

# 立法會 *Legislative Council*

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## **Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport**

### **Background brief on issues relating to the development of three-runway system at the Hong Kong International Airport**

#### **Purpose**

This paper provides a brief account of past discussions of the Panel on Economic Development ("EDEV Panel") and the Panel on Environmental Affairs ("EA Panel") on issues relating to the development of three-runway system ("3RS") at the Hong Kong International Airport ("HKIA").

#### **Background**

2. HKIA has experienced tremendous traffic growth since its opening in 1998 (see **Appendix I**). Operating under a two-runway system ("2RS"), HKIA is now connected to about 180 destinations, including 47 in the Mainland, through over 1 100 daily flights by more than 100 airlines. In 2014, 63.3 million passengers used HKIA and some 4.38 million tonnes of air cargo passed through Hong Kong.<sup>1</sup>

#### The need for 3RS

3. In December 2006, the Airport Authority Hong Kong ("AAHK")<sup>2</sup> released a 20-year plan, HKIA 2025, which envisaged that HKIA would serve close to 80 million passengers and handle 8 million tonnes of cargo and 490 000 air traffic movements ("ATMs") per year by 2025. It also indicated that AAHK would work with the Civil Aviation Department ("CAD") to assess the feasibility of a third runway.

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<sup>1</sup> Source: Website of AAHK <http://www.hongkongairport.com/eng/business/about-the-airport/welcome.html>  
Passenger traffic includes originating, terminating, transfer and transit passengers. Transfer and transit passengers are counted twice. Cargo throughput includes import, export and transshipment cargo. Transshipment cargo throughput is counted twice.

<sup>2</sup> AAHK is a statutory body established in 1995 and wholly-owned by the Government.

4. In July 2008, AAHK commissioned HKIA Master Plan 2030 Study ("MP2030") to review the infrastructural development needs of the airport up to 2030. AAHK also commissioned a study on the engineering and environmental feasibility of a 3RS.

5. On 2 June 2011, AAHK released the MP2030 in which two different development options for HKIA's future expansion were proposed. Option 1 maintained the existing 2RS but made enhancements to the terminal and apron facilities to increase HKIA's capacity. Option 2 envisaged the construction of a third runway, and associated concourses and apron facilities, which required land reclamation of about 650 hectares to the north of the existing airport island. The public was consulted on the options between June and September 2011. On the basis of a clear majority preference for adopting the 3RS option, AAHK submitted the two options together with its recommendations for proceeding with option 2 to the Government on 29 December 2011.

6. In March 2012, the Chief Executive ("CE") in Council gave in-principle approval to AAHK to adopt for planning purpose the option of expanding HKIA into a 3RS, whereas AAHK was required to report to CE in Council after completion of the planning work. A final decision on whether to proceed with the implementation of 3RS would be made when the relevant inputs were available.

7. The Administration advised that the existing 2RS would likely reach its maximum practical capacity of 420 000 ATMs per annum in 2016-2017, a few years ahead of the original forecast in MP2030. AAHK has also projected that by 2030, annual demand for passenger traffic will reach around 102.3 million, cargo at 8.9 million tonnes, and ATMs at 607 000 which will ultimately grow to 620 000 (i.e. 102 ATMs per hour) by 2032, well exceeding the existing 2RS capacity. It is expected that the 3RS project will create direct employment of around 141 000 jobs as well as indirect and induced employment of 199 000 jobs, bringing about an overall economic benefits of around \$1,046 billion (2012 dollars) over the 50-year period from 2012 to 2061.<sup>3</sup>

#### Statutory environmental impact assessment

8. Since March 2012, AAHK had embarked on the statutory environmental impact assessment ("EIA") procedure in accordance with the Environmental Impact Assessment Ordinance (Cap. 499) ("EIAO"), its Technical Memorandum and the relevant EIA study brief. The EIA study for 3RS, as required by the study brief issued by the Environmental Protection Department ("EPD"), has assessed 12 environmental aspects, such

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<sup>3</sup> Legislative Council Brief ("LegCo Brief") issued on 20 March 2015 (File ref.: THB(T) CR2/582/08).

as impact relating to air quality, noise impact, marine ecology (including Chinese White Dolphins ("CWDs")) and fisheries, and waste management. The key mitigation and enhancement commitments set out in the EIA report of 3RS are extracted in **Appendix II**.

9. The EIA report of 3RS subsequently submitted by AAHK had been made available for public inspection for 30 days in accordance with EIAO starting from 20 June 2014. The Advisory Council on the Environment ("ACE") was then consulted over a period of 60 days. On 15 September 2014, ACE endorsed the EIA report and requested the Director of Environmental Protection ("DEP") to consider imposing specific conditions in the environmental permit ("EP"). On 7 November 2014, DEP approved the EIA Report with 18 implementation measures and four recommendations, and issued an EP for the 3RS project.

### Design details

10. The 3RS project is planned to cater for an additional 30 million passengers per annum on top of the existing 70 million. The latest project broadly comprises the following major works –

- (a) formation of approximately 650 hectares of land north of the existing airport island by reclamation with some 100 million cubic metres of marine sand partly on top of disused contaminated mud pits using non-dredged method with deep cement mixing technique for ground improvement;
- (b) construction of the third runway, taxiways and apron;
- (c) construction of the third runway concourse ("TRC") with 57 parking positions upon 3RS commissioning in 2023;
- (d) modification/expansion of the existing Terminal 2 ("T2") and construction of associated road network;
- (e) provision of a new Automated People Mover System and an integrated maintenance depot;
- (f) provision of a new high-speed Baggage Handling System serving TRC and T2; and
- (g) construction of airport support infrastructure, utilities and facilities.

The latest layout of 3RS is in **Appendix III**.

11. In addition to the 3RS major works set out above, there are a number of new government facilities required for the operation of the 3RS. These include a new air traffic control ("ATC") tower, fire stations, a police station, a weather monitoring system operated by the Hong Kong Observatory, additional immigration and customs facilities, etc.

### Project costs and financial arrangements

12. The capital cost for 3RS has been revised to \$84.5 billion (in 2010 prices) or \$141.5 billion (in money-of-the-day ("MOD") prices)<sup>4</sup>. As with the original estimate, the revised capital cost estimate does not include the cost of design and construction of various new government facilities. However, it includes the construction of essential enabling works, estimated at \$2.4 billion in MOD prices, to cater for any necessary expansion in the future to cope with a total of 50 million additional passengers per annum<sup>5</sup>.

13. AAHK has proposed to the Government to self-finance the 3RS project. On revenue, it has proposed to adopt the "joint contribution" principle with the users of HKIA jointly contributing to the project cost. With the advice of its financial consultant, AAHK has proposed the following –

- (a) upward adjustment of airport charges (including landing, parking and terminal building charges payable by airlines) to bring the airport charges back to the level of 15 years ago (when the charges were reduced in January 2000 due to the Asian Financial Crisis). There will be subsequent increases to keep the charges in line with inflation;
- (b) an Airport Construction Fee ("ACF") of \$180 per departing passenger (excluding transit passengers); and
- (c) due increase in retail and advertising revenue, in accordance with the projected increase in traffic and Consumer Price Index.

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<sup>4</sup> The original capital cost of 3RS was estimated to be HK\$86.2 billion (in 2010 dollars) or HK\$136.2 billion (in MOD prices) in accordance with MP2030. The revised MOD price (i.e. \$141.5 billion) is higher than that in MP2030 despite a lower 2010 prices. This is mainly due to the use of the updated price adjustment factors with higher inflation estimates for converting the 2010 prices to MOD prices. Separately, the revised estimate assumes, inter alia, that marine sand for the reclamation works, being a key component of the project cost, can be sourced from the Pearl River Delta region.

<sup>5</sup> The enabling works comprise a road tunnel box underneath the existing north runway (which is planned to be closed for re-construction between 2021 and 2023, by which time the third runway will have been completed and available for use), the foundation/basement for further expansion of T2, T2 North Annex Building and TRC, and an additional automated people mover tunnel box.

14. AAHK also plans to retain all profits earned from 2014-2015 onwards until the full commissioning of 3RS in 2023-2024 without declaring dividends<sup>6</sup>, and to bridge the funding gap by external borrowing. Taking into account the Government's feedback<sup>7</sup>, AAHK undertook to refine the financial arrangement proposal to maximize borrowings from the market with a view to lowering the amount of ACF, and to devise an airport charging mechanism to facilitate the most efficient use of HKIA through, for instance, the use of more wide-bodied aircraft.

### Government's decision

15. On 17 March 2015, the Executive Council advised and the Chief Executive ordered that –

- (a) the need for 3RS for maintaining Hong Kong's competitiveness as a global and regional aviation hub, and for catering to our long-term economic and development needs was affirmed; and
- (b) AAHK should be invited to actively explore, in consultation with the Government, ways to facilitate the early implementation of the 3RS.

16. The Administration acknowledges the need and urgency of the 3RS project given the early saturation of the existing airport, the competition posed by neighbouring airports and the economic benefits brought about to Hong Kong. It has engaged consultants to examine the scope of 3RS and the financial arrangement proposed by AAHK. It considers that AAHK's recommendations on project scope and design are in broad terms reasonable and sufficient for catering for an additional 30 million passengers as projected under MP2030. In addition, the self-financing proposal made by AAHK for the 3RS project is overall reasonable and practicable, given its robust revenue performance in the past and the expected growth in future.

### Other issues

#### *Use of airspace in the Pearl River Delta ("PRD") region*

17. In view of the growth in the volume of air traffic serving the five airports in PRD region (namely, Guangzhou Baiyun Airport, HKIA, Macau

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<sup>6</sup> Under the Airport Authority Ordinance (Cap. 483), AAHK may pay dividends on its shares. Based on the AAHK's plan to finance the 3RS project, no dividend would be declared and paid to the Government from 2014-2015 to 2023-2024.

<sup>7</sup> The Administration considered that AAHK should, among others, put in place a mechanism to regularly review the charging level and structure of aeronautical charges at HKIA, and set ACF's amount at a lower level to minimize the burden on passengers.

International Airport, Shenzhen Baoan Airport and Zhuhai Airport), a Tripartite Working Group ("TWG") comprising the Civil Aviation Administration of China ("CAAC"), CAD and the Civil Aviation Authority of Macao ("CAAM") has been set up since 2004 to formulate measures to improve the airspace structure and air traffic control arrangements in the PRD region so as to optimize the use of airspace and enhance safety.

18. In 2007, TWG drew up and agreed to the "PRD Region Air Traffic Management Planning and Implementation Plan (Version 2.0)" ("the 2007 PRD Airspace Plan"), which clearly stipulated the short, medium and long term optimization targets and measures to be achieved and implemented before 2020. According to the Administration, the plan has already taken into account the operational need of 3RS, as well as the planned development of other key airports in the PRD (including three runways in Shenzhen and an eventual five-runway system in Guangzhou).

*"Air wall"*

19. According to the Administration, the so-called "air wall" between the Hong Kong and Mainland airspace is more appropriate to be termed as "point of control transfer" (between air traffic control jurisdictions). It refers to an arrangement between Hong Kong and the Mainland's air traffic control units to fix a minimum altitude of 15 700 feet for handover of flights between Hong Kong and the Mainland air traffic control units.<sup>8</sup> Such arrangement follows normal international civil aviation arrangement that seeks to segregate the operations of aircraft in the adjacent airspace, thus preventing aircraft tracks from crossing so as to ensure the safe operation of aircraft.

*Three supernumerary posts in the Airport Expansion Project Coordination Office ("AEPCO")*

20. At the EDEV Panel meeting on 23 March 2015, the Administration also sought the Panel's support for extending three supernumerary directorate posts in AEPCO under Transport and Housing Bureau ("THB") in light of the Government's affirmation of the need for the 3RS project. Although no objection to the proposal was raised at the said Panel meeting, the discussion on a relevant item to create<sup>9</sup> the posts at the subsequent meeting of the Establishment Subcommittee ("ESC") of the Finance Committee on 27 May 2015 was adjourned as a result of members' concerns on the 3RS project.

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<sup>8</sup> The handover altitude has been lowered/relaxed from 15 700 feet to 12 800 feet since 2005 for non-peak hours at night (i.e. 1 am – 7 am).

<sup>9</sup> As the three supernumerary directorate posts in AEPCO under THB have lapsed by the end of March 2015, the establishment proposal submitted by the Administration to ESC on 27 May 2015 was to "create" the said posts, instead of "extending" them.

## **The Subcommittee**

21. At its meeting on 15 May 2015, the House Committee ("HC") endorsed the appointment of the Subcommittee under it as well as the proposed terms of reference, work plan and time frame. Members also agreed to the proposal that the Subcommittee should be placed at the top of the waiting list of "Subcommittee on policy issues". The Subcommittee has been activated on 1 October 2015.

## **Deliberations**

22. The EDEV Panel discussed the proposed 3RS at its meetings on 23 June 2014 and 23 March 2015, and held three joint meetings with EA Panel on 30 September 2014, 7 October 2014 and 27 April 2015 to receive public views on the 3RS project and the relevant EIA report of 3RS, and discuss the proposal to set up a subcommittee to follow up the project. The Administration also updated the EDEV Panel on the development of the 3RS project during policy briefing on 2 February 2015. The EA Panel also discussed and received public views on EIA report for the 3RS project on 24 November 2014 and 6 January 2015 respectively. In addition, ESC discussed about three directorate posts of AEPCO and 3RS issues at its meeting on 27 May 2015. The views and concern of the two Panels and ESC on 3RS matters are summarized in the ensuing paragraphs.

### Runway capacity

23. Members expressed diverse views on 3RS development. Some members expressed support for the project having regard to early saturation of 2RS and the economic benefits brought about by the project. Some other members expressed doubt whether the maximum capacity of 3RS, i.e. 102 ATMs per hour, could be achieved taking into account the constraint on the use of PRD airspace. The Administration advised that 3RS would be able to achieve its target capacity premised on the full implementation of the 2007 PRD Airspace Plan and expanding the capacity under 3RS would mainly involve the use of Hong Kong's own airspace.

24. Members noted a deputation's view that HKIA was originally built and designed in accordance with the 1992 New Airport Master Plan ("1992 NAMP") with a design capacity meeting the forecast passenger and cargo throughput for up to 2040 (i.e. an annual demand for cargo volume of 9 million tonnes and passenger traffic of some 87 million), and there was sufficient space and infrastructure available in HKIA to meet the design capacity without having to construct a third runway. Moreover, the planning parameters at that time had not taken into consideration the latest

development of information technology and other technological advancement that could increase runway capacity. Members further noted that the cargo volume and passenger traffic handled by HKIA in 2013 were only 4.12 million tonnes and 59.9 million respectively, representing 46% and 69% of the design capacity of 2RS for cargo and passenger traffic, which did not justify for constructing 3RS.

25. AAHK responded that while the design of HKIA allowed it to handle the growth in volume of cargo passed through it, the bottleneck of the existing HKIA rested with runway capacity and therefore 3RS was required to cope with the latest anticipated growth in air traffic. The Administration explained that the 1992 NAMP commissioned by the Provisional Airport Authority in the early 1990s had not taken into account various factors such as the geographic location and surrounding terrain of HKIA and other limitations that would constrain runway capacity.

26. Some deputations suggested that if the peak of Tai Yam Teng and Fa Peng Teng were removed, the operation mode of 2RS could be changed from the current segregated mode to independent mixed mode as provided in the 1992 NAMP and hence the runway capacity could be increased. The Administration advised that the original suggestion made in the 1992 NAMP was in connection with possible options to enhance the climb gradient of contingency departure procedures for departures on engine out during initial climb (i.e. to reduce restriction on the aircraft engine out climb performance). It was not a measure to achieve independent mixed mode operation to increase runway capacity, and what really limited the runway capacity from achieving the higher movements (i.e. 86 ATMs per hour) was the entire stretch of North Lantau terrain.

27. Some deputations also suggested that the capacity constraint at HKIA could be relieved by the use of wide-bodied aircraft to replace the narrow ones and reducing flights to third/fourth-tier cities in the Mainland. The Administration remarked that among the world's top 100 airports, HKIA had the second-highest proportion of wide-bodied aircraft (at 63.3%). In addition, the aircraft mix at the airport was driven by market demand and determined by airlines but not dictated by airport operators or governments. Furthermore, having an extensive flight network was one of the core elements to help maintain HKIA's connectivity. Giving up less prominent but still commercially popular destinations would not only inconvenience travelers, but also adversely undermine Hong Kong's overall competitiveness and status as an aviation hub.



### Use of PRD airspace and "air wall" constraint

28. Members urged the Administration to clarify if 3RS could achieve the maximum capacity of 102 ATMs per hour without being affected by the constraint on the use of airspace in the PRD region. A member pointed out that three northern tracks out of the six departure flight tracks set out in the 1992 NAMP had not been duly put to use due to airspace constraints. If the airspace constraints could be removed immediately to resume the normal function of the three northern tracks, the maximum capacity of 2RS would be increased to over 80 ATMs per hour (or 500 000 ATMs per year) without the need to waste money on constructing 3RS.

29. The Administration explained that according to a United Kingdom-based aviation consultancy commissioned in 2008, the maximum capacity of the existing 2RS was confirmed to be 68 ATMs per hour. Although the airspace in Hong Kong was not yet fully utilized, the runway capacity could not be increased without the construction of another runway. The 3RS project, premised on the full implementation of the 2007 PRD Airspace Plan, would be able to handle 102 ATMs per hour (i.e. 620 000 ATMs per annum) ultimately.

30. Members requested the Administration to dispel the concerns about the problem of "air wall" constraint. The Administration advised that "air wall" which was indeed the transfer of control point seeking to facilitate the efficiency of ATC. Such arrangement was not relevant to runway capacity which was determined by the time interval and space separation required between successive runway movements. While the handover altitude had been lowered/relaxed from 15 700 feet to 12 800 feet for non-peak hours at night (i.e. 1 am to 7 am) a few years ago, CAD would continue to explore the feasibility of extending the applicable period for the lowered handover altitude. Under the 2007 PRD Airspace Plan, the airspace was designed with 3RS in place whereby the concept of "air wall" would no longer exist.

31. Noting that the northern airspace of HKIA overlapped with that of the Shenzhen airport and hence reduced the number of aircraft movements at HKIA, members expressed doubts whether and when the Shenzhen authorities would open its airspace for Hong Kong's use so that the expected maximum capacity of 3RS could be achieved. The Administration advised that some short-term measures under the 2007 PRD Airspace Plan, such as the addition of entry points between Hong Kong and the Mainland airspace and new peripheral air routes in the PRD area, had already been implemented. CAD had been engaging the Mainland authorities in taking forward the relevant long-term measures, such as the airspace structure and the management of operational standards and procedures. With the meticulous evaluation of fast-time simulation tests previously conducted jointly by three

sides of TWG, including the participation of the Shenzhen authorities, CAD was confident that the target capacity of 3RS could be achieved based on the three principles, i.e. to achieve joint airspace planning, use of common standards and harmonized flight procedure design for air traffic in the region.

32. Members expressed doubts on the Government's capability to reach consensus with the Mainland authorities on airspace usage in the PRD region and urged it to consider making a joint announcement with the Central Government about the plan as well as their support on the 3RS project. The Administration was confident that under the coordination of CAAC, TWG would implement measures and achieve the targets set out in the 2007 PRD Airspace Plan. It added that some of the Central Government's officials, including Mr Li Jia-xiang, the Administrator of CAAC, had indicated their full support for the implementation of 3RS to reinforce Hong Kong's position as an international aviation hub.

33. Members urged the Administration to provide more details of the progress of the measures implementation under the 2007 PRD Airspace Plan from now to 2020 and the work of TWG. The Administration explained that it had difficulties in disclosing the plan which contained a lot of confidential and highly sensitive information involving the three parties of TWG. Nevertheless, it undertook to explore the feasibility to disclose more information to address the public concern.

34. A member enquired whether the arrangement between the Hong Kong and the Mainland ATC units for handover of flights between them straddling across the Flight Information Region ("FIR") of Hong Kong contravened Article 130 of the Basic Law.<sup>10</sup> The Administration explained that Hong Kong's FIR exceeded its territorial size and covered a total area of 276 000 square kilometres. Under the 2007 PRD Airspace Plan, the three sides agreed to, instead of setting out concrete and clear "boundaries" for respective airspace, adopt the concept of "shared" use of airspace through better coordination to bring optimal benefits to all the airports in the PRD region. It supplemented that CAD would ensure the arrangements made were in compliant with the relevant provisions of the Basic Law and the relevant requirements set down by International Civil Aviation Organization.

35. A member also expressed concern about the capability of the ATC system on managing 3RS. The Administration acknowledged the importance of ATC system to complement the implementation of 3RS and

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<sup>10</sup> According to Article 130 of the Basic Law, the Hong Kong Special Administrative Region shall be responsible on its own for matters of routine business and technical management of civil aviation, including the management of airports, the provision of air traffic services within the flight information region of the Hong Kong Special Administrative Region, and the discharge of other responsibilities allocated to it under the regional air navigation procedures of the International Civil Aviation Organization.

advised that CAD was bringing in a new ATC system designed with the latest technology to cater for growth of air traffic in future.

### The need for 3RS

36. Some members expressed doubts on the need of the 3RS project given that Guangzhou, Shenzhen, Zhuhai and Macao were expanding/had already expanded their airports (as detailed in **Appendix IV**) and absorbed the air traffic growth. The Administration advised that it was stated in MP2030 that there would still be significant unfulfilled air traffic demand for the PRD region even after taking into account the expansion plans of all the airports in the PRD region. Hence, the development of various airports in the PRD region was not a zero-sum game.

37. Some other members also expressed concern that the Government's decision to construct the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link ("XRL") and Hong Kong-Zhuhai-Macao Bridge ("HZMB") would divert passengers from HKIA to neighboring airports, and short-haul passengers might choose to take XRL to reach the Mainland destinations overnight instead of using HKIA. The Administration remarked that the commissioning of XRL and HZMB would in fact enlarge the catchment area of the HKIA and help bring more air passengers and cargo from neighbouring places to HKIA. AAHK added that the 3RS project was not implemented for the Mainland market alone and only three out of the 33 new air routes set up by HKIA over the period from 2011 to 2014 were Mainland routes.

38. A member expressed concern that if the construction of 3RS was not in time upon saturation of 2RS, aircrafts would be diverted to neighbouring airports and hence undermining HKIA's position as an aviation hub and leading to economic loss to Hong Kong. The Administration advised that in the absence of 3RS, the capacity constraint of the existing 2RS at HKIA would limit its growth in respect of aircraft movements and new flight destinations. This would result in significant economic benefits foregone for Hong Kong as a whole, with Hong Kong's overall competitiveness as an international business and trading centre as well as aviation hub being severely compromised.

39. Members enquired about the ways to sustain the competitiveness of HKIA before the commissioning of 3RS. AAHK responded that in light of the early saturation of 2RS, it had been undertaking various facilities upgrading and expansion plans, for example, the \$2.5 billion West Apron Expansion Project which was completed in 2014 for increasing the number of aircraft parking stands at HKIA, and the Midfield Development Project at \$10 billion which was expected to be completed in 2015 to cater for an

additional 10 million passengers. It also planned to upgrade and expand the existing Terminal 1 for accommodating the growing passenger and cargo demand in the interim. AAHK would also explore with CAD to increase the number of aircraft movements beyond 68 ATMs per hour under 2RS, such as encouraging airlines to use quieter aircraft to fly at night time intervals notwithstanding flight movement was capped at night.

40. Members noted with concern that the double Y-shape design of the third runway concourse as set out in MP2030 was replaced by a single Y-shape design in the latest design, reducing the number of parking stands by 46% to only 57 stands. AAHK explained that one of the objectives set out in MP2030 for HKIA was to cater for an additional 30 million passengers per annum which could be met by the latest design of a single Y-shaped third runway concourse. It stressed that the single Y-shape concourse was not smaller than the previous double Y-shape design.

### Financial arrangement

#### *Project costs and financial arrangement*

41. Some members were worried that the sky-high cost of the project amounting to \$141.5 billion in MOD prices was actually borne by the Government to which AAHK would stop paying dividends for 10 years and the public who would be charged of ACF when departing HKIA. The Administration considered that the AAHK's proposal to self-finance the project by retaining profits earned and external borrowing was overall reasonable and practicable given AAHK's robust revenue performance in the past and the continued growth in revenue projected for future years. Its adoption of the "joint contribution" principle was more equitable than direct Government funding out of general revenue.

42. Some members were concerned that the proposed ACF might drive away HKIA passengers to use the neighbouring airports. They also requested AAHK to implement the proposed adjustment of the airport charges by about 15% in phases and devise a mechanism to control the adjustment of ACF and airport charges. The Administration advised that a number of airports around the world had imposed similar levies on passengers to finance airport expansion/development projects (see Annex A of LC Paper No. CB(4)650/14-15(05) for some examples). It was not envisaged that the introduction of ACF, as long as the amount was reasonable, would have significant impact on the demand of air travel at HKIA. Nevertheless, AAHK undertook to explore the feasibility of lowering the ACF amount from the current proposed \$180 to minimize the burden on passengers.

43. Members raised alternative proposals to finance the project, such as extending the suspension of dividends declaration to replace the implementation of ACF, or the issuance of local bonds or Islamic bonds. They also pointed out that the retail bond product similar to the inflation-linked retail bond with a specified interest would be welcomed by the public and its financial cost would be lower than that of borrowing from bank. Another proposal was the establishment of a "core fund" similar to that under the Mandatory Provident Fund for the project. AAHK remarked that it would explore the adoption of a multi-pronged approach to raise funds to finance the project based on the reassessment to be conducted by its financial consultant. As regards the funding requirement for the new government facilities required for the operation of 3RS (paragraph 11 above), members noted that the Secretary for Transport and Housing had undertaken to provide sufficient time for LegCo to consider the funding submission.

#### *Concern on bypassing the Legislative Council*

44. Some members expressed grave concern that the proposed financial arrangement was an attempt to bypass LegCo and hence undermining its constitutional power and responsibility to approve and monitor the project. This arrangement would serve as a bad precedence in the management of public finance. Members also enquired about the mandate of AAHK to make the proposed financial arrangement.

45. The Administration responded that according to the Airport Authority Ordinance (Cap. 483), AAHK was empowered to act to enable it to operate and develop HKIA, including making the necessary financial arrangement for airport expansion, and declaring or otherwise dividends with explanations. The current financial arrangement proposal did not require any form of Government guarantee and hence no resolution had to be passed by the LegCo in this respect in accordance with section 29(1) of the Ordinance. In addition, as AAHK would raise debt to bridge the funding gap, the market could help assess whether the 3RS project would be financially viable. Nevertheless, the Administration was very mindful of the scrutiny and role played by the LegCo and it would work closely with the LegCo to follow up related issues.

#### *Project risks*

46. Members noted that according to AAHK, the estimated increase of construction cost per year of project delay was about \$7 billion. Some members considered that the project should be timely completed within the agreed budget, and enquired if the Administration would draw on the Future Fund to finance the project if its cost was overrun. AAHK undertook to bear all relevant responsibilities. In anticipation of possible project slippage

during the eight years of construction causing delay and cost overrun, AAHK had conducted a risk assessment and some stress tests to ensure its financial viability in delivering the project and containing the cost within the agreed budget. Members noted that AAHK undertook to bear all relevant responsibilities.

47. Noting that the Government's independent financial consultant had evaluated AAHK's proposal and concluded that there should not be difficulties for AAHK to raise sufficient funds from the market under reasonable terms and conditions to bridge the funding gap, some members expressed grave concern about this conclusion in respect of –

- (a) the basis of the evaluation conducted by the Government's independent financial consultant;
- (b) the consequences if no sufficient fund was raised from the market;
- (c) the definition of reasonable terms and conditions and whether the Administration would eventually be required to take up all the responsibilities;
- (d) how far the bonds market would be affected if the project encountered any hiccups;
- (e) the contingency plan if AAHK was unable to pay its debts; and
- (f) whether the bonds would be required to be absorbed by the Exchange Fund ultimately to sustain the project and hence the public would bear the overall responsibility.

48. AAHK advised that it had engaged a financial consultant to vet and validate independently the financial analysis and financial arrangement proposals, including its revenue performance, credit rating and borrowing capacity. It added that the lowering of ACF proposed by the Government would in fact affect the borrowing capacity of AAHK and hence, its financial consultant would reassess the implication and the room for increasing credit facilities. It aimed to complete the assessment in about May 2015.

### Environmental concerns

#### *Marine ecology*

49. Members of the EA Panel expressed grave concern about the potential ecological impacts of the 3RS project. They strongly urged the

Administration to adopt a "Conservation before Construction" principle and implement the 18 proposed mitigation measures and four recommendations put forth by ACE to enhance the protection of ecology before commencing the 3RS project. In particular, the Administration should, before taking forward reclamation for the 3RS project, advance the establishment of the proposed new marine park nearby to provide a habitat for CWDs, and conduct dedicated scientific study on CWDs to ascertain their distribution and number in Hong Kong. It should also proactively explore co-operation opportunities with neighbouring Mainland cities on the protection of marine ecology.

50. Some members and deputations also expressed doubts whether the mitigation measures proposed by ACE were adequate enough to protect marine life, in particular CWDs, within the Hong Kong and the Pearl River Estuary waters. A member referred to the written submission from a deputation (LC Paper No. CB(1)378/14-15(31)) which criticized the Administration for under-estimating the ecological impacts of reclamation on CWDs.

51. The Administration responded that although the construction of 3RS might lead to a loss of habitat areas for CWDs, the proposed establishment of a new marine park of 2 400 hectares would promote the recovery of fisheries resources and provide a habitat for CWDs. The proposed marine park would also connect the existing Sha Chau and Lung Kwu Chau Marine Park to its north and the committed marine park at the Brothers to the east, forming a huge continuous stretch of marine protected area. Since the proposed marine park would connect the waters surrounding the expanded HKIA Approach Area where reclamation works would be carried out and construction vessels would be passing through, it might not be technically feasible to establish the marine park before construction of 3RS. The proposed new marine park could be set up only after the works of the 3RS project were completed, because performing construction works within would defeat the purpose of setting up a marine park. To mitigate the environmental impacts during the construction period, AAHK had committed in the EIA report the use of non-dredge deep cement mixing method for land formation, the avoidance of underwater percussive piling and the imposition of a speed limit of the Skypier and construction vessels within the works area to minimize chances of collision and disturbance to CWDs.

#### *Impacts on the fisheries industry*

52. A member expressed concern about the adverse impacts of the 3RS project on the fisheries industry and enquired about the measures to help it. The Administration advised that as assessed by AAHK in the EIA report, the impacts of the construction works on the fisheries operations in the area were

low to moderate. AAHK added that to support the sustainable development of the fisheries industry, it suggested to set up the Fisheries Enhancement Fund along with the Fisheries Enhancement Strategy ("FES") to encourage enhancements of trade operation. It would submit the proposal of this Fund to ACE for comment before making the submission to DEP for approval. In addition, it would continue to engage with a range of fisheries stakeholder groups so that their concerns and suggestions on fisheries enhancement measures could be taken into consideration where appropriate during the formulation and implementation of FES.

#### *Air and noise pollution*

53. Some members expressed concern about the noise pollution arising from the 3RS project and enquired the measures to combat this problem. The Administration advised that CAD had continued its effort in exploring and implementing all practicable aircraft noise mitigation measures. These included requiring aircraft to adopt the noise abatement take-off and landing procedures, prohibiting landing or taking off of aircraft which did not comply with the relevant noise standards stipulated in Annex 16 to the Convention on International Civil Aviation, encouraging airlines to use quieter aircraft, etc. In addition, when 3RS was commissioned in 2023, the South Runway would be put on standby mode between 11:00 pm to 7:00 am on the following day, where possible, to minimize aircraft noise impact on North Lantau. Nevertheless, some members suggested that local standards for aircraft noise emission should be set to minimize aircraft noise impact on the communities living near the flight path.

54. As a number of major infrastructural projects (e.g. the HZMB local projects) were under planning or construction near Lantau Island, some members were worried that the 3RS project would further aggravate the air and noise pollution problems in Tung Chung and adversely affect the health of local residents. They called upon the Administration to carefully assess the cumulative environmental impacts of potential or on-going projects in the adjoining areas in order to draw up environmentally acceptable schemes/designs and associated mitigation measures for the 3RS project.

#### *Monitoring the implementation of mitigation measures*

55. Some members expressed concern whether the Administration would conduct tracking studies on the compensatory, mitigation and enhancement measures accordingly to evaluate their effectiveness. AAHK advised that it would ensure that the project was designed, constructed and operated in accordance with the recommendations contained in the approved EIA report as well as the EP conditions of 3RS. Besides, it would carry out comprehensive environmental monitoring and audit ("EM&A") to ensure effective implementation of the proposed mitigation measures, and to identify



the need for remedial action if required. A full time on-site Environmental Team would be established to engage an Independent Environmental Checker to audit the EM&A performance. The Independent Environmental Checker would notify DEP direct if any non-compliance was identified.

### Judicial review

56. Noting that two applications for grant of leave for judicial review ("JR") had been filed to court to quash the decision of DEP to approve the EIA report of 3RS and grant EP for the 3RS project, members expressed concern that this might lead to delay in taking forward the project. According to the Administration, any further development with regard to the JR cases<sup>11</sup>, such as when the court hearings would be arranged, would inevitably have implications on the 3RS project. It would work closely with AAHK and relevant Government departments with a view to minimizing and containing the impact on the implementation of 3RS. The said applications for JR had been accepted by the court.

### AEPCO

57. At the relevant ESC meeting, some members expressed concern that the functions of AEPCO including overseeing and supporting AAHK's work in implementing the 3RS project might give rise to a role conflict and raise doubt on its role and accountability as an oversight body of AAHK. Given that the Executive Council had already indicated support for the 3RS project, some members did not believe that AEPCO could maintain effective and sufficient checks and balances over AAHK's work and assist LegCo in monitoring the implementation of the project. A member further pointed out that there was public expectation for the Government to exercise proper control and oversight of AAHK in implementing the project and environmental mitigation measures, resolving problems relating to airspace congestion in the PRD region and the "air wall" issue, and ensuring 3RS would meet its purposes.

58. The Administration disagreed that there was a role conflict in respect of the functions of AEPCO which was tasked to monitor the work of AAHK to ensure the compliance of the design and implementation of the 3RS project with the principles of fit-for-purpose and value-for-money, and that the 3RS project would meet public expectation and the future needs of the aviation industry. Since the implementation of the 3RS project would straddle various policy areas and involve various technical issues, AEPCO would act as a focal point in coordinating policy matters and resolving interfacing issues between Government bureaux/departments and AAHK.

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<sup>11</sup> In addition to the said JR cases, there are five additional applications for JR, including four against CE in Council's decision to take forward the 3RS project and AAHK's financial plan particularly the introduction of ACF, and one challenging the Town Planning Board procedures regarding the receipt of representations and comments in respect of the 3RS-related Outline Zoning Plan amendments.

59. Members passed a motion to adjourn the discussion on the Administration's proposal to create three supernumerary posts in AEPCO, having regard that there were numerous uncertainties surrounding the 3RS project, including the JRs against the EIA report and approval on EP for 3RS and a possible breach of the proposed financial arrangement with the Public Finance Ordinance (Cap. 2).

### **Council Meetings**

60. At the Council meetings on 15 October 2014, 4 and 25 February 2015, 15 and 22 April 2015, 27 May 2015 and 8 July 2015, Hon Kenneth LEUNG, Hon Gary FAN, Hon WU Chi-wai, Dr Hon KWOK Ka-ki, Hon Regina IP and Hon Albert CHAN raised questions about, inter alia, development and funding proposal of 3RS, aircraft noise, capacity and nearby developments of HKIA, and development of Hong Kong's air freight industry. Hyperlinks to the relevant written replies from the Administration are provided in **Appendix V**.

### **Latest development**

61. On 8 May 2015, the Lands Department issued a Government Notice for the reclamation works of HKIA's expansion into a 3RS. On the same day, the Town Planning Board issued a Government Notice announcing the amendments to the approved Chek Lap Kok Outline Zoning Plan.

62. At its meeting on 29 September 2015<sup>12</sup>, the Executive Council took note of AAHK's revised ACF regime and the financial arrangement. According to AAHK, the original proposal was that ACF would be set at \$180 per departing passenger (excluding transit passengers) from 2016-2017 to 2030-2031. AAHK estimated that such ACF level would generate an additional revenue of \$51 billion for AAHK for the period up to 2023-2024. According to its original financial arrangement proposal, AAHK advised that it would have to raise debt at around 3.1 times the earnings before interest, taxes, depreciation and amortization ("EBITDA") to bridge the funding gap of around \$39 billion.<sup>13</sup>

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<sup>12</sup> LegCo Brief issued on 29 September 2015 (File ref.: THB(T) CR2/582/08).

<sup>13</sup> Together with the existing debt of \$8 billion and the associated debt service charges of \$14 billion, AAHK's total borrowing would be around \$61 billion in FY2023-2024.

63. The revised ACF regime distinguishes the following passengers with differential charging levels set out below:

ACF (HK\$ per departing passenger)	<b>Origin/Destination</b>	<b>Premium Class</b>	<b>Economy Class</b>
	Long	\$180	\$160
	Short	\$160	\$90
	<b>Transfer/Transit</b>	<b>Premium Class</b>	<b>Economy Class</b>
	Long	\$180	\$160
Short	\$160	\$70	

64. With the revised ACF scheme above, AAHK estimates that there will be some \$16 billion less in net revenue (after deducting tax and airlines' handling fees) as compared to the original proposal for funding the 3RS project. AAHK will need to raise an additional debt of \$16 billion from the market to cover the shortfall. The independent financial consultant engaged by the Government is satisfied that, given AAHK's strong balance sheet and excellent credit rating, AAHK's proposed borrowing in the order of 4.5 times EBITDA in the financial year 2022-2023 is still viable without adversely affecting its credit ratings, although the proposed debt level may possibly approach the practical limit achievable in the market benchmarking from the experience in overseas airports.

### **Relevant papers**

65. A list of relevant papers which are available on the LegCo Website (<http://www.legco.gov.hk>) is in **Appendix V**. Further information on runway capacity and airport enhancements can be found in the information note prepared by the Research Office (LC Paper No. IN06/14-15).

Council Business Division 4  
Legislative Council Secretariat  
15 October 2015

## Appendix I

### Passenger traffic, cargo throughput and air traffic movements (1998 - 2014)

Year	Passenger traffic <sup>(1)</sup> (‘000 passengers)	Cargo throughput <sup>(2)</sup> (‘000 tonnes)	No. of air traffic movements <sup>(3)</sup>
1998	28 631	1 629	163 200
1999	30 394 (+6.2%)	1 974 (+21.2%)	167 400 (+2.6%)
2000	33 374 (+9.8%)	2 241 (+13.5%)	181 900 (+8.7%)
2001	33 065 (-0.9%)	2 074 (-7.5%)	196 800 (+8.2%)
2002	34 313 (+3.8%)	2 479 (+19.5%)	206 700 (+5.0%)
2003	27 433 (-20.1%)	2 642 (+6.6%)	187 500 (-9.3%)
2004	37 142 (+35.4%)	3 094 (+17.1%)	237 300 (+26.6%)
2005	40 740 (+9.7%)	3 402 (+10.0%)	263 500 (+11.0%)
2006	44 443 (+9.1%)	3 580 (+5.2%)	280 000 (+6.3%)
2007	47 783 (+7.5%)	3 742 (+4.5%)	295 000 (+5.4%)
2008	48 585 (+1.7%)	3 627 (-3.1%)	301 000 (+2.0%)
2009	46 167 (-5.0%)	3 347 (-7.7%)	279 000 (-7.3%)
2010	50 923 (+10.3%)	4 128 (+23.3%)	307 000 (+10.0%)
2011	53 904 (+5.9%)	3 938 (-4.6%)	334 000 (+8.8%)
2012	56 467 (+4.8%)	4 025 (+2.2%)	352 000 (+5.4%)
2013	59 903 (+6.1%)	4 127 (+2.5%)	372 000 (+5.7%)
2014	63 343 (+5.7%)	4 376 (+6.0%)	391 000 (+5.1%)

Notes:

- (1) Passenger traffic includes originating, terminating, transfer and transit passengers. Transfer and transit passengers are counted twice.
- (2) Cargo throughput includes import, export and transshipment cargo. Transshipment cargo throughput is counted twice.
- (3) Air traffic movements include civil international passenger flights, cargo flights and non-revenue flights (e.g. private aircraft). Military and local flights are excluded.

Source: Airport Authority Hong Kong.

## Appendix II

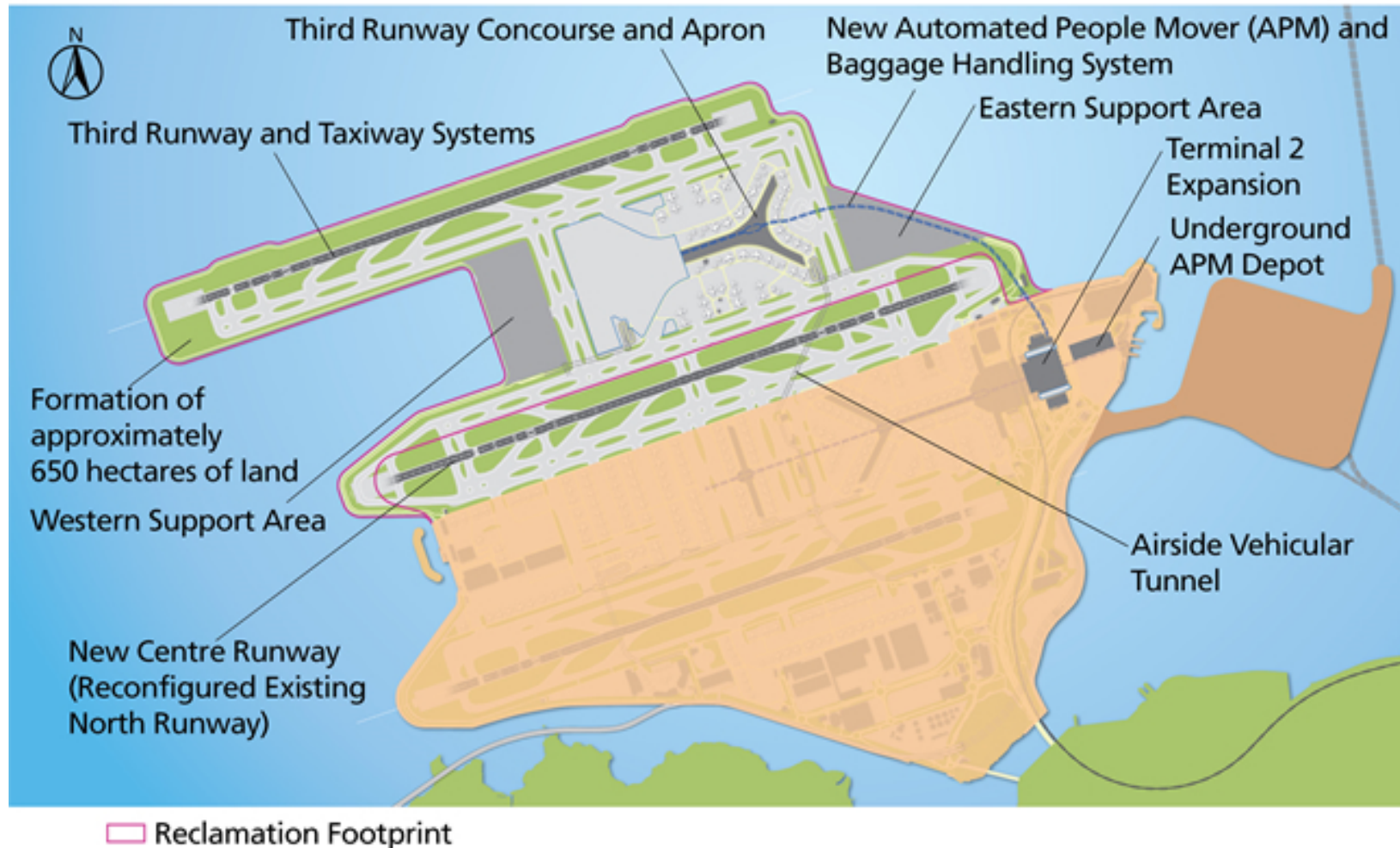
### **The key mitigation and enhancement commitments set out in the Environmental Impact Assessment Report on "Expansion of the Hong Kong International Airport ("HKIA") into a Three-runway system ("the 3RS EIA Report")"**

- (a) Aircraft noise
  - (i) Putting South Runway on standby mode at night, where possible, to minimize aircraft noise impact on North Lantau. With 3RS in place, noise impact on North Lantau will be significantly improved and no new noise sensitive receivers will be affected;
  - (ii) Implementing a preferential runway use programme when wind conditions allow such that more flights would fly over the sea instead of over the urban areas at night time; and
  - (iii) The Airport Authority Hong Kong will consider implementing incentive / charging scheme to encourage airlines switching to quieter aircraft.
- (b) Air quality
  - (i) Undertaking measures to minimize potential air quality impact, including the ban of use of Auxiliary Power Units for all aircraft frontal stands by the end of 2014 and the replacement of all saloon vehicles to electric vehicles by the end of 2017; and
  - (ii) Providing the cleanest diesel and gasoline at the airfield.
- (c) Marine ecology and fisheries, and Chinese White Dolphins ("CWDs")
  - (i) The use of non-dredge method for land formation; including the adoption of deep cement mixing for improving ground conditions for the contaminated mud pit area;
  - (ii) Designation of approximately 2 400 hectares of a new marine park to connect HKIA Approach Areas and the existing and planned marine parks at Sha Chau / Lung Kwu Chau ("SCLKC") and Brothers Island. The total combined area of marine protected area will be around 5 200 hectares in Hong Kong western waters linking major habitats of CWDs;

- (iii) Route diversion of high speed ferries ("HSFs") operating at SkyPier to travel along Urmston Road instead. Besides, a speed limit of 15 knot would be observed by these SkyPier HSFs if they are navigating close to the waters north of SCLKC Marine Park; and
- (iv) The implementation of the Fisheries Enhancement Strategy with associated funding to assist fishermen in better coping with changes to their fishing activities resulting from 3RS project and to enhance fisheries resources in Hong Kong western waters. A Marine Ecology Enhancement Strategy with associated funding is also proposed to focus specifically on enhancing marine ecology (including health and survivability of CWDs) in North Lantau waters.

Details of other major mitigation measures as committed in the 3RS EIA Report are set out in the Annex to Appendix I of LC Paper No. CB(1)245/14-15(04).

# Three-Runway System Layout



(Source: The Website of the Airport Authority Hong Kong at [http://www.threerunwaysystem.com/en/Overview/Three\\_runway\\_system.aspx](http://www.threerunwaysystem.com/en/Overview/Three_runway_system.aspx))

**Major expansion plans of the neighbouring airports include –**

<b>Airport</b>	<b>Expansion plans</b>
Shanghai Pudong International airport	A five-runway system – raising total annual handling capacity to 80 million passengers and 4.7 million tonnes of cargo by 2020
Guangzhou Baiyun airport	Expanding the three-runway system into a five-runway system – raising total annual handling capacity to 80 million passengers and 2.5 million tonnes of cargo by 2020
Shenzhen Bao'an airport	A three-runway system – raising total annual handling capacity to 45 million passengers and 2.4 million tonnes of cargo by 2020
Singapore Changi airport	A three-runway system – raising total annual handling capacity to 135 million passengers by 2025
Seoul Incheon airport	A five-runway system – raising total annual handling capacity to 62 million passengers and 5.8 million tonnes of cargo by 2020
Dubai airport	The fourth passenger concourse – raising total annual handling capacity to 90 million passengers by 2018

Source: Transport and Housing Bureau (LC Paper No. CB(4)650/14-15(05))



## List of relevant papers

Issued by	Meeting date/ Issue date	Paper
Panel on Economic Development	27 January 2014 (Agenda V)	<a href="#">Agenda</a> <a href="#">Minutes</a>
	23 June 2014 (Agenda IV)	<a href="#">Agenda</a> <a href="#">Minutes</a>
	2 February 2015 (Agenda IV)	<a href="#">Agenda</a> <a href="#">Minutes</a> <a href="#">Administration's paper</a>
	23 March 2015 (Agenda V)	<a href="#">Agenda</a> <a href="#">Minutes</a> <a href="#">Background brief</a> <a href="#">Administration's paper</a> <a href="#">Administration's follow-up paper</a> <a href="#">Information note prepared by the Research Office</a>
Joint meetings of Panel on Economic Development and Panel on Environmental Affairs	30 September 2014 (Agenda II)	<a href="#">Agenda</a> <a href="#">Minutes</a> <a href="#">Administration's paper</a> <a href="#">List of follow-up actions</a> <a href="#">Administration and Airport Authority</a> <a href="#">Hong Kong's follow-up paper</a>
	7 October 2014 (Agenda II)	<a href="#">Agenda</a> <a href="#">Minutes</a> <a href="#">Administration's paper</a> <a href="#">List of follow-up actions</a> <a href="#">Administration and Airport Authority</a> <a href="#">Hong Kong's follow-up paper</a>
	27 April 2015 (Agenda II)	<a href="#">Agenda</a> <a href="#">Minutes</a>

<b>Issued by</b>	<b>Meeting date/ Issue date</b>	<b>Paper</b>
Panel on Environmental Affairs	24 November 2014 (Agenda IV)	<a href="#"><u>Agenda</u></a> <a href="#"><u>Minutes</u></a> <a href="#"><u>Background brief</u></a> <a href="#"><u>Administration's paper</u></a> <a href="#"><u>Administration's follow-up paper</u></a>
	6 January 2015 (Agenda I)	<a href="#"><u>Agenda</u></a> <a href="#"><u>Minutes</u></a> <a href="#"><u>Background brief</u></a> <a href="#"><u>Information note prepared by the Research Office</u></a> <a href="#"><u>Administration's paper</u></a>
Council Meeting	15 October 2014	<a href="#"><u>Written reply by the Secretary for Transport and Housing to a question on "Air traffic movements at the Hong Kong International Airport" raised by Hon Kenneth LEUNG</u></a>
	4 February 2015	<a href="#"><u>Written reply by the Secretary for Transport and Housing to a question on "Expansion of Hong Kong International Airport into a Three-runway System " raised by Hon Gary FAN</u></a>
	25 February 2015	<a href="#"><u>Written reply by the Secretary for Transport and Housing to a question on "Development of Hong Kong's Air Freight Industry" raised by Hon WU Chi-wai</u></a>
	15 April 2015	<a href="#"><u>Written reply by the Secretary for Transport and Housing to a question on "Expansion of Hong Kong International Airport into a Three-runway System" raised by Dr Hon KWOK Ka-ki</u></a>

<b>Issued by</b>	<b>Meeting date/ Issue date</b>	<b>Paper</b>
	22 April 2015	<u>Written reply by the Secretary for Transport and Housing to a question on "Funding Proposal for Project to Expand Hong Kong International Airport into a Three-runway System" raised by Hon Regina IP</u>
	27 May 2015	<u>Written reply by the Secretary for Transport and Housing to a question on "Aircraft noise" raised by Hon Albert CHAN</u>
	8 July 2015	<u>Written reply by the Secretary for Transport and Housing to a question on "The Hong Kong International Airport's capacity to receive visitors" raised by Hon YIU Si-wing</u>
	8 July 2015	<u>Written reply by the Secretary for Transport and Housing to a question on "Development of North Commercial District and payment of relevant land premium by the Airport Authority" raised by Dr Hon KWOK Ka-ki</u>
House Committee	15 May 2015	<u>Proposal for the appointment of a subcommittee under the House Committee to follow up issues relating to the three-runway system at the Hong Kong International Airport Minutes</u>
Establishment Subcommittee	27 May 2015	<u>Minutes Administration's supplementary information</u>
Legislative Council Brief	20 March 2012	<u>Hong Kong International Airport Master Plan 2030</u>

<b>Issued by</b>	<b>Meeting date/ Issue date</b>	<b>Paper</b>
	20 March 2015	<u>Hong Kong International Airport – three runway-system</u>
	29 September 2015	<u>Hong Kong International Airport – Three-Runway System: Airport Construction Fee</u>