

**Comment on the Environmental Impact Assessment Report of
Expansion of Hong Kong International Airport into a Three-Runway System
To the Legislative Council of Hong Kong
by Airport Development Concern Network**

August 16, 14

Introduction

Airport Development Concern Network has established in 2011. Since then, our Network has been addressing issues and concerns with the “3 runway system” of the Hong Kong International Airport.

The network has submitted a comment to the Register Office of the EIA Ordinance on June 11, 2012. The comment has listed out 9 recommendations that the Director of Environmental Protection should consider when issuing the Project Brief to the Airport Authority of Hong Kong, the project proponent. A subsequent document, the discussion paper on improving the efficiency of two runways of the HKIA, has been submitted to the Register Office on June 12, 2012.

Our Response to the Project Brief

The Director of Environmental Protection has issued the Project Brief of Environmental Impact Assessment Report to the AAHK in August 2012.

It is unfortunate that some of our recommendations have not been addressed by the Director when issuing the Project Brief to the AAHK. Recommendations that not been considered by the Director has been shown as below.

Recommendation 3

The project proponent (AAIHK) should conduct a subsequent noise impact analysis (of the project) when the airspace and flight tracks have been constrained. The analysis should be made to consider different operation modes.

Recommendation 4

We demand the project proponent to project a Noise Exposure Forecast (NEF) in 5-year interval from the finished date of the project to mature date of the operation(2061). The NEF should indicate the interim arrangement of flight tracks.

Recommendation 8

A noise impact analysis should be conducted with scenarios that planes have all been using GPS-based navigation system (PNP/RNP) and part of the planes to be used so as to contrast noise impact when the mentioned system has not been used. All the recommended scenarios should consider different flight track arrangements as well as operation modes.

Recommendation 9

The project proponent should add the feasibility study on ‘noise profile point scheme’ as well as ‘reward and penalty mechanism on extended parking slots’ when the project is constructed and in use. Such study should reference from similar schemes implemented in San Francisco International Airport (KSFO), London Heathrow Airport (EGLL) as well as similar mechanisms taken place in other international airports.

Our network believes that the Environmental Impact Assessment Report will only be comprehensive if above recommendations as well as mentioned ones in our submitted comment is considered and adopted. It is unfortunate that the Director has not adopted the recommendations when issuing the project brief.

Our Response to the EIA Report

The Register Office of the EIAO has published the EIA Report submitted by AAHK on June 20, 2014. To respond to the EIA Report, Airport Development Concern Network has stated the comments in the following.

In 1.1.1.2 and 1.1.1.3 of the Report, the project proponent stated the opinion poll has been conducted by them and to be analyzed by the Social Science Research Center of the University of Hong Kong.

We challenged the validity of the survey as the design of the survey has been made by the project proponent instead of SSRC of HKU or other independent authorities. In particular, AAHK has not listed out other viable options such as increasing dual-runway capacity to beyond 68 Air Transport Movements (ATMs) per hour. It is also noted that the AAHK has not put other options proposed by the NATS, one of the consultancies that served the AAHK on airport planning, in the consultation process as well as in the survey. Therefore, we challenge the validity of the claims that over 73% of the surveyed population supports 3 Runway System is biased.

Scope

3.2.1 (iii) (iii) potential noise impact on sensitive receivers due to the Project and associated works, including impact from construction equipment during construction and operational noise impact from aircraft, road traffic, railways, marine vessels and fixed noise sources

(xii) potential health impacts on human due to the operation of the Project;

In 3.3.1 of the Project Brief, it states *"The Applicant shall provide information on the need of the Project, including the purpose and objectives of the Project, and describe the scenarios with and without the Project."*

Our network has found the EIA Report has not made their best effort to describe scenarios with and without the Project.

In 2.3.3 of the EIA Report, the project proponent stated that practical maximum capacity of current 2 runways is 68 ATMs. Our network has found it questionable. According to the New Airport Master Plan - Planning which has been published in 1992, the maximum practical hourly capacity estimates of 2 runways is 86 ATMs per hour. It has also stated the Standard Busy Rate is 82 ATMs per hour. The above figure has been conducted by the consultant which produced the NAMP-Planning Report by using SIMMOD analysis.

We found that the project proponent has not made their best effort to achieve the designed capacity as AAHK has not commenced subsequent constructions and planning stated in the NAMP Report. Recommendations including addition of flight tracks, leveling some of the terrains in northeastern Lantau, advancing navigation system as well as switching the mode of operation of the HKIA from segregated mode to complete independent mode.

For the reasons above, our network strongly believes that the project proponent does not peruse the original plans of the HKIA so as to utilize the facility as much as possible before putting this Project.

The NAMP-Planning Report is attached with this submission.

To respond to 2.3.4.3 of the EIA Report, a study on the air traffic, passenger demographics as well as cargo handling has been conducted by Green Sense, Community Development Initiative and our Network.

Data of 1,000,344 scheduled flights between 2010 to 2012 has been retrieved on the timeslot website of HKIA (www.hkgslot.gov.hk) in summer 2013.

The study concluded that passenger flights using narrow-body carrier has been increased from 37.05% to 38.75% while use of wide-body jets has dropped from 62.95% to 61.25%. Average seats per flight has dropped from 257.25 to 254.79. Subsequently, the rough load factor per passenger flight has dropped from 76% to 73%.

The presentation of the study has been attached with this submission.

Our network has found that 2.3.6 of the Report has neglected the concern of flight tracks when taking relevant factors into consideration.

As the amount of active flight tracks is crucial for achieving the proclaimed runway capacity of the Project, 2.3.6 of the Report should layout projected ATMs in scenarios of PRD airspace putting adverse effects to the Project (i.e. putting some flight tracks cannot made active) thus the reduction of ATMs.

This claim is actually happening as most of the flight tracks northbound towards PRD airspace or southbound to HKIA from PRD stated in NAMP-Planning from remain inactive because of the restrictions imposed by relevant civil aviation and military authorities of the People Republic of China.

Our network questioned the claim of only 21% of flights using PRD airspace hence the restriction of PRD airspace has minor effects towards the Project mentioned in 2.3.6.6 of the EIA Report as there aren't any breakdowns to be shown.

Indeed, Wilson Fung, the Executive Director of the AAHK, has repeatedly admitted the restriction of PRD airspace would be affecting the efficiency of HKIA in public events between 2011 and 2012. There were media reports covered his view.

In 2.3.6.6 of the EIA Report, the project proponent states that 'There is a plan agreed among relevant civil aviation authorities of Mainland, Macao and Hong Kong to address the issues relating the optimizing PRD airspace. It is not expected that growing usage of PRD airspace would affect the viability of capacity expansion at HKIA'.

Our network strongly believes that the use of PRD airspace is the biggest and most important assumption of the capacity of three-runway system. It is because the AAHK has assumed a number of inactive or unusable flight tracks listed in NAMP-Planning will become active by 2020 when the Project is in operational phase.

The People Liberation Army has the final say on the PRD airspace. Without endorsement of the plan which agreed among civil aviation authorities of PR China, Macau SAR and Hong Kong, such plan would not become reality.

We challenge the AAHK of not revealing the full text of the agreement as well as relevant plan, timetable and roadmap to ensure the PRD airspace is reserved for the Project. Unlike other multilateral agreements made by the SAR Government of Hong Kong, the agreement has yet been documented or gazetted. Our network has serious doubt towards the plan as if the PLA has not endorsed so.

In a closed-door meeting with the management of AAHK after the consultation, Stanley Hui, the CEO of AAHK, said that there were not any 'red tape document' (紅頭文件), a symbol that the document has made official by the state, available for public inspection.

Therefore, our network has strong reservation on the assumptions of flight tracks made by the proponent is valid.

For the above, our network has serious doubts on 2.4.5.3 as preferential use of flight tracks might not become active, resulting dramatic changes on flight tracks thus subsequent noise impact to populated areas.

It is also note that the mix of planes using new RNP or Performance Based Navigation system has not been considered carefully. Although modern and future airframes are likely to equip GNSS, granting the use of RNP and RNAV navigation aid s of the airframes are still on the hands of Civil Aviation Department. The project cannot guarantee that the GPS-based high precision navigation system would be used actively for the flights connecting HKIA when the project is in operation. The project proponent has skipped mentioning such issue while assuming most airframes would be using GNSS in future.

Should the percentage of airframes using GNSS is lower than expected when the project is in operation, planes approaching and departing the Project will be have higher deviations from flight tracks than expected.

Comments made by the network in response to 2.4.5.3, 2.3.6 and 2.3.6.6 is reflecting the importance of adopting our recommendation 3 and 8.

Consideration of alternatives

In the 3.3.2 of the Project Brief mentioning consideration of alternative development options, it states that

The Applicant shall consider alternative development options including siting and alignment for the Project in conjunction with the existing airport, provide justifications regarding how the proposed development option is arrived at. The Applicant shall describe the environmental factors considered in the option selection and compare the environmental benefits and dis-benefits of alternative development options with a view to recommending the preferred option to avoid adverse environmental effects.

In 3.3.4 of the Project Brief - Selection of Preferred Scenario, it also states that

The Applicant shall, taking into consideration of the findings in sections 3.3.2 and 3.3.3 above, recommend and justify the adoption of the preferred scenario and describe the part that environmental factors played in arriving at the final selection.

The project proponent has responded the above with the following in the EIA Report

.2.2.8 In theory, the most effective mode of operation for two runways is the mixed mode of operations¹. In Hong Kong this mode theoretically allows a maximum capacity of 44 air traffic movements (ATMs) per hour on each runway [3]. However, this theoretical maximum capacity cannot be achieved with the existing two-runway system (2RS) at HKIA, because in Hong Kong the airport is required to operate under a “dependent” mixed mode for the following reasons [3]:

- The terrain on Lantau Island constrains the South Runway’s mixed mode capacity to 34 ATMs per hour.
- The terrain to the east of HKIA, such as Tai Mo Shan, and airport traffic interaction with Macao airport to the west, prevents the current two-runway configuration from accepting independent parallel approaches.
- The South Runway’s constrained circumstance requires a larger spacing between landing aircraft, with similar requirements on the North Runway, thereby preventing the runways from achieving a theoretical maximum capacity under a mixed mode operation.

However, the above claims have contradicted with 1992 NAMP - Planning as it detailed the timetable and roadmap to implement mixed mode of independent approach and departures on dual-runway of HKIA.

With marginal changes on terrain near the Project, it is not convinced that the assumptions made by the project proponent has made a complete contraction in this EIA Report with their proposal published back in 1992.

As stated in prior, most of the development options considered by NATS in 3.3.3 of the EIA Report have not been put forward in the consultation back in 2010. The project proponent has not listed out a brief environmental impact of all plans.

In particular, NATS has once listed out Option J, a new airport in southern Lantau. The option itself has got the highest efficiency as it is located in relatively clear skies. The estimated capacity of option J is 44 ATMs per runway per hour, higher than the option picked by the Project to this EIA. With lower efficiency than the option J, it is questioned if the project proponent is pursuing highest possible efficiency when impacting the environment.

Noise Impact

The Project Brief has stated the following

Appendix C - Noise

1.1 The Applicant shall describe the prevailing aircraft noise environment in the EIA report by providing the Noise Exposure Forecast (NEF) contours based on the prevailing aviation operations data of the Hong Kong International Airport (HKIA), aircraft noise mitigation measures currently adopted and relevant references to previous studies including but not limited to

(i) New Airport Master Plan Environmental Impact Assessment (NAMP-EIA) (12/91) and Supplement to NAMP-EIA (10/92) and

(ii) New Airport Master Plan – Environmental Impact Assessment Update (1998).

Assumptions and Data adopted for assessment

2.1.3 The Applicant shall explicitly state assumptions made for deriving the input data or other relevant data for the computational model, including but not limited to:

(a) airport operational data including the number of aircraft, aircraft fleet mix, runway

(b) aircraft approaching operational data including glide slopes, glide slope intercept

(c) aircraft departure operational data including the flight profile which is term of altitude to utilization, flight tracks, type of aircraft which utilize each flight track on an annual average daily-basis; altitudes, and other relevant information needed to establish approach profiles along with the engine power levels needed to fly that approach profile; distance from start-of-roll along with the engine power levels needed to fly that takeoff profile and the takeoff weight of the aircraft or some proxy for weight such as stage length, etc.

2.1.4 Validity of the above data shall be confirmed with Civil Aviation Department and documented in the EIA report.

Our network considered the EIA Report has neglected the scenario that the change of noise impact when restriction PRD airspace has affected the active use of proposed flight tracks. Therefore, our network viewed that (c) of the 2.1.3 has not been fulfilled.

The Director of Environmental has overlooked the inability of CAD to design and adopt active flight tracks because of airspace restriction of PRD. As we have stated the Director to add recommendation 3 to the Project Brief in our previous submission and it has not been adopted, the trust of the Director on CAD to provide true scenarios of flight tracks is under contested.

We have outlined the highly likely scenario of restricted airspace in PRD, affecting the availability of flight tracks. It is noted that the change of flight tracks would shift the Noise Exposure Forecast dramatically.

Having considered the difference between proposed flight tracks detailed in NAMP-Planning and the current active ones published on HKATC website (www.hkatc.gov.hk) . It is surprised that the Director has not noticed the blockage of certain flight tracks thus considering a third-party cross-check to be taken place.

In 2.3.1 of the Project Brief (Prediction and Evaluation of Aircraft Noise Impact), it states

The Applicant shall quantitatively assess the aircraft noise impact, with respect to the criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at assessment years of various operation modes including, but not limited to,

- (a) the worst operation mode which represents the maximum noise emission in connection of combination of number of aircraft, type of aircraft which utilize each flight track in time periods for both approaches and departures for the selected year;*
- (b) the interim phase operation modes which represent the operation of the 3rd runway with closure of either or both of two existing runways of the HKIA; and*
- (c) full operation of the three runway system which represents the operation of proposed 3rd runway together with two existing runways at design capacity; and*
- (d) any other operation modes as confirmed with the Director.*

It is regrettable that the Director has not adopted our mentioned recommendations when requiring the project proponent to produce NEF illustrations of the Project.

Again, our network challenged the practicability of flight track arrangements stated in the EIA report thus the NEF illustrations. There should have been relevant NEF illustrations if some of the flight tracks cannot be used in operation phase.

To conclude the noise impact analysis of the EIA report, it is disappointing to see that the Director has not reflected from the experience of change of noise impact between the NAMP scenario and the actual scenario because of the issue of flight tracks and PRD airspace. The negligence will challenge the validity of the NEF illustrations thus mitigation measures as well as costs of the project.

Noise on Health Impact

In 3.4.14.2 of the Project Brief, it stated the health impact assessment shall be based on established practices in countries around the world. A literature search shall be carried out to determine the best approach and methodology for the health impact assessment, including any codes of practices, guidelines, etc. applied locally in Hong Kong and elsewhere in the world. The approach and methodology to be adopted shall be agreed by the Director prior to the commencement of assessment.

Although the EIA Report has referenced Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study, it is unbelievable to see that the Report has ignored the health effects found in the study and to dismiss the finding as the sample of the study is abundant with South Asians instead of East Asians or Chinese.

Submission of the Document

According section (2) of Appendix K of the Project Brief, the project proponent should prepare a PDF version of the EIA Report.

However, the links embedded in the PDF version of the EIA Report cannot be accessed by popular browsers such as Google Chrome and FireFox. Links have been made under local drive arrangements.

Although some of the browsers have no issue of accessing the PDF and the links, those browsers (i.e. Internet Explorer and Safari) cannot be installed on Linux platforms. As the EIAO-RO website has not stated the preferred system requirement and setting on the index page, the EIAO-RO should ensure that files submitted by the project proponent should be readily accessible by major browsers.

As the EIAO-RO website has listed the WCAG 2.0 AA verification, the EIAO-RO should make their best effort to ensure that all files on the website should not corrupt the performance. Unfortunately, there is a potential corruption because of the link issue of the PDF format of EIA Report.

The links have all become invalid after downloading the PDF version of EIA Report via the link stated on the EIAO-RO website.

The project proponent has not submitted Interlaced GIF graphics as requested by section (2) of Appendix K of the Project Brief.

Although the Director has the discretion to let the project proponent to submitted tables, drawings and figures in different electronic format, Interlaced GIF is an image format that the patent has withdrawn. Unlike Adobe PDF which users have to agree with GNU General Public License in order to access the document, there is no terms and conditions for one to open the interlaced GIF files.

Should the Director has given the discretion, is it putting the risk on the concerned public that cannot access the graphics as they hardly agree with the PDF license.

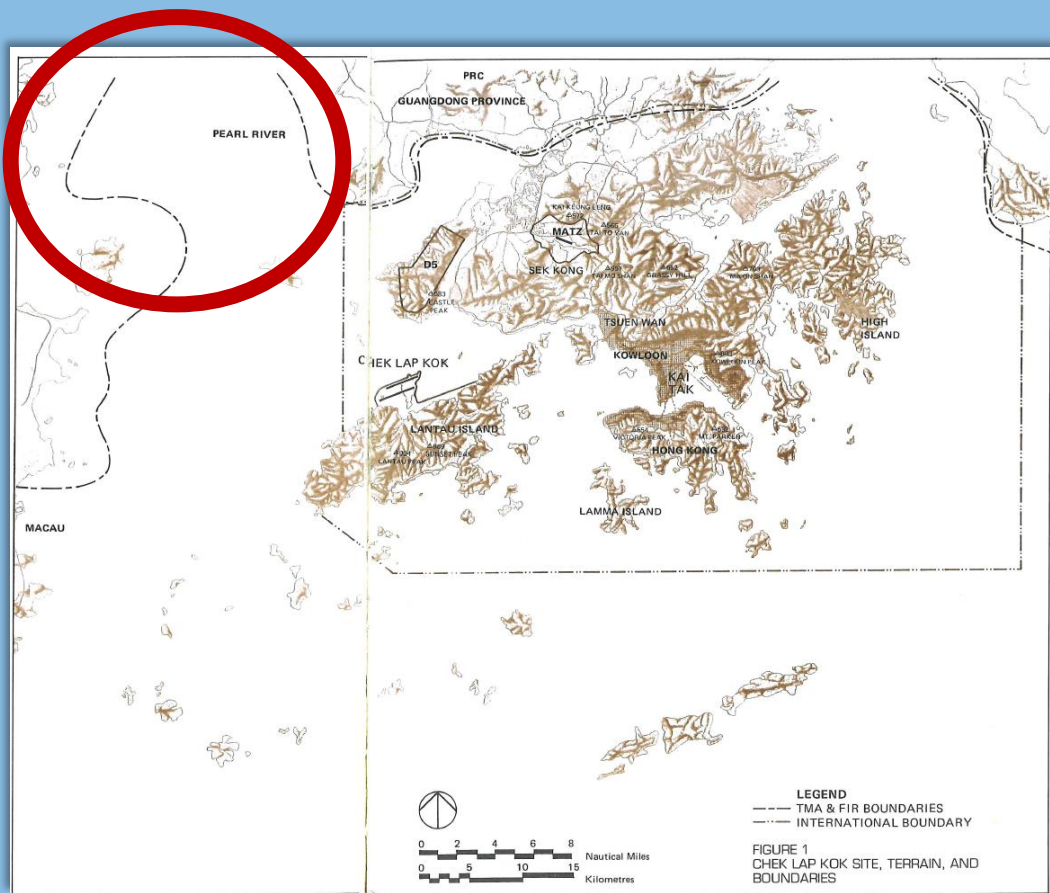
中港空域、空牆及航道問題 對第3條跑道運作及噪音影響

機場發展關注網絡

2014年8月12日



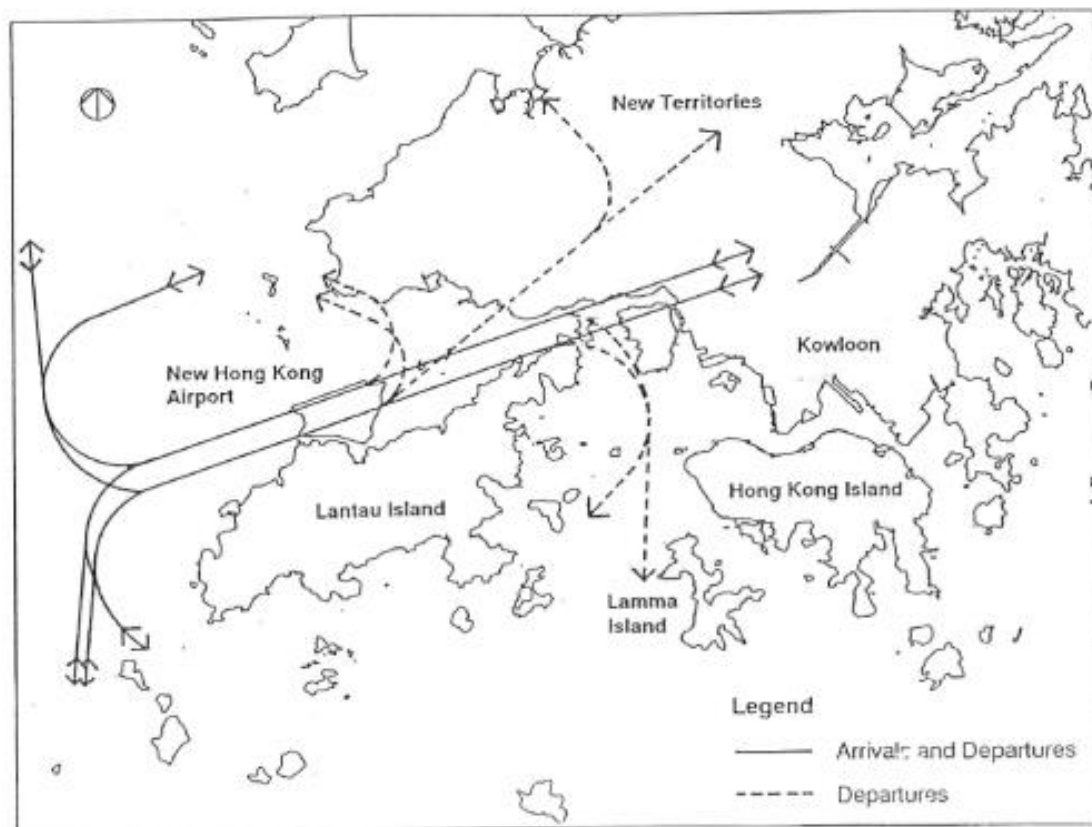
主權移交前，香港空域延伸至深圳



- 圖自80年代設計新機場顧問選址報告
- 空域以紅圈所示
- 方便來往廣東省及中國航班



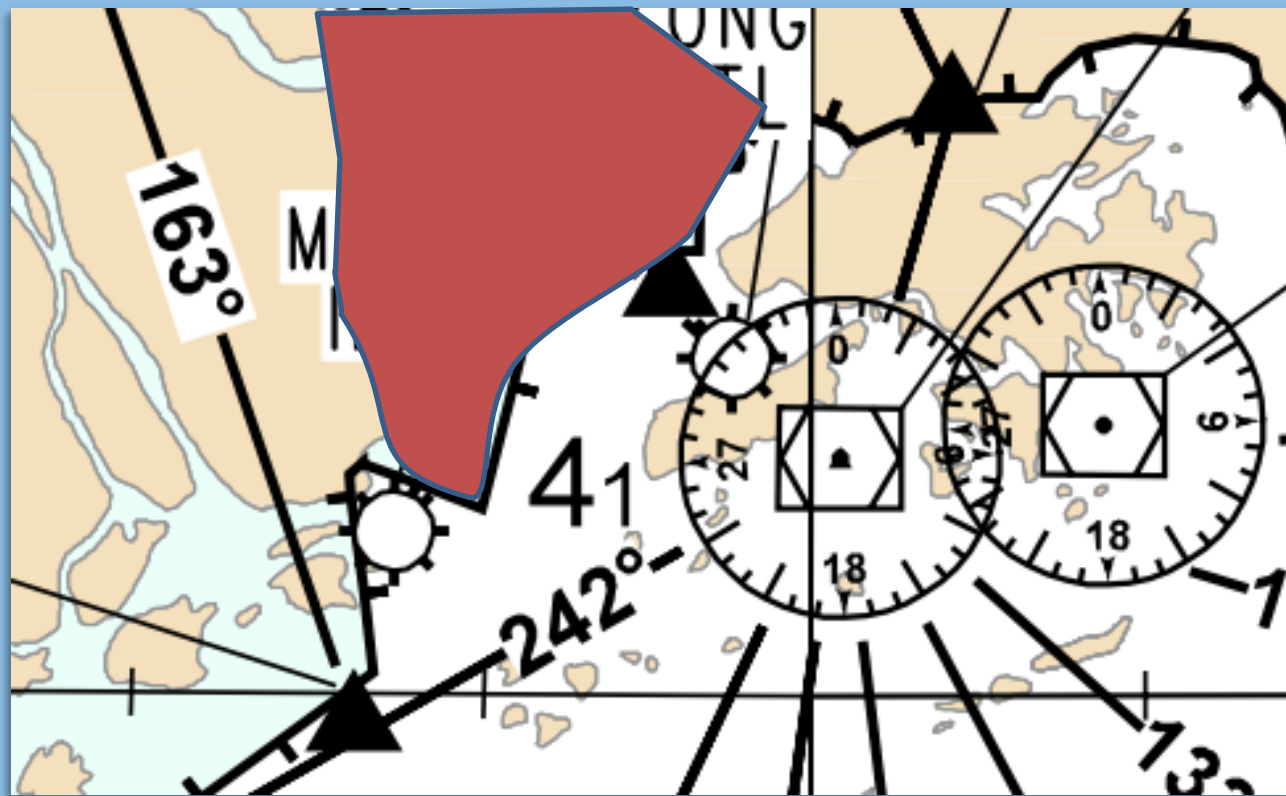
故此，當初設計新機場時有多條北向航道



Arrivals and Departures Flight Tracks Exhibit 5.3



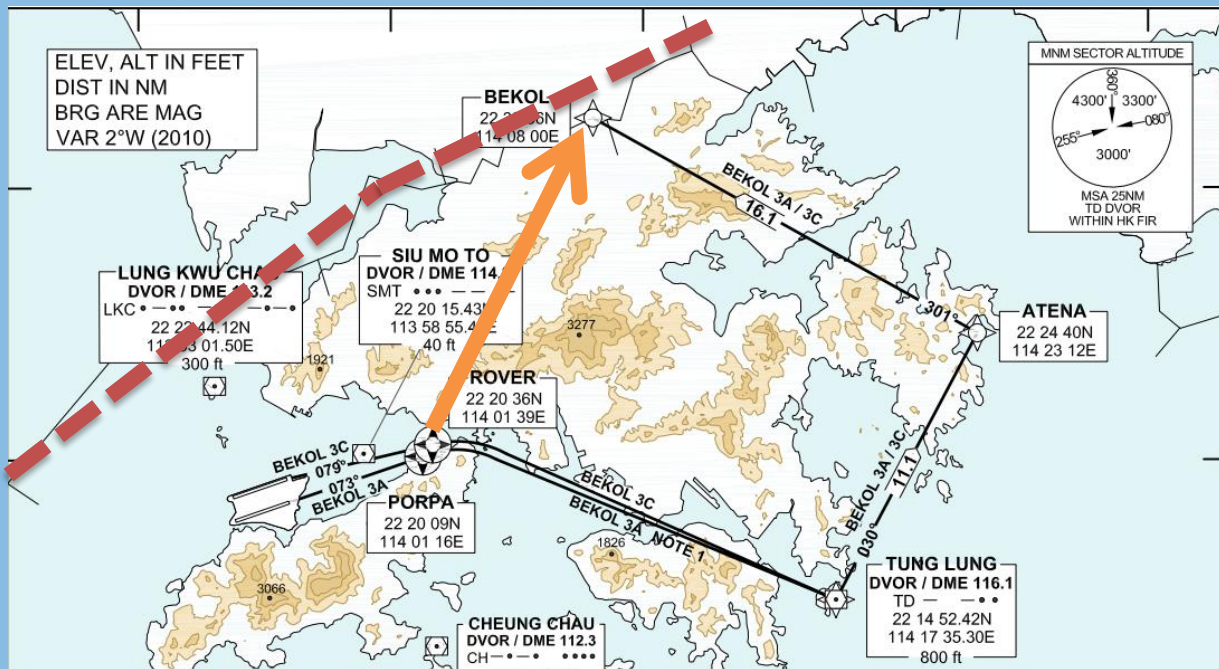
主權移交後，香港空域縮小



紅色為
失去的空域



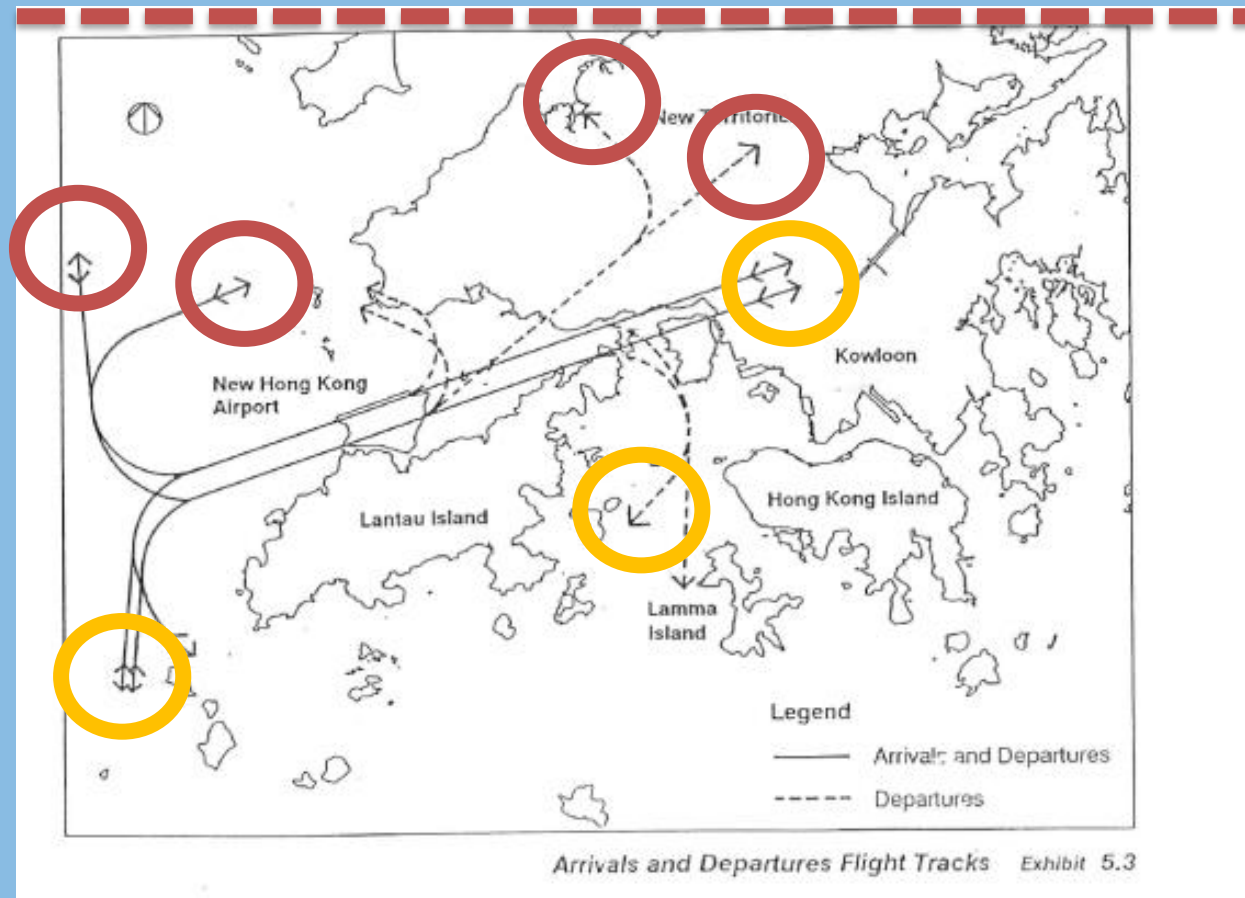
加上深圳機場航班漸多，促使空牆設立



- 需要飛至15700英呎才能進入中國領空
 - 已計劃直線航道(橙線)未能使用
 - 飛機於香港盤旋額外9-20分鐘方能爬升至15700英呎
- 由中國進入香港飛機，需於15000-16000英呎離開中國空域
 - 額外9-20分鐘下降時間



令當初設計的北向航道未能使用



紅色

- 所有方向不能使用

橙色

- 其中一方向未能使用

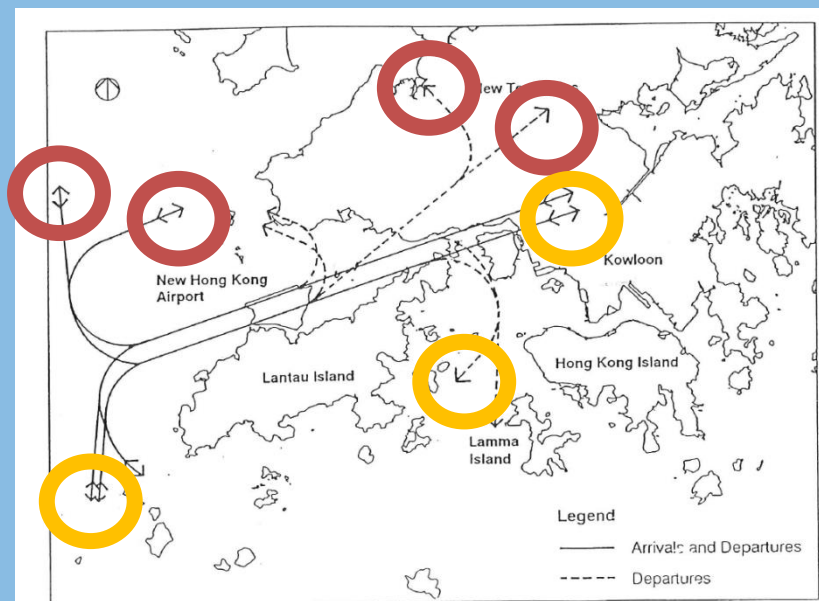


空牆的「不合理」

- 空牆太高
 - 深圳機場航機活動高度低於1800米
 - 空牆進入點為4800米(15700英尺)，當中相隔9層空域
- 澳門機場不設空牆
 - 機場升降由香港控制塔管理
 - 證明航道規劃事在人為
- 2010-2012年，香港約28-34% 航班，包括來往歐美及中東航班，使用珠江三角洲空域
 - 空牆令航道減少，影響香港空中交通管理

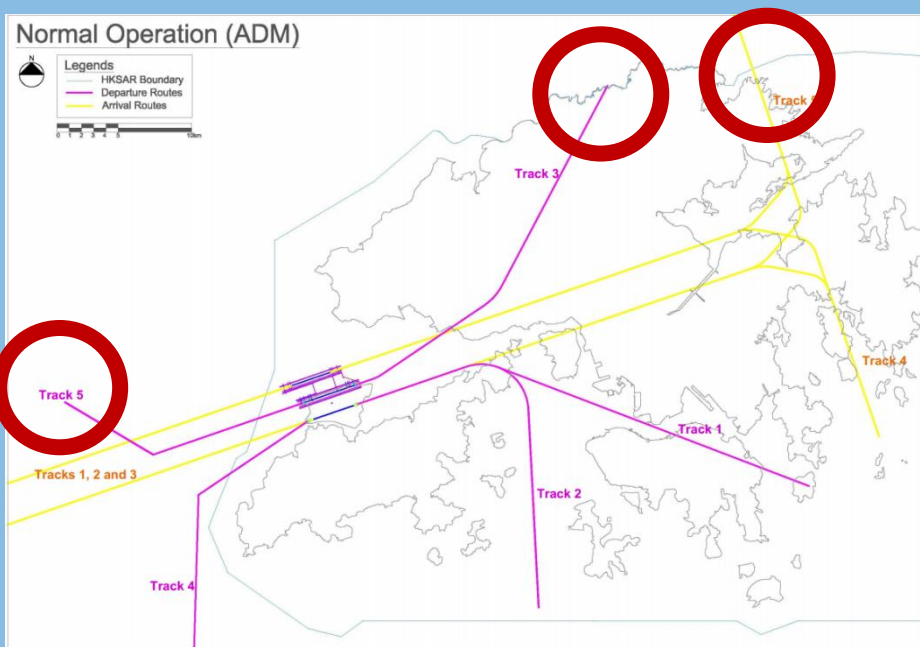


再比較第3條跑道環評的建議航道



Arrivals and Departures Flight Tracks Exhibit 5.3

1992年設計



2030年設計

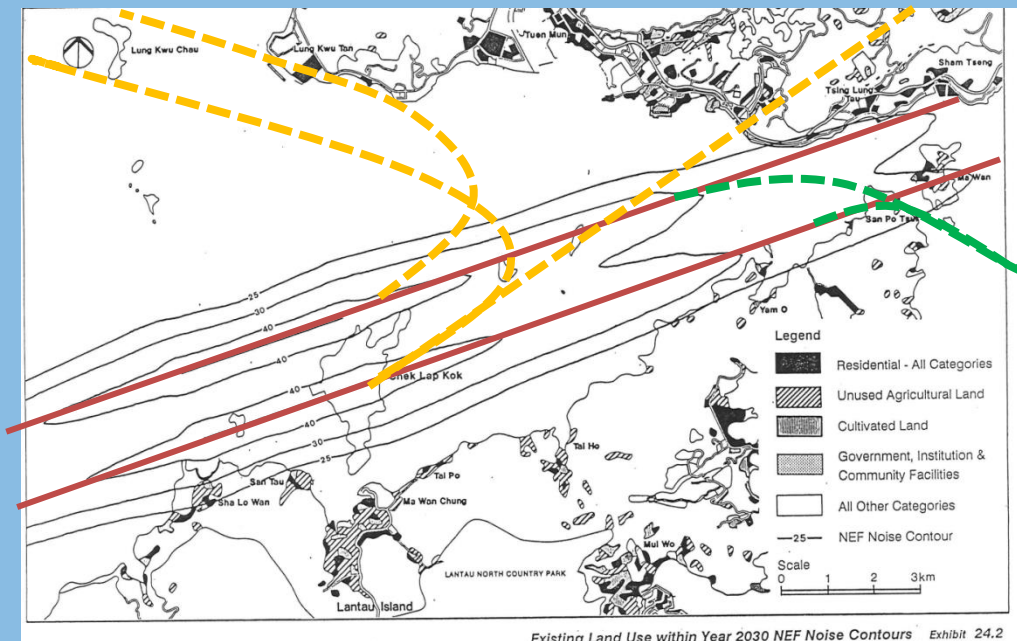
現時北向航道無法使用，何以2030年就自然可以使用？



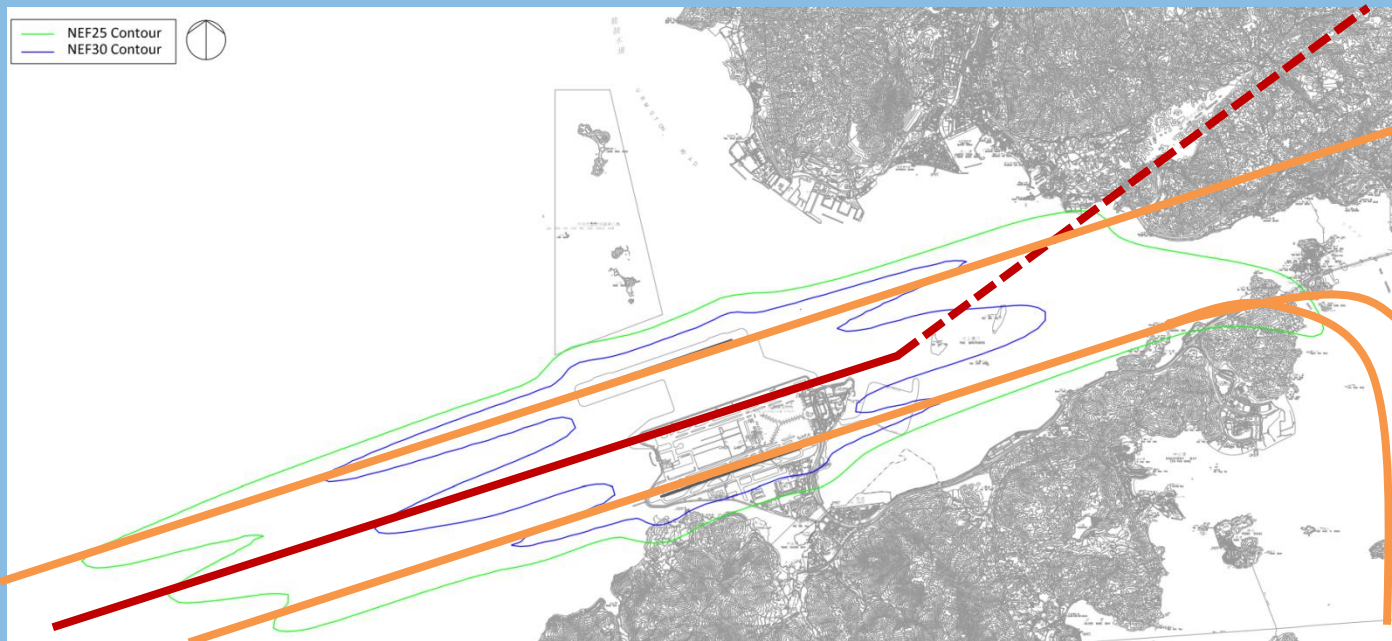
機場
發展
關注網絡

航道假設對噪音評估準確性攸關

- 1992噪音等量線圖
 - 預計2030年噪音影響
- 當中橙色為未有使用航道
 - 飛機集中使用紅線及綠線航道升降
- 集中部份航道升降引致噪音影響變化
 - 未有實質計算



2030年第3條跑道又會如何？



假如紅色航道
虛線部份因空牆
問題未能使用

- 飛機需要市區
起飛時引致的
噪音影響變化
- 機管局未有於
環評報告中交代



結語

- 民航處向機管局及公眾斬釘截鐵保證
 - 粵港澳三方的民航機構聯席，能夠於2020年解決空域及航道問題
 - 並保證第3條跑道的容量能達到設計的最多每小時102升降架次。
- 這個聯席，沒有公開簽署文件並可讓公眾傳閱
 - 更枉論公開實踐的路線圖及時間表。
- 中國的空域最終由解放軍決定設計及規劃，而不是民航機構可以全權掌握。
 - 香港政改未有公佈規劃的「紅頭文件」獲得中國中央及軍方確認
 - 機管局CEO許漢忠曾於與民主黨閉門會議說過，沒有這一份文件。
- 假如能夠於2020年解決空域及航道問題
 - 1992年設計機場時的北向航道將能夠使用，大大增加現時機場2條跑道的升降架次
 - 令興建新跑道的需求變得沒有現在般充份。

