 1991
- New Airport Master Plan Environmental Impact Assessment Supplement - October 1992
- New Airport Master Plan Environmental Impact Assessment Update- February 1998

Economic Services Bureau/Planning, Environment and Lands Bureau
August 1998

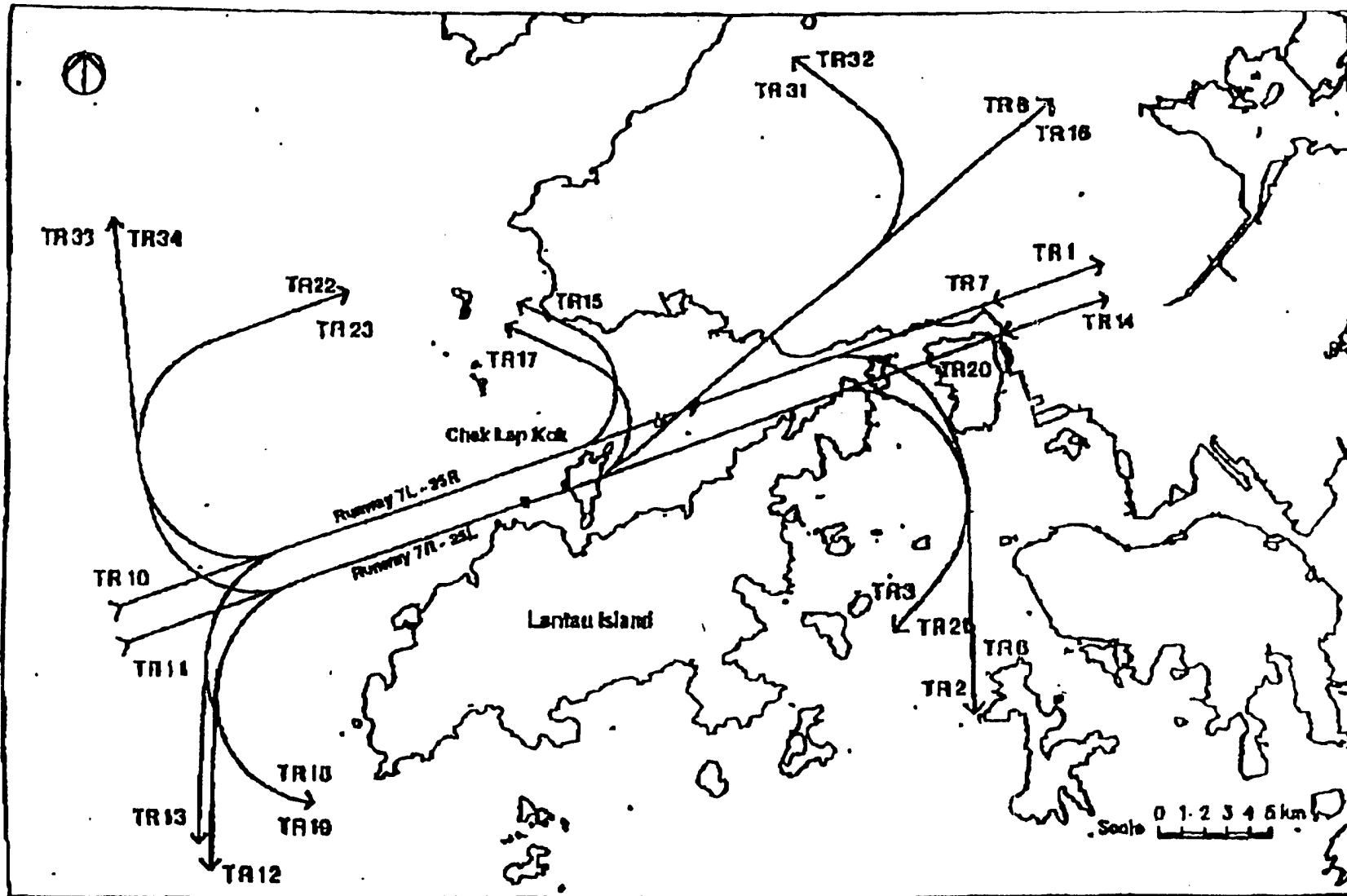


Revised Flight Tracks for Segregated Mode Exhibit 11.1

Annex I



Revised Flight Tracks for Integrated Mode Exhibit 11.2



10-10

Flight Tracks Exhibit 10.1

Annex 10

Flight Path Options for the New Airport

First Runway

Arrival for Runway 07R

TR11 (1991) or
L1 (1994) This is the only option recommended and is adopted.

Departure for Runway 07R

TR2 (1991)
or T2 (1994) This is adopted.

TR3 (1991) or
T1 (1994) TR3 is similar to TR2. The 1994 Consultant amended this flight path to T1 so as to segregate traffic departing to the north and east from those departing to the south. This will reduce conflicts between arriving and departing traffic at the south east of the airport, thereby enhancing safety and efficiency of airspace utilisation. T1 is adopted.

TR14, TR 16 (1991) There are hills on both sides of these flight paths, requiring steep climb gradients in order to comply with the obstacle clearance criteria prescribed by the International Civil Aviation Organization, which may not be able to be achieved by long haul aircraft carrying heavy load. They do not have a clear advantage over T1 or T2 in terms of noise impact.

TR17 (1991) This flight path requires steep turns and operate at close proximity to tall hills at Castle Peak. It is acceptable for light aircraft operating on visual flights but not suitable for commercial aircraft using the airport.

TR32 (1991) This flight path is too close to the flight paths of the Shenzhen Airport and therefore not acceptable from an air safety point of view. It also does not have a clear advantage over TR2 in terms of noise impact.

Arrival for Runway 25L

TR20 (1991) or
L3 (1994) This is the only option recommended and is adopted.

Departure for Runway 25L

TR12, TR18 (1991) or T5 (1994)	These are adopted.
TR22, TR33 (1991)	These flight paths conflict with those of the Macau Airport and Shenzhen Airport and do not have a clear advantage over TR12 and TR18 in terms of noise impact.

Second RunwayArrival for Runway 07L

TR10 (1991) or L2 (1994)	This is the only option recommended and will be adopted.
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Departure for Runway 07L

TR6 (1991)	This will be adopted.
TR21 (1991)	This is similar to TR3 for Runway 07R and will be modified as per T1 to serve as one of the departure flight paths so as to segregate traffic departing to the north and east from those departing to the south. This will reduce conflicts between arriving and departing traffic at the south east of the airport, thereby enhancing safety and efficiency of airspace utilisation.
TR1 (1991)	There are hills on both sides of these flight paths, requiring steep climb gradients in order to comply with the obstacle clearance criteria prescribed by the International Civil Aviation Organization, which may not be able to be achieved by long haul aircraft carrying heavy load. It does not have a clear advantage over TR6 or TR21 in terms of noise impact.
TR8, TR31 (1991) or T6 (1994)	Although these flight paths have a steep climb gradient which may not be acceptable by long haul flights carrying heavy load, for efficient dual runway operation, consideration would be given to adopting this flight path for those aircraft which can achieve the required climb gradient.
TR15 (1991)	This flight path requires steep turns and operates at close proximity to tall hills at Castle Peak. It is acceptable for

light aircraft operating on visual flights but not suitable for commercial aircraft using the airport.

Arrival for Runway 25R

TR7 (1991) or
L4 (1994)

This is the only option recommended and will be adopted.

Departure for Runway 25R

TR13, TR19 (1991)

These will be adopted as two possible flight paths.

TR23 (1994) or
T7 (1994)

This flight path would be developed into a departure flight path.

TR34 (1991)

These flight paths conflict with those of the Macau Airport and Shenzhen Airport and will not be adopted.

Aircraft Noise Impacts on Residents

In its letter to the Hon. Christine LOH, Chairperson of the LegCo Panel on Environmental Affairs, the Aircraft Noise Concern Committee inquired about the criteria adopted by the Civil Aviation Department (CAD) in using Runways 25 and 07 at the new airport under different wind directions and strength. CAD's response is as follows-

In July, when Hong Kong was under the influence of the southwest monsoon, Runway 25 was used most of the time.

In general, the choice of runway depends on the prevailing wind direction and strength. Nevertheless, there are many other factors which need to be taken into consideration as well, including the prevailing traffic volume, the number of approaching aircraft which have been sequenced in the airspace, the effects of rain cloud and poor weather in the vicinity of the airport, the wind and weather conditions forecast in the coming hours and the operational performance of the aircraft. As regards changing the runway to another direction in the course of operation, we shall ensure, in the first place, that the shift would not pose potential risk to aircraft such as head-on situation. When traffic is heavy, the process involved will be more complicated and time consuming. Moreover, the changes in runway direction cannot be too frequent lest flight safety and runway capacity would be affected. As such, when a more frequent change of wind direction and strength is expected, air traffic controllers will be very cautious in deciding the runway direction. The choice of runway is certainly subject to other factors. For example, during the initial stage of new airport operation, the integration with ground activities was also a factor for consideration.

At the meeting of LegCo Panel on Environmental Affairs on 18th August, the Government remarked that CAD would, as far as possible, arrange for aircraft arriving during the small hours from the southwest, subject to acceptable wind direction and strength as well as the pre-requisite that flight safety would not be compromised. This aims to reduce the number of aircraft overflying districts like Shatin, Kwai Chung, Tsuen Wan & Tsing Yi.