[English Translation]

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Hon Andrew LEUNG Kwan-yuen, GBS, JP
Chairman, Subcommittee to Follow Up Issues
Relating to the Three-runway System
at the Hong Kong International Airport
Room 905
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Hon Andrew LEUNG,

Questions from the Hong Kong Confederation of Trade Unions on the Three-runway System at the Hong Kong International Airport

Regarding the questions raised by Hon LEE Cheuk-yan in his letter dated 6 April 2016 on the runway capacity of the Hong Kong International Airport (HKIA) and the airspace management issues of the Pearl River Delta (PRD) Region, our written response is as follows.

The HKIA is one of the world's busiest international cargo and passenger airports. In 2015, the HKIA handled approximately 69 million passengers while cargo throughput reached 4.38 million tonnes. Air traffic movements (ATMs) exceeded 400 000 last year, representing a rise of 4% over 2014. For the first two months of this year (2016), ATMs and the number of passengers exceeded 60 000 and 11 million respectively, representing an increase of 5% and 9% over the same period of last year.

These figures show that the HKIA has become busier day by day. The existing two-runway system (2RS) is expected to reach full capacity either in this year or next year at the soonest. As a matter of fact, the current 2RS has already reached 68 ATMs per hour viz. its practical maximum capacity during peak hours. We must take forward the construction of the third runway as soon as possible to

maintain Hong Kong's status as an aviation hub and our overall competitiveness in economic terms amidst strong competition from other international airports in the region which are actively expanding. Our responses to the questions raised in the letter are as follows:

Runway Capacity of HKIA

Question: Please advise the utilization rate of the reduction of inter-arrival spacing at HKIA as published by AIC 19/15 since its implementation in October 2015. Does this measure increase the capacity of the two runways? (Question No.1 of the letter)

In 2008, the Airport Authority Hong Kong (AAHK) commissioned the National Air Traffic Services (NATS) of the United Kingdom to conduct a thorough review of the runway capacity of the HKIA. Over 40 improvement recommendations were put forward to increase the maximum capacity of the existing 2RS under continued full compliance of the safety standards/requirements of the International Civil Aviation Organisation (ICAO). One of the recommended measures was to reduce the minimum inter-arrival spacing to 3.5 nautical miles (NM). Subsequent to a comprehensive study, the Civil Aviation Department (CAD) has implemented this enhancement measure since 22 October 2015. Provided certain operational conditions, including good weather conditions (e.g. visibility, wind speed) are met, the inter-arrival spacing can be reduced to a minimum of 3.5 NM. In this connection, the CAD has concurrently increased the maximum runway capacity of the 2RS from 67 to 68 flight movements per hour, which is the current practical maximum capacity as confirmed in the consultancy report.

Question: Please advise whether the existing 2RS has reached the theoretical maximum capacity of 68 movements per hour. If yes, please list such dates and periods. If no, please advise the highest number of air traffic movements up till now with the respective dates and periods. (Question No.2 of the letter)

During some peak periods (from 11 am to noon and from 4 pm to 5 pm), the 2RS at the HKIA has already reached 68 ATMs per hour. Subject to the concurrent occurrences of various favourable conditions which are conducive to aircraft and runway operation, including fine weather in the Hong Kong Flight Information Region (FIR), visibility in the vicinity of airport at a certain level, favourable wind direction and wind speed, and a combination of aircraft types, the actual ATMs per hour at the runways of the HKIA may be slightly over 68. According to CAD's data, the total number of occasions where the 2RS of HKIA reached or exceeded 68 ATMs per hour in 2015 was 87, accounting for 1.4% of the total number of hours of the 2RS operation. Nevertheless, the above mentioned favourable conditions are beyond control and are unpredictable, and they do not often exist. As such, an ATM of more than 68 per hour cannot be achieved on a sustained basis.

Owing to the two constraining factors (i.e. the need for safe spacing between aircraft and the surrounding terrain near runways), various consultancy studies had confirmed that the existing 2RS is unable to operate at significantly higher capacity than 68 ATMs per hour. In order to comply with the requirement of the Environmental Impact Assessment, the consultant took into account various factors including the ATMs per hour and the need for alternate closure of the two runways every night for routine maintenance to conclude that the annual practical maximum capacity of the existing 2RS of HKIA is 420 000. As mentioned above, the ATMs of HKIA has already exceeded 400 000 last year. In this regard, it is anticipated that the annual practical maximum capacity of 420 000 would be reached soon.

PRD Region Airspace Management

Question: What are the meanings of use of common standards, joint airspace planning, and harmonised flight procedure design? (Question No. 4 of the letter)

To cater for the rapid development of the aviation industry and the future expansion of the five major airports (Hong Kong, Shenzhen, Macao, Zhuhai and Guangzhou) in the PRD region, the Civil Aviation Administration of China (CAAC), the CAD of Hong Kong SAR and the Civil Aviation Authority of Macao SAR (CAAM) jointly established a Tripartite Working Group (TWG) in 2004 to formulate measures to enhance the airspace structure and air traffic management arrangements in the PRD region in order to optimise the use of airspace and improve safety. The "Pearl River Delta Region Air Traffic Management Planning and Implementation Plan (Version 2.0)" (the Plan) drew up by the TWG in 2007 has taken into account the operation need of the Three-runway System (3RS) at the HKIA and the future development of other major airports (including the Shenzhen airport) in the PRD region. The Plan is based on the principles of joint airspace planning, use of common standards, and harmonised flight procedure design, which mean that the whole PRD airspace is considered as an entity with various ATM enhancement measures to be adopted. It is a joint effort of the three sides with an aim to ensuring that the use of airspace is optimised and flight procedures of the major airports in the PRD region are compatible with each other. Where necessary, adoption of common operational standards will also be considered. The overarching objective of the Plan is to optimise the utilization and management of PRD airspace, in a safe and efficient manner, for the mutual benefits of the five major airports in the PRD region.

Question: What is the progress of the computer simulation of flight procedures in relation to Hong Kong? (Question No. 7 of the letter)

The Plan has been analyzed and studied by technical personnel from the aviation authorities of the Mainland, Hong Kong and Macao with the use of advanced evaluation techniques (including fast time simulations), and has

incorporated the views of air traffic control experts of the three sides during its formation. It is a practical and feasible plan for mutual benefits, which also safeguards aviation safety of PRD region as a whole. The "computer simulation of flight procedure" mentioned in the letter is part of the above evaluation work which has been completed before the formulation of the Plan.

Question: What is the progress of establishing peripheral flight paths to the east and west of the PRD region? (Question No. 8 of the letter)

Over the years, the TWG has all along been committed to implementing measures for improving airspace structure and air traffic management. Some of the specific results include:

(i) establishment of two additional handover points and corresponding air routes between Hong Kong and Guangzhou FIRs to cater for flights overflying Hong Kong and landing in Guangzhou and Shenzhen;

(ii) establishment of new air routes for the eastern part of the Mainland and an additional handover point between Hong Kong and Guangzhou FIRs for flights operating between Hong Kong, Macao and the eastern part of the Mainland; and

(iii) completion of the adjustment of the Zhuhai airspace structure and implementation of enhanced structure of peripheral flight paths in the PRD region. (i.e. "establishment of peripheral flight paths to the east and west of the PRD region" as mentioned in the letter)

Question: What is the progress of standardized barometric pressure setting? (Question No. 1 of the letter)
Question: What is the progress of standardized altimeter setting? (Question No. 2 of the letter)
Question: What is the progress of integrated release (departure) and has Macao completed this item? (Question No. 5 of the letter)

The other enhancement measures in the Plan including standardized barometric pressure setting (also known as standardized altimeter setting) and the PRD Integrated Departure Release System (i.e. the "integrated release (departure)" as mentioned in the letter) are being studied and evaluated by the technical personnel of the three sides. Relevant measures will be implemented in phases based on operational needs.

Question: What is the progress of standardizing interface and protocols of air traffic control systems? (Question No. 3 of the letter)
Question: What is the plan to construct a high-speed broadband transmission network for the exchange of information in the region? (Question No. 6 of the letter)

A number of optimisation measures in the Plan pertaining to communication equipment have been implemented to cater for the rapid development of air traffic in the PRD region in future, including the commissioning of a new high-speed network for the exchange of information in 2013 to replace the old low-speed network. Moreover, the Mainland, Hong Kong and Macao have joined hands to formulate and adopt a data format that is recognized internationally. Since 2007, exchange of information on air traffic services and air traffic control systems has been implemented progressively. Technical personnel of the three sides review and enhance the performance of their communication equipment on a regular basis to meet daily operational needs.

Question: What is the progress of opening up the lower airspace in the PRD region and the development of inter-modal connections? (Question No. 10 of the letter)

"Opening up the lower airspace in the PRD region" mentioned in the letter refers to the reform of management of the lower airspace, which is understood to be applicable to general aviation (GA) conducted in lower airspace under 1 000 meters from the ground level. GA generally refers to aviation operations other than public air transport operations, including business flights, private flights, flight training, and survey and surveillance as well as special flights for search and rescue missions. It has no relationship with the operation and runway capacity of the HKIA.

"Developing multi-modal connections" aims to expand the catchment area of the HKIA through the provision of cross-boundary passenger trips via coaches, limousines and ferry services to air passengers travelling to and from the PRD region and destinations around the world. Last year, about 550 scheduled coaches plied between the HKIA and 110 cities, towns and villages in the PRD region. The SkyPier at the HKIA provides speedy air-sea connection ferry services between Hong Kong and nine cities in the PRD region for transfer passengers. At present, the SkyPier provides nine cross-boundary ferry routes serving Shekou and Fuyong in Shenzhen, Maritime Ferry Terminal and Taipa in Macao, Humen in Dongguan, Nansha in Guangzhou, Lianhuashan in Guangzhou, Zhongshan, and Jiuzhou in Zhuhai.

With the progressive completion of major transportation infrastructure projects in the PRD region and Hong Kong in the coming few years, including the Hong Kong-Zhuhai-Macao Bridge and the Tuen Mun-Chek Lap Kok Link, the journey time for passengers and cargo to reach the HKIA will be further reduced.

Upon the completion and commissioning of the Hong Kong-Zhuhai-Macao Bridge, road-based traffic between Hong Kong and the western part of the PRD will become more convenient. In order that the Hong Kong-Zhuhai-Macao Bridge and the HKIA will achieve greater synergy, the AA is exploring the expansion of multi-modal connection facilities to facilitate passengers of Zhuhai and Macao to travel to and from the HKIA.

Question: What are the concepts of removing the airspace constraints of PRD region and setting up of the Southern PRD Terminal Area? What are the considerations in relation to Article 130 of the Basic Law? (Question No.11 of the letter)

The enhancement measures and targets of the Plan are formulated on the basis of the Basic Law and ICAO's standard. No matter what plan on airspace management will Hong Kong, Macao and the Mainland consider or adopt, the airspace concerned would still belong to the original air traffic control unit. This is in line with the relevant provisions of the Basic Law. Aviation safety is the priority of the TWG and the safety regulations on airspace management set out by the ICAO will be strictly adhered to. Flight safety will not be compromised.

Regarding the removal of airspace constraints within the PRD region and the corresponding concepts as mentioned in the letter, they are based on an air traffic management arrangement known as "delegation of airspace" which is recommended by the ICAO in Annex 11 of the Convention on International Civil Aviation – Air Traffic Services. As we have explained at the meeting of the Subcommittee to Follow Up Issues Relating to the Three-runway System at the HKIA on 12 April, to enhance air traffic management efficiency, the ICAO has been advocating to its member states that air route structure and air traffic management efficiency, instead of national boundaries, should be the prime considerations in planning the airspace. This kind of airspace management methodology is a common international practice, for instance between Singapore and Malaysia, and between Germany and Switzerland.

Question: When will the content of the meetings of the three sides be made public as agreed by the Secretary for Transport and Housing, Professor Anthony Cheung on 21 March 2015? (Question No. 9 of the letter)

The Plan covers assessments on the future air traffic demand of the PRD region, as well as analyses of the ATC environment and development. It also recommends measures to improve air traffic management and planning of the PRD region, including a range of short, medium and long term measures to optimise the developmental opportunity and synergy of the five airports in the PRD region. By analysing the historic and projected growth of air traffic in the region, business development plan of individual airports as well as the structure of airspace of individual FIRs, the Plan proposes enhancement measures relating to airspace planning, operation standards, operational procedures and management. These

measures are intended to deal with the growing demand arising from PRD air traffic growth. It also sets out the direction for TWG's future work, including further collaboration among the three civil aviation authorities to augment the strength and role of individual airports with an ultimate aim of achieving a more seamless, effective and optimised regional airspace management system.

The Plan is a government-to-government document jointly prepared by the Mainland, Hong Kong and Macao, containing sensitive information provided by the Mainland and Macao aviation authorities. The three sides have agreed to keep it confidential. Thus, we are not in a position to disclose the content of the Plan. Nevertheless, the CAAC and the Hong Kong CAD have published press releases on the implementation of the Plan at different stages to update the public of the relevant progress. Recently, the CAD has published press releases on the implementation of one of the key enhancement measures, i.e. the launching of new air routes for traffic to and from eastern part of the Mainland, and the latest work progress and salient points of discussion of the three sides. Details are at Annexes 1 to 3.

The CAD, as in the past, will continue to proactively promote exchanges and co-operation on air traffic management in the PRD region, to pursue via the TWG various air traffic control and airspace enhancement measures as set out in the Plan to cope with the sustained growth of air traffic in the region and to meet the future development needs of airports in the region.

We thank Members' interest in relevant matters.

Yours sincerely,

(Ms Joyce CHAN)
for Secretary for Transport and Housing

c.c.:
Hon LEE Cheuk-yan
CAD
AAHK

Annex 1

CAD and CAAC reach agreement on new air routes for traffic to and from eastern part of the Mainland

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Through the co-operation platform of the Pearl River Delta (PRD) Region Air Traffic Management Planning and Implementation Working Group, the Civil Aviation Department (CAD) of Hong Kong today (October 20) reached an agreement with the Air Traffic Management Bureau of the Civil Aviation Administration of China (CAAC) in which new air routes for the eastern part of the Mainland and an associated additional handover point between the Hong Kong and Guangzhou Flight Information Regions (FIRs) called LELIM would be established for flights operating between Hong Kong, Macau and the eastern part of the Mainland with effect from January 7, 2016.

At present, flights departing from the Hong Kong or Macau airports, as well as those from Southeast Asia, Australia and New Zealand transiting the Hong Kong FIR, to and from the eastern part of the Mainland are going into and out of the Mainland FIRs on one single air route. The increase in air traffic volume led to the overloading of the existing flight path while the busy airspace also increased the complexity in flight handling.

The launching of new air routes for the eastern part of the Mainland was one of the key enhancement measures set out by the PRD Region Air Traffic Management Planning and Implementation Plan (Version 2.0). To achieve it, the CAD has been in close liaison with the CAAC and has held several co-ordination meetings to exchange views on technical arrangements. This measure aims to optimise the efficiency of the air routes for the eastern part of the Mainland, on the premise that the safety, order and efficiency of its implementation can be safeguarded.

The introduction of the new air routes and handover point will split the flights departing from Hong Kong and Macau, and those transiting the Hong Kong FIR. This will help ease the traffic load of the existing air routes. Furthermore, this may enhance the airspace capacity and air traffic flow, as well as the air traffic management efficiency to cater for the ongoing growth in the volume of air traffic between Hong Kong and the Mainland.

The CAD, as in the past, will continue to proactively promote exchanges on PRD region air traffic management co-operation. It will also study and implement other measures to further rationalise the airspace management in the region to cope with the rapid growth in the volume of air traffic in future.

Ends/Tuesday, October 20, 2015
Issued at HKT 20:05

Annex 2

CAD and ATMB exchange views on optimisation and co-operation on use of PRD airspace (with photo)

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The Civil Aviation Department (CAD) of Hong Kong and the Air Traffic Management Bureau (ATMB) of the Civil Aviation Administration of China today (November 25) held a meeting in Shanghai to further exchange views on optimisation and co-operation on the use of the Pearl River Delta (PRD) airspace. The topics discussed at the meeting included the progress of establishing new air routes for the eastern part of the Mainland and an associated additional handover point between the Hong Kong and Guangzhou Flight Information Regions as agreed between the CAD and the ATMB last month, as well as other airspace enhancement measures in the PRD region.

The CAD, as in the past, will continue to proactively promote exchanges and co-operation on PRD region air traffic management, as well as continue to study and implement other measures to further enhance the airspace design and management in the region to cope with the rapid growth in air traffic in the future.

Ends/Wednesday, November 25, 2015
Issued at HKT 16:35

Annex 3

Meeting held between THB, CAD and Director General of Air Traffic Management Bureau of CAAC

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Representatives from the Transport and Housing Bureau and the Director-General of Civil Aviation, Mr Norman Lo, today (March 23) met with the Director General of the Air Traffic Management Bureau (ATMB) of the Civil Aviation Administration of China (CAAC), Mr Che Jinjun, in Hong Kong to exchange views on various issues regarding the Pearl River Delta (PRD) region, including enhancement of flight procedures and airspace structure, and optimisation of the airspace utilisation in the region, and to pave the way for further high-level co-operation in the future on an ongoing basis.

During the meeting, representatives from the Civil Aviation Department (CAD) briefed the participants on the latest developments of the three-runway system (3RS) at the Hong Kong International Airport (HKIA). Mr Che said that the ATMB of the CAAC has all along strongly supported the airspace co-ordination work for the development of a new runway at the HKIA to strengthen Hong Kong's position as an international transport centre and to reinforce the HKIA as an international aviation hub.

With regard to the management and utilisation of the PRD airspace resources, Mr Che noted that the ATMB of the CAAC would continue to promote synergy and foster co-operation through the tripartite co-ordination mechanism, which comprises the Mainland, Hong Kong and Macau, in the aim of pushing forward the implementation of all airspace enhancement measures and achieving the ultimate target of implementing the Pearl River Delta Region Air Traffic Management Planning and Implementation Plan (the Plan) progressively in a gradual and orderly manner. This would bring about healthy and orderly development of the airports in the PRD region and give full play to the unique strengths of the region. This would also enable the 3RS of the HKIA to maximise its potential and to achieve the target runway capacity of 102 air traffic movements per hour in the long run.

Mr Lo said that the State Council issued a guideline last week on promoting co-operation within the pan-PRD region which clearly stated that the Central People's Government supports the development of the 3RS at the HKIA to reinforce Hong Kong's position as an international aviation hub and for the closer co-operation between the HKIA and its neighbouring airports in the Mainland. The guideline also clearly supports the co-ordinated management and utilisation of pan-PRD airspace resources.

The meeting today also reaffirmed the positive impacts of the new air routes and associated additional handover point for traffic to and from the eastern part of the Mainland which were established in January this year, which have helped

to enhance the number of flights between Hong Kong and the Mainland. In addition, the meeting also confirmed the enhanced tripartite high-level co-ordination mechanism. Representatives of the Mainland and Hong Kong also explored ways to improve the on-time performance of airlines.

The CAD, as in the past, will continue to proactively promote exchanges and co-operation on PRD region air traffic management, to pursue via the Tripartite Working Group various air traffic control and airspace enhancement measures as set out in the Plan to cope with the sustained growth of air traffic in the region and to meet the future development needs of all airports in the region.

Ends/Wednesday, March 23, 2016
Issued at HKT 18:55