TOWN PLANNING BOARD

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For Information by the

Town Planning Board on 10.4.2015

Expansion of Hong Kong International Airport into a Three-runway System

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PURPOSE

1. This paper is to brief Members on the planned expansion of the Hong Kong International Airport (HKIA) into a Three-runway System (3RS).

BACKGROUND

2. In addition to being an important transport infrastructure, HKIA also plays a significant role in Hong Kong's economy by enhancing the city's competitiveness through extensive air connectivity. The better Hong Kong is connected to the world, the more that trade and various sectors benefit. Financial services, insurance, professional services, trading and logistics, high-value-added manufacturing, tourism, retail, exhibitions and other sectors all stand to gain from the economic activities generated by HKIA. Therefore, it is critical to ensure that HKIA has sufficient capacity to accommodate future growth, and that Hong Kong continues to invest in airport infrastructure in a timely manner.

3. To maintain Hong Kong's position as an international and regional aviation centre, and to ensure that HKIA has sufficient capacity to handle its growing air traffic demand, the Government gave in-principle approval in March 2012 for Airport Authority Hong Kong (AAHK) to adopt a three-runway system as HKIA's future development option for planning purposes. Since then, AAHK has accomplished the relevant planning work, namely, the statutory environmental impact assessment (EIA), the associated design details, and the financial arrangements for the 3RS project. AAHK submitted its recommendations to the Government in January 2015. After considering the recommendations, the Government, on 17 March 2015, affirmed the need for the 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. AAHK will actively explore ways to facilitate the early implementation of the 3RS with a view to commissioning the 3RS in 2023.

THE URGENT NEED FOR 3RS SYSTEM

4. Over the past decade, Hong Kong's air traffic has climbed over 65%. In 2014, HKIA handled approximately 63.3 million passengers, 4.38 million tonnes of cargo and 391,000 air traffic movements (ATMs). On average, HKIA currently handles over 1,100 daily flight movements, which is very close to the two-runway system's (2RS) maximum practical runway capacity of 1,200 flights each day. The latest air traffic statistics show that the handling capacity of the 2RS would likely reach its maximum practical capacity in 2016 or 17, a few years earlier than the projection made in Master Plan 2030 (MP2030) published in 2011.

5. In light of the imminent saturation of the existing 2RS and rising competition from neighbouring airports (including Singapore Changi, Seoul Incheon, Guangzhou, Shenzhen and Dubai airports) which have all rolled out expansion plans, AAHK must upgrade the facilities at HKIA and plan ahead so as to accommodate the airport's growing demand.

6. In the short to medium term, AAHK has completed/ is implementing a series of plans to optimise/ expand the airport facilities to increase HKIA's handling capacity, including the west apron expansion project and the midfield development project. While the above expansion project will help incrementally and temporarily increase HKIA's terminal facilities, it is essential to expand HKIA further through the implementation of the 3RS project, in order to cater for long-term air traffic demand and maintain the competitiveness of both the airport and Hong Kong.

7. There have been comments suggesting that the capacity constraint at HKIA could be resolved through better utilization of the existing 2RS. These suggestions are not feasible. In terms of efficiency, HKIA is currently one of the world's most efficient airports[1]. Among the world's top 100 airports, HKIA has the second-highest proportion of wide-bodied aircraft (at 63.3%). In addition, the aircraft mix at the airport is driven by market demand and determined by airlines. It is not for the airport operators or governments to dictate such decision, not to mention that unnecessary interference will undermine the operational efficiencies of both airports and airlines. Having an extensive flight network is one of the

[1] *Airport efficiency is measured in terms of workload unit. One workload unit is equivalent to one passenger or 100 kg of cargo. According to Airport Council International Annual Report 2013, HKIA was named the most efficient airport with each air traffic movement carrying 264.5 workload units on average.*

core elements to help maintain HKIA's connectivity. Giving up less prominent but still commercially popular destinations would not only cause inconvenience to travelers, but also adversely impact the development of the aviation, logistics, hotel and tourism, trading, retail and catering industries – which together account for about 58% of Hong Kong's GDP and 47% of its jobs in 2012 – thereby undermining the city's overall competitiveness.

8. As mentioned above, there is a pressing need to implement the 3RS project. With the 3RS in place, HKIA's capacity would increase substantially, from 420,000 ATMs per year under the 2RS to 620,000 ATMs per year. By 2030, the 3RS at HKIA is expected to handle around 100 million passengers and 8.9 million tonnes of cargo annually. According to AAHK's latest projections, the 3RS will bring additional economic benefits of $455 billion (2012 dollars) over the 50-year period (from 2012 to 2061) as compared with 2RS. By 2030, 3RS is also expected to create around 120,000 direct and 160,000 indirect/ induced job opportunities.

THE 3RS DEVELOPMENT

Key Project Components

9. In line with MP2030 recommendations, the 3RS project will provide additional capacity for 30 million passengers per annum (mppa) upon commissioning by the planning year of 2023, with provisions for expansion to cater for further 20 mppa, as and when required. **Figure I** shows an overall layout plan for the 3RS development with the following primary components:

- Formation of approximately 650 ha of land north of the existing airport island, bounded by approximately 13.4km of seawall;
- Construction of the Third Runway, taxiways and apron;
- Construction of the Third Runway Concourse (TRC) with 57 parking positions upon 3RS commissioning;
- Modification/expansion of the existing Terminal 2 (T2) into a full service processing terminal and construction of associated road network;
- Provision of a new Automated People Mover (APM) system connecting T2 and TRC and an integrated maintenance depot that serves also the existing system;

- Provision of a new high-speed Baggage Handling System (BHS) to serve between T2 and TRC; and
- Construction of other associated airport support infrastructure, facilities and utilities for 3RS operation.

10. The scope of works and design details of the 3RS as elaborated below will be fine-tuned at the detailed design stage to ensure the final project design is well justified with due considerations for economy as well as safety and operational efficiency.

A. <u>Land Formation</u>

Land formation of about 650 ha is required to the north of the existing airport island by reclamation. The layout and size of the 3RS reclamation are dictated by the infrastructure works that need to be constructed on it. The works include construction of a new runway, a passenger concourse and all associated taxiways, aprons and airport infrastructure.

B. <u>Third Runway, Taxiways and Apron</u>

The new 3,800m long North Runway is parallel to the existing two runways and to the north of the existing airport platform. The new North Runway will become the main arrival runway. The new Centre Runway will become the main departure runway. Rapid Exit Taxiways (RET), parallel taxiways and crossfield taxiways are provided to allow aircraft to efficiently exit from the runway and access the Airport aprons.

C. <u>Third Runway Concourse (TRC)</u>

Building is configured in a 'Y' shape on plan and provides contact stands and gates around its entire perimeter which is similar to Terminal 1 (T1). The TRC will provide 57 parking positions and handle 30 mppa. It introduces many green features and a courtyard at the centre of the concourse, where its lush green lawn and groves of trees offer a tranquil setting for relaxation and enjoyment.

D. <u>Terminal 2 (T2) Expansion</u>

The role of T2 is set to change into that of a full processing terminal serving departure, arrival and transfer operations. An APM Interchange Station (AIS) will be provided

at the basement of T2 to serve as the central transfer between T1, T2, TRC and SkyPier.

E. <u>Associated Airport Ancillary/Supporting Infrastructure, Utilities and Facilities</u>

The majority of the proposed ancillary facilities required to support the daily operations of the future 3RS are planned to be located in the Eastern Support Area (ESA) and Western Support Area (WSA).

a. *ESA* – The ESA to the east of the TRC is mainly home to the ground service equipment (GSE), flight catering facilities, Government facilities and utilities. It also accommodates the underground APM and BHS facilities, and their associated above-ground facilities.

b. *WSA* – The WSA to the west of TRC mainly accommodates maintenance and servicing facilities to support the operational needs of the 3RS. These mainly include aircraft maintenance facilities (such as maintenance hangars and aprons, engine run-up facilities, and aircraft recovery equipment facilities), GSE and other supporting facilities, air cargo staging area, Government facilities as well as utilities.

c. *Road Network and Tunnel* – The 3RS development will require the extension and improvement of some existing landside roads on the airport island, and the provision of a new airside vehicular tunnel connecting the existing 2RS facilities to the future development areas to ensure operational continuity.

d. *Other Airport Ancillary/ Supporting Facilities* – Other ancillary facilities include power supply system, potable water and fire fighting system, seawater supply system, stormwater drainage and oil interceptor system, sewerage system, APM system and associated infrastructures, an APM depot (about 3.5 ha), Airfield Ground Lighting (AGL) vaults, Aircraft Maintenance facilities, Aviation Fuel Supply Systems, Ground Support Equipment and Vehicles Storage facilities, Aircraft Washing facilities, Antenna Farms, Communications Equipment and Masts, BHS and associated facilities, Passenger Baggage Trolley Recirculation facilities, Security Gatehouses, Security Screening facilities, associated operational ancillary Facilities, etc.

TECHNICAL ASSESSMENTS

11. EIA, Traffic Impact Assessment (TIA) and Scheme designs including various technical analyses have been carried out for the expansion of HKIA into a 3RS. The following paragraphs provide the key summaries of the relevant EIA and TIA completed in view of the planning concerns.

Summary of EIA

12. AAHK has completed the statutory EIA for the 3RS project in accordance with the provisions of the Environmental Impact Assessment Ordinance (EIAO) (Chapter 499), its Technical Memorandum (TM) and the relevant EIA Study Brief for the 3RS project issued by the Environmental Protection Department (EPD) in August 2012. A team of local and overseas consultants and experts was engaged by AAHK to conduct the EIA which assessed 12 environmental aspects including, for example, impact from aircraft noise, impact on air quality, impact on marine ecology including Chinese White Dolphins (CWDs) and fisheries, as well as the impact on human health arising from aircraft noise and emissions. AAHK has committed to undertaking a number of mitigation measures in the EIA Report to address various environmental concerns and to minimize, mitigate and compensate for all potential impacts arising from the 3RS project in full compliance with the EIAO with respect to the requirements stipulated in the TM and EIA Study Brief. The Full Report and Executive Summary are available via EPD's website[2].

13. The Director of Environmental Protection approved the EIA Report on 7 November 2014 with 18 implementation requirements and issued the Environmental Permit (EP) for the

[2] *http://www.epd.gov.hk/eia/register/report/eiareport/eia_2232014/html/index.htm*

3RS project. AAHK will start its work to fulfill the commitments made in the EIA Report and to comply with the respective requirements stipulated in the EP granted under the EIAO.

Summary of TIA

14. Under the EIA Study, a TIA was carried out in order to assess and evaluate the possible traffic impacts of the 3RS project. The transport model forecast was carried out for year 2026 and year 2031 under both 2RS and 3RS scenarios. The forecast results showed that all major roads will operate within the practical capacity in years 2026 and 2031 under both scenarios.

PUBLIC CONSULTATION

15. Since the preparation of MP2030 in 2008, AAHK has reached out to a wide spectrum of stakeholders to seek their views and explain the Airport's development plans.

16. A survey was conducted in 2011 independently by the Social Sciences Research Centre (SSRC) of the University of Hong Kong (HKU) to gauge the public's views about their preferred option for airport expansion which included two options for the long-term development of HKIA. These options were to maintain the airport's 2RS, or to develop HKIA into a 3RS. A total of 24,242 questionnaires were received online, by mail, and from collection boxes located at HKIA and the roving exhibitions that were held during the three-month public consultation. The views were then studied by the SSRC. The survey result revealed that nearly 80% of the respondents agreed or strongly agreed that AAHK should make a decision urgently on HKIA's future expansion plans, and 73% of respondents preferred the three-runway option. The relevant report can be accessed through 3RS website[3].

17. Throughout the planning process of the 3RS project, particularly during the EIA process, AAHK has reached out to promote the 3RS project and conducted regular 3RS briefings as well as airport visits for business and aviation sectors, community leaders, resident groups, professional and industry organisations, Members of the Legislative and District Councils, green groups, school and academic sector and the media. From late 2008 to March 2015, AAHK organized and took part in more than 1,200 engagement activities

[3] *http://www.threerunwaysystem.com/en/Information/Publications.aspx*

such as public forums, roundtable meetings, workshops, airport visits, briefings, exhibitions and seminars with a variety of stakeholder groups.

18. Among the various engagement initiatives, AAHK also set up four Technical Briefing Groups to collect the professional views from experts and academia with technical expertise in specific environmental aspects (i.e. air quality, noise, marine ecology and fisheries, as well as CWDs); and five Community Liaison Groups in HKIA's neighbouring districts (i.e. Islands, Kwai Tsing, Shatin, Tsuen Wan and Tuen Mun) in order to exchange views with District Councilors and the community leaders on the 3RS development.

19. During the EIA public inspection period, AAHK also organized briefings for business partners and media, roving exhibition, as well as two sessions of public forums to update the public on the findings of the EIA and the initiatives to mitigate the potential impacts of the 3RS.

20. AAHK will continue to step up its publicity and engagement efforts to generate wider and sustained community support for the 3RS project with focus on building a stronger bond between the community and the airport under the themes of HKIA being the airport for the people of Hong Kong and HKIA's striving to be one of the world's greenest airports.

ADVICE SOUGHT

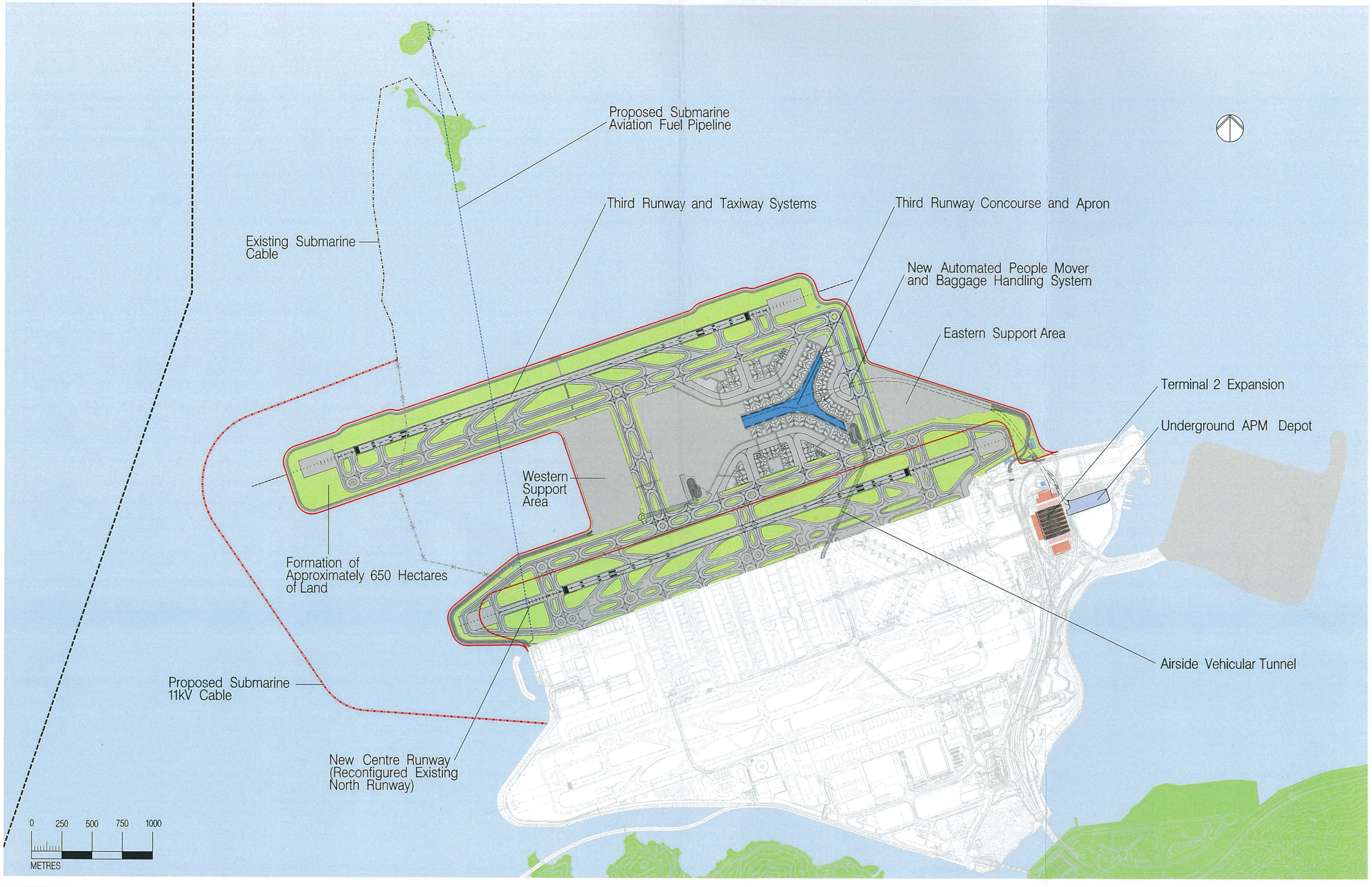
21. Members are invited to note the latest progress of 3RS project.

Airport Authority Hong Kong

April 2015

ATTACHMENTS

Figure I Overall Layout Plan for 3RS Development



香港 國際機場 HONG KONG INTERNATIONAL AIRPORT	Title: Overall Layout Plan for 3RS Development	Fig. Figure 1
		Date Feb 2015