File Ref: THB(T)CR 3/930/08

LEGISLATIVE COUNCIL BRIEF

HONG KONG INTERNATIONAL AIRPORT MASTER PLAN 2030

INTRODUCTION

At the meeting of the Executive Council on 20 March 2012, the Council **ADVISED** and the Chief Executive **ORDERED** that –

(a) approval, in-principle, should be given to AAHK's recommendation to adopt the option of expanding into a three-runway system as the future development option for HKIA for planning purpose;

(b) AAHK should be asked to proceed with the planning related to the development of the three-runway system, which include specifically the statutory environmental impact assessment (EIA), the associated design details, and the financial arrangements; and

(c) AAHK should be asked to report to the Government after completion of the planning work at (b) above. A final decision on whether to proceed with the implementation of the three-runway system will be made when the relevant inputs are available.

JUSTIFICATIONS

Master Plan 2030

2. It is necessary for AAHK to plan ahead as airport development is capital investment-intensive and requires a long lead time for its planning and implementation. AAHK reviews and updates the 20-year master plan

for HKIA once every five years. The Master Plan 2030, which was drawn up in late 2010, sets out the following two development options –

(a) **Option 1 : maintaining the existing two-runway system** – this option maintains the existing two-runway system but requires further investment in terminal and apron facilities (for example, passenger concourses, automated people mover, baggage handling system, freighter stands, internal road infrastructure, etc.). The construction cost is estimated to be HK$23.4 billion (in 2010 dollars) or HK$42.5 billion (at money-of-the-day prices). This option would enable HKIA to meet the estimated demand for air traffic up to sometime between 2019 and 2022; and

(b) **Option 2 : expanding into a three-runway system** – this option involves the construction of a third runway and its associated concourses and apron facilities (for example, passenger concourses, automated people mover, baggage handling system, freighter apron, internal road infrastructure, etc.) and requires a reclamation of about 650 hectares to the north of the existing airport island. The construction cost is estimated to be HK$86.2 billion (in 2010 dollars) or HK$136.2 billion (at money-of-the-day prices). This option can meet the long-term air traffic demand up to and possibly beyond 2030.

Public Consultation Exercise on Master Plan 2030

3. AAHK conducted a three-month public consultation exercise on Master Plan 2030 between 3 June and 2 September 2011 to seek public views on the future development of HKIA. During the period, exhibitions and briefings were organised, a dedicated website on the Master Plan 2030 was set up and responses to questionnaires were invited. In the questionnaires, the two proposed development options were presented for respondents to indicate their overall preference as well as their preferred option after considering each of the following eight considerations - Hong Kong's air connectivity, service quality, competitiveness, economic growth, creation of jobs, convenience for travel, environmental impact and construction cost. To ensure a fair and impartial process in the compilation of public opinion, AAHK appointed the Social Science Research Centre

(SSRC) of the University of Hong Kong (HKU) to independently compile, analyse and report on the views collected during the three-month public consultation on the Master Plan 2030. The executive summary of the HKU report prepared by SSRC is at http://www.hkairport2030.com/en/information/pdf/consultation_results_report.pdf.

4. On the basis of the quantitative analysis of a total of 24 242 questionnaires received –

(a) there was broad consensus that HKIA connects Hong Kong with the world, enabling the city to be an international aviation hub; HKIA provides quality airport services and facilities; HKIA promotes Hong Kong's economic growth; HKIA strengthens Hong Kong's competitiveness; HKIA creates employment; HKIA makes it more convenient for travel and that HKIA should continue to be expanded to cope with future demand;

(b) there was board consensus that the benefits to Hong Kong's air connectivity, service quality, competitiveness, economic growth, creation of jobs, convenience for travel, environmental impact and construction cost were all important considerations for investment in expanding HKIA's capacity;

(c) taking into account each of the above considerations in isolation, there was strong preference for the three-runway option, except for construction cost, where there was still clear preference for the three-runway option (41.6% vs 24.8%) and environmental impact, where there was almost as much support for the two-runway option (29.5%) as the three-runway option (37.4%);

(d) when considered overall, there was a clear preference for the three-runway option. About three quarters of respondents (73.0%) preferred the three-runway option overall, while about 10% of them (11.1%) preferred the two-runway option overall; and

(e) nearly 80% of the respondents (79.9%) either strongly agreed or agreed that it was urgent that AAHK should make a decision now on how the airport should be further developed, while a small proportion of them (6.3%) either strongly disagreed or disagreed with it.

5. In addition, SSRC analysed some 15 200 entries of qualitative feedback collected through a total of ten different channels such as public forums, events, signature campaigns, social media, etc. Based on the qualitative feedback –

(a) there was broad consensus about the benefits of enhanced connectivity from the third runway to HKIA and Hong Kong from a very wide range of perspectives, especially in terms of economic growth and competitiveness, and of the negative impact on HKIA and Hong Kong if the third runway was not built, with little in the way of dissent, other than concern that some of the projected growth might be transferred to Pearl River Delta (PRD) airports and the high-speed rail or not appear due to lower economic growth or higher oil prices;

(b) there was broad consensus that air traffic demand would increase in future, exceeding the capacity constraint of two runways, although some disagreement whether this would happen in the timeframe projected by AAHK and a shared concern about the need for the government to negotiate more airspace;

(c) the primary areas of concern were the environmental impact of the third runway and whether there was enough information in the consultation paper documents to adequately evaluate the impact of the options. There was a clear concern that the environmental costs had not been fully addressed and sufficient information about the environmental impact and possible mitigation had not been provided in order to have an informed public debate about the options; and

(d) there was consensus that the EIA should be done as soon as possible to allow the necessary informed debate about how the

environmental impacts could be mitigated and to avoid delay in construction. However, it was clear that different stakeholders had very different views on how or even whether the environmental costs and economic benefits could be balanced.

AAHK's Recommendation on Master Plan 2030

6. On the basis of the clear majority support for HKIA to continue to be expanded to cope with the future air traffic demand and the clear majority preference for adopting the three-runway option, the Board of AAHK submitted its recommendation to the Government on 29 December 2011. In summary, it recommended the Government to -

(a) approve, in principle, for AAHK to adopt the option of expanding into a three-runway system as the future development option for HKIA for planning purpose; and

(b) endorse AAHK to proceed with the planning related to the development of the three-runway option, and specifically the statutory EIA and the associated design details.

7. The key considerations behind AAHK's recommendation and its key responses to the public concerns raised during the public consultation exercise are summarised below -

(a) Air Traffic Demand Forecast

(i) According to the air traffic demand forecast conducted by the AAHK's consultant, the annual passenger traffic demand will reach 97 million, annual cargo traffic demand 8.9 million tonnes, and annual air traffic movements (ATMs) 602 000 in 2030. As the maximum capacity of the existing two-runway system is 420 000 ATMs per year, it is necessary to expand the HKIA to meet the growing air traffic movements;

(ii) while there are rapid developments in PRD airports, the need for expanding HKIA would not be removed through greater co-operation with PRD airports;

(iii) with the development of high speed rail in the Mainland, the "rail plus airport" would have a positive induced effect on demand for air travel from Hong Kong's perspective. The longer term positive impact on air traffic demand generated by high speed rail would likely outweigh the short-term effect on air-rail competition as the catchment area of HKIA would likely be enlarged; and

(iv) the negative impact brought by the commencement of cross-strait direct flights in July 2008 was only short-term and has been mitigated by the increase in cross-strait traffic due to the relaxation of the policy for people from the Mainland to visit Taiwan and the new air travel demand stimulated by increase cross-strait economic activities. AAHK considered that cross-strait direct flights should not affect the long-term traffic demand forecast in any significant way.

(b) Capacity Constraint of the Existing Two-Runway System

(i) The practical maximum runway capacity of the two-runway system of HKIA is about 420 000 ATMs per year. It is estimated that the airport will reach its maximum capacity sometime between 2019 and 2022;

(ii) the proposed three-runway system would increase HKIA's capacity to about 620 000 ATMs per year which accordingly should fully accommodate the demand forecast of 602 000 ATMs by 2030;

(iii) the advance in aircraft and air traffic control technology might possibly increase the capacity of the present two-runway system marginally in the long run, which is however way short of meeting HKIA's air traffic demand by 2030; and

(iv) while PRD airspace is admittedly busy during certain period of time, it has not been a constraint to HKIA insofar

as its overall development of air services is concerned as only 23% of flights to and from HKIA use PRD airspace. In addition, there are plans agreed among relevant civil aviation authorities (Mainland, Macao and Hong Kong) to address issues relating to the PRD airspace.

(c) Economic Benefits

(i) The substantial capital investment involved is well justified, not just for HKIA but also in respect of the overall economic benefits to Hong Kong. AAHK's consultant has estimated that a three-runway system would bring an Economic Net Present Value[1] of $912 billion (2009 dollars) which is substantially higher than that of a two-runway system ($432 billion in 2009 dollars). A three-runway system would also create more permanent direct jobs as well as indirect and induced jobs than a two-runway system.

(d) Funding Arrangements and Construction Costs

(i) According to AAHK's consultant, there would be a funding shortfall of about $102 billion (at money-of-the-day prices) for the three-runway option. The construction cost is substantial as the expansion of the HKIA into a three-runway system involves much more than just an additional runway. It includes an extensive reclamation of about 650 hectares and a full range of airport operational and supporting facilities that is comparable to a fully-fledged airport; and

(ii) while the capital investment for the three-runway system is substantial, the capital expenditure would be spread over a span of 18 years and the annual capital expenditure only ranges from HK$3.7 billion to HK$13 billion. Assuming that a suitable level of financial and policy support is

[1] Economic Net Present Value refers to the difference between the present value of the future economic benefits from an investment and the present value of the investment amount.

granted by the Government, the three-runway option should be financially feasible.

(e) Environmental Issues

(i) A preliminary environmental assessment was conducted covering a wide range of environmental issues including water quality, hydrodynamics, marine ecology, air quality, aircraft noise and impact on fisheries and Chinese White Dolphins, etc.; and

(ii) AAHK recognises that the three-runway option has wide environmental implications. The concerns raised by the public, in particular the green groups, on environmental impact, will be fully addressed under the statutory EIA process.

The Government's Views on AAHK's Recommendation

8. Taking into account the considerations in the ensuing paragraphs, we consider that the option of expanding into a three-runway system should be adopted as the future development option for the HKIA for planning purpose and the AAHK should proceed with the next stage of work for the three-runway system.

Benefits generated by the HKIA and the need for the three-runway system

9. HKIA is an international and regional aviation centre. Over 95 airlines provide services between Hong Kong and about 160 destinations worldwide, operating more than 850 ATMs per day. HKIA not only provides services to travellers, it makes a significant impact in the entire economy. According to AAHK's consultants, the current employment on the airport island is about 65 000 people, and that the economic contribution generated by HKIA in 2008 amounted to HK$78 billion in value added[2] or 4.6% of Hong Kong's Gross Domestic Product.

[2] Value added is the value of gross output less the value of intermediate consumption (the value of goods and services used up in the course of production).

10. Connectivity is the key to Hong Kong's competitiveness and is crucial to maintaining Hong Kong as an international business centre. The better Hong Kong is connected to the world, the more we stand to gain across different sectors of our economy. Airport operation generates a lot of upstream and downstream economic activities, including financial services, insurance, professional services, trading and logistics, high value-added manufacturing, tourism, retail and exhibition, etc. The airport drives our productivity and efficiency, and creates the necessary environment for Hong Kong's economy to continue to grow.

11. There has been enormous growth in traffic performance at HKIA since the Kai Tak days (from handling 29.7 million passengers, 1.8 million tonnes of cargo and 165 000 ATMs in 1997 at Kai Tak International Airport to 53.9 million passengers, 3.9 million tonnes of cargo and 334 000 ATMs in 2011 at HKIA). AAHK expects that the handling capacity of HKIA's two-runway system will reach its full capacity in around 2019 to 2022. According to AAHK's consultant[3], by 2030, the air traffic demand is estimated to reach about 97 million passengers, nine million tonnes of cargo and 600 000 ATMs per year. Such a demand is way beyond the runway capacity of HKIA's existing two-runway system (i.e. 420 000 ATMs per year). In 2011, the actual air traffic at HKIA was already considerably higher than the traffic demand forecast included in the Master Plan 2030, which was around two years ahead of the forecast. If HKIA runs out of capacity, once all available slots are taken up, any new flight movements will only be possible as a substitute for an existing flight. Airlines would possibly concentrate on the more lucrative routes, resulting in fewer destinations being served, less competition on each route, longer transit time and delays, and higher prices for travellers. Hong Kong's hard-earned aviation network, and thus its connectivity, would inevitably shrink as a result and constrain the growth of Hong Kong as an aviation hub.

12. We have engaged a consultant to vet and validate independently the economic benefits that would be generated by the two development

[3] AAHK has commissioned International Air Transport Association (IATA) Consulting to develop the traffic demand forecast for the Master Plan 2030. With comprehensive understanding of airline strategies and access to leading-edge traffic databases, IATA Consulting has extensive experience in conducting traffic demand forecast research and analysis for major airports, including London Heathrow, Paris Charles de Gaulle, Dubai and Bangkok.

options and to review the financial assessment submitted by AAHK on the expansion options under the Master Plan 2030. The focus of the economic analysis was the reasonableness and appropriateness of the methodology used for the economic analysis of the Master Plan 2030, the validity of data and assumptions, and the accuracy of computation, with data updated for the years 2009 and 2010, where available. The consultant found the methodology of AAHK's economic assessment largely in order and confirmed that there is a strong economic case for the construction of a third runway for HKIA.

Public views on the future development of the HKIA

13. Based on the outcome of the public consultation exercise on the Master Plan 2030, there is clear public support for HKIA to continue to be expanded to cope with the future air traffic demand and clear preference for adopting the three-runway option as the future development option for HKIA. The contributions of HKIA to Hong Kong have also been clearly recognised by the public as demonstrated in the findings of the public consultation exercise.

Environmental Issues

14. It is noted that the environmental impacts associated with the three-runway system is a major area of concern. Preliminary environmental assessments have been conducted in the Master Plan 2030, the level of details of which facilitated AAHK to evaluate and select the most desirable airport layout. AAHK would proceed to conduct the statutory EIA so as to further assess the environmental impacts of the three-runway system and to address them with mitigation measures. In particular, with the announcement of the Government's decision to update the Air Quality Objectives (AQOs), AAHK has undertaken that a detailed air quality impact assessment by adopting the new AQOs as the benchmark will be conducted under the EIA studies. In addition, AAHK has in recent years adopted a number of environmental friendly measures which include the early retirement of old vehicles which are replaced by hybrid and electric vehicles, electrification of aviation ground support equipment, tree planting, and rooftop greening, etc. During the course of the EIA, AAHK will explore all possible mitigation measures to address the relevant environmental issues.

Funding Arrangement

15. Given the substantial capital investment involved, it is noted that there would be a substantial funding shortfall for the three-runway option. We have engaged a consultant to vet and validate independently the preliminary financial analysis carried out by AAHK's consultant. According to our consultant's findings, the methodology, assumptions and computation of AAHK's preliminary financial analysis are generally reasonable with the information available as at present. Apart from the capital investment for the three-runway system, the Government will need to carry out associated public works to enable the commissioning of the three-runway system. The capital costs for these public works are not covered in AAHK's estimation and need to be further worked out by the Government.

Next Stage of Work

16. AAHK will deploy its resources for proceeding with the planning relating to the three-runway option and the major work will involve –

(a) the statutory EIA - to assess various aspects of the potential environmental impacts and address them with mitigation measures. It is envisaged that the whole EIA process will take about two years;

(b) the associated design details - it will be prepared in parallel with the EIA process and will be refined upon the availability of the outcomes of the EIA, in particular, to take into account the required mitigation measures; and

(c) the financing arrangements - the final estimated construction cost is subject to the detailed design and further planning of the project. The financing arrangements on how best to bridge the funding gap will have to be worked out for discussion with the Government.

The Government will also have to design and plan for the associated public works. Upon completion of the above, a final decision on whether to

proceed with the development of the three-runway system will be made when the relevant inputs are available.

Interface between the Government and AAHK

17. AAHK is a statutory body wholly owned by the Government. It is mandated under the Airport Authority Ordinance (Chapter 483) to operate, develop and maintain HKIA in accordance with the objective of maintaining Hong Kong's status as a centre of international and regional aviation. As the development of the three-runway system involves a whole host of engineering, funding and environmental issues, there is a need for the Government to closely steer the work of AAHK to ensure that the work ahead will be undertaken in the most effective way. It is also necessary for the Government to co-ordinate efforts among relevant Government departments on issues which are beyond AAHK's purview. The scale and complexity of the third runway project warrants the Government working in close partnership with AAHK so as to provide timely advice and initiate action to ensure that the work is taken forward on the right track at its early stage.

18. In order to facilitate the Government to discharge its functions, the Government will proceed to set up a high-level steering committee to provide steer to AAHK and a dedicated team led by the relevant policy bureau to support the steering committee and undertake the daily monitoring and co-ordination work.

OTHER OPTIONS

19. The other development option, i.e. maintaining a two-runway system with further investment in terminal and apron facilities, is not recommended because this option only allows HKIA to cope with air traffic demand up to sometime between 2019 and 2022. The capacity growth of HKIA would be halted and the economic benefits for Hong Kong associated with that potential growth would be lost. Hong Kong's overall competitiveness in terms of its position as an international business centre and an aviation hub would be adversely affected. Such option is considered not desirable and should not be pursued.

IMPLICATIONS OF THE PROPOSAL

20. The proposal has no productivity and legal implications. The proposal is in conformity with the Basic Law, including the provisions concerning human rights. The financial, economic, civil service, environmental and sustainability implications are set out in **Annex**.

Annex

PUBLIC CONSULTATION

21. AAHK consulted the public from 3 June 2011 to 2 September 2011 on the Master Plan 2030. The outcome of the public consultation is set out in the report prepared by the SSRC of the HKU (see http://www.hkairport2030.com/en/information/pdf/consultation_results_report.pdf).

PUBLICITY

22. A press announcement will be made on 20 March 2012 and a spokesman will be made available for press enquiries. The LegCo Panel on Economic Development will be briefed accordingly.

BACKGROUND

23. Through the preparation of a 20-year Master Plan, which is reviewed and updated every five years, AAHK aims to set out the strategic direction of the future development of the airport. The preparation of the Master Plan 2030 began in 2008. To ensure a transparent, professional and unbiased planning process, AAHK commissioned nine independent consultants to research into different strategic aspects of airport development such as air traffic forecasts, economic impact, preliminary engineering feasibility and environmental assessment to cover broadly all the key areas required for making an informed recommendation on HKIA's future development strategy. AAHK conducted a public consultation on the Master Plan 2030 from June to September 2011 to seek the public's views on the future development of HKIA.

ENQUIRIES

24. Any enquiry on this brief should be directed to Ms Jenny Chan, Principal Assistant Secretary (Transport) (telephone number: 3509 8194).

Transport and Housing Bureau
20 March 2012

Annex

Financial, Economic, Civil Service, Environmental and Sustainability Implications

Financial Implications

The cost of expanding the Hong Kong International Airport (HKIA) into a three-runway system would result in a funding gap as the amount of capital expenditure required will exceed the prudent borrowing capacity of AAHK and the internal cashflows of AAHK. The Government has engaged a consultant to vet and validate independently the financial aspect relating to the three-runway option. According to the consultant's findings, the methodology, assumptions and computation of AAHK's financial analysis are generally acceptable with the information available as at present.

2. Upon the availability of the outcomes of the environmental impact assessment (EIA), in particular the required mitigation measures, AAHK will refine the associated design details and will update the estimated construction cost and formulate proposed financing arrangements for developing the three-runway system for discussion with the Government. Apart from the capital expenditure required for adopting the three-runway system to be incurred by AAHK, there will also be financial implications to the Government for carrying out associated public works to enable the commissioning of the three-runway system. The costs of these public works have to be further worked out by the Government.

3. Upon the availability of the final estimated construction cost of the three-runway system and the proposal of financing arrangements from AAHK, the Government will again engage a financial consultant to vet and validate independently the updated estimated costs and financing arrangements proposed by AAHK. The financial consultant will also be asked to advise the Government on the financial implications and optimal financing options for discussion with AAHK on how best to bridge the funding gap of the project. The Government will then assess whether the three-runway system is financially feasible, taking into account the final estimated construction cost, the proposed financing arrangements, the then fiscal position of the Government and the economic situation of Hong Kong.

Economic Implications

4. HKIA plays a critical role not only in maintaining Hong Kong's status as an international aviation hub, but also in upholding our attractiveness as a business hub and international financial centre. It facilitates people travel in and out of Hong Kong by an efficient mode of transport, and renders a very important supporting function to our key growth pillars, including tourism, import/export trade and logistics, and professional services.

5. We have engaged a consultant to vet and validate independently the economic benefits that would be generated by the two development options and to review the financial assessment submitted by AAHK on the expansion options under the Master Plan 2030. The consultant found the methodology of AAHK's economic assessment largely in order and confirmed that there is a strong economic case for the construction of a third runway for HKIA. The construction of a third runway will provide HKIA with the capacity to meet the unconstrained traffic demand up to and potentially beyond 2030, thereby enabling Hong Kong to more fully grasp the opportunities stemming from the envisaged strong economic growth in the region.

Civil Service Implications

6. AAHK, a statutory body wholly owned by the Government, will be responsible for undertaking the next stage of work. The scale and complexity of the project also warrant the Government working in close partnership with AAHK so as to ensure that the works are taken forward on the right track at its early stage. For example, in formulating some territory-wide environmental mitigation measures, preparing the associated design details, and undertaking essential technical assessments including traffic, drainage and sewage associated with the design details, a lot of Government's inputs and co-ordination are expected. In addition, by the time AAHK comes up with an updated estimated construction cost and financing proposals, the Government will have to vet and validate the updated cost and consider the financial implications and optimal financing options.

7. In order to facilitate the Government to discharge its functions, a high-level steering committee will be set up to provide steer to AAHK, and a dedicated team led by the relevant policy bureau will be formed to support the steering committee and to undertake the daily monitoring and co-ordination work relating to the development of the three-runway system. Additional resources required for setting up the dedicated team will be sought in accordance with the established resource allocation mechanism.

Environmental Implications

8. AAHK has conducted a preliminary environmental assessment on the three-runway option. It is found that a number of environmental issues will be involved including the impacts on hydrodynamic and cumulative water quality, noise, air quality, ecology (especially the Chinese White Dolphins) and fisheries. The magnitude of the impacts will be subject to the final scale of works to be pursued. AAHK will carry out an EIA study in accordance with the Environmental Impact Assessment Ordinance with a view to investigating the environmental issues in detail and recommending measures to address the environmental impacts.

9. According to preliminary studies on the possible air quality impact of the flight movements projected for 2030, HKIA's operations make a relatively small contribution to the overall air quality of Hong Kong and the air quality in the three-runway option would not exceed the prevailing Air Quality Objectives (AQOs) for all air sensitive receivers in the vicinity of HKIA. With the announcement of the Government's decision to update the AQOs, AAHK has committed to conduct a detailed air quality impact assessment by adopting the new AQOs as the benchmark when the statutory EIA is conducted.

Sustainability Implications

10. AAHK has conducted a preliminary sustainability assessment for the Master Plan 2030. The findings indicate that the three-runway system would bring about socioeconomic benefits to Hong Kong, particularly in generating more employment, investment and business opportunities and hence, would be conducive to Hong Kong's long-term economic development. On the other hand, the three-runway system would

impose negative impact on marine ecology, fishery, noise and air quality, as well as the landscape value. Mitigation measures should be adequately identified in the EIA process to minimize the potential environmental impact. The differing concerns of various stakeholders should also be properly addressed and handled with care. A more comprehensive sustainability assessment will be conducted when more information is available.