

**For Discussion
on 23 April 2018**

Legislative Council Panel on Economic Development

**Update on the Development of the Three-Runway System
at the Hong Kong International Airport**

Purpose

This paper provides an update on the developments of the Three-Runway System (“3RS”) project.

Background

2. The Subcommittee to Follow Up Issues Relating to the Three-Runway System at the Hong Kong International Airport (“the Subcommittee”) under the House Committee of the Sixth Legislative Council was formed in October 2016 to study and follow up on issues relating to the 3RS at the Hong Kong International Airport. At the meeting of the Subcommittee on 5 December 2016, Members were given an overview, project scope and progress update of the 3RS, vide LC Paper No. CB(4)197/16-17(01). The Subcommittee subsequently concluded its work in November 2017 and recommended, amongst others, that the progress update of the 3RS project should be provided to the Panel on Economic Development on a half-yearly basis.

3. This paper presents the latest major developments of the 3RS project since the last update to the Subcommittee in December 2016, namely updates on (a) construction; (b) labour supply; (c) construction safety; (d) environmental-related issues; and (e) financial arrangement plan, which are summarised in the paragraphs below.

Progress Update on 3RS Works

(a) Construction

4. A layout plan showing the 3RS project scope is at **Appendix 1**. As explained in LC Paper No. CB(4)197/16-17(01),

construction works of 3RS, which commenced on 1 August 2016, is generally proceeding in the following order: diversion of existing utilities; land formation; and building and infrastructure works.

(i) *Diversion of Existing Utilities*

5. Diversion of the existing facilities includes the submarine power cables and aviation fuel pipelines between the airport island and Sha Chau. These works are necessary as the cables and pipelines will be affected by the reclamation works.

6. Diversion of the CLP Power Hong Kong Limited's undersea power cables was completed in March 2017 as scheduled, while the aviation fuel pipeline diversion works have been substantially completed in the first quarter of 2018.

(ii) *Land Formation*

7. Of the 650 hectares of land to be formed by reclamation, about 40% of the area is underlain by filled Contaminated Mud Pits ("CMPs"). The contaminated mud is generally highly disturbed and is softer than the surrounding mud. Having considered the possible impacts on the environment, Deep Cement Mixing ("DCM"), which involves no dredging, has been used to improve ground conditions in the CMP area for the purpose of reclamation above.

8. As reported at the meeting in December 2016, DCM works commenced on 1 August 2016 with the award of five DCM contracts and the main reclamation contract. The award of six contracts is to cope with the scale and complexity of the reclamation works as well as a means of risk management. Through diversification of the reclamation contracts, the Airport Authority Hong Kong ("AAHK") has been able to tap the widest possible number of reclamation expertise in the market.

9. To date, DCM works under the seawall areas are substantially completed while DCM and Prefabricated Vertical Drain ("PVD") works in the reclamation areas are also proceeding well. Seawall construction has also commenced and is progressing well, with the commencement of mass reclamation filling targeted for May 2018.

10. The supply of fill materials is essential to the reclamation works. Given the large quantity of fill materials required for the reclamation, it has always been the plan to use different sources of fill

materials. The Central People’s Government has given its full support for the 3RS project, including the supply of marine sand. While AAHK and its contractor are working with the Mainland authorities on the arrangements of the marine sand supply, AAHK has secured a combination of fill materials from a number of other sources, predominantly manufactured sand; supplemented by the increased use of public fill generated locally; and fill material imported from other areas. Insofar as manufactured sand is concerned, the existing six production lines would soon be increased to eight in order to increase output. Sorting of public fill will commence in May 2018. These sources of supply of fill materials should provide sufficient fill materials for 2018.

11. During DCM installation, the project has also encountered a number of unforeseen obstructions in the CMPs and the more than expected number of tropical cyclones¹ in 2017, both of which had led to some degree of disruption to production schedules. The disruption to the 3RS works due to tropical cyclones was exacerbated by the need to demobilise as soon as typhoon signal number 1 was raised.

12. Despite the above circumstances, the progress of the reclamation has been managed satisfactorily. All in all, the 3RS project remains on schedule to deliver the new third runway by 2022 and to meet the target commissioning of the entire 3RS system by the end of 2024, and within the budget of \$141.5 billion.

(iii) Building and Infrastructure Works

13. In addition to reclamation works, the 3RS project also consists of other core components such as the expansion of the existing Terminal 2 (“T2”), the construction of the Third Runway (or the new North Runway), the Third Runway Passenger Building (“TRPB”), the modification of the existing North Runway, as well as the construction of airfield infrastructure.

14. The contract relating to T2 foundations and substructure have been awarded and site works have commenced as planned. The detailed design of the expanded T2, which will provide full-fledged terminal services, serving departure, arrival and transfer operations, has been substantially completed. To ensure the buildability of the feature roof, a

¹ Hong Kong experienced 5 tropical cyclones between June and September 2017, when signal number 8 was hoisted on 4 occasions, with the fifth one being signal number 10.

contract for a section of the roof to be trial-assembled as a mock-up has been awarded. The expansion of T2 also requires the relocation of the antenna farm and sewage pumping station currently located adjacent to the existing T2. To date, the construction of a new antenna farm and sewage pumping station has been substantially completed.

15. The detailed design for the TRPB, which commenced in 2016, is progressing well according to programme. The detailed designs for the airfield infrastructure including the new North Runway taxiways, taxilanes and aircraft parking aprons and the modification of the existing North Runway etc., are all in progress. Construction of the North Runway crossover taxiway, which commenced in the first quarter of 2017, is also progressing according to plan. Overall, the implementation of these major components of the 3RS project is progressing on schedule.

16. In addition to the above works, the 3RS project also comprises the provision of a new automated people mover system (“APM”) and a new high-speed baggage handling system (“BHS”). The design and build contracts for these two highly specialised systems have commenced. The APM and BHS tunnels on the existing airport island, which commenced construction in mid-2017, are also proceeding as planned.

(b) Labour Supply

17. AAHK has been monitoring the labour requirements for the 3RS project. It is estimated that from 2016 to 2019, the majority of construction activities are mainly related to reclamation and civil works which are equipment-intensive. Starting from 2020, the skilled labour demand would increase gradually and reach the peak level in 2021/22, with about 9 000 workers to be deployed on the construction of the major airfield infrastructure works, tunnels and terminal building.

18. AAHK is committed to according priority to fill available job vacancies with local workers wherever possible. Efforts have been made by the reclamation contractor to recruit the skilled workers required for marine construction works locally. Such works require very special skills (e.g. underwater band drains special barge operators and underwater geotextile barge operators, etc.) which are not readily available in the local labour market. Having conducted open recruitment in the local labour market (e.g. putting up job advertisements in newspapers and Labour Department’s Construction Industry Recruitment Centre) for

some time but to no avail, the reclamation contractor resorted to importing skilled workers on a temporary, time-limited and targeted basis so as to ensure the timely completion of the 3RS project. Recently, the reclamation contractor's application to import skilled labour under the Supplementary Labour Scheme has been approved. AAHK has also been working with contractors and the Construction Industry Council to provide training courses of these specialist marine trades for local workers starting from mid-2018.

(c) Construction Safety

19. AAHK accords the highest priority to construction safety and has adopted a wide range of measures to ensure construction safety. As part of the prequalification and tender assessments, it is a mandatory requirement for tenderers to demonstrate the highest commitment to safety and safeguard against accidents. In addition to conducting internal and external safety audits, AAHK has also contracted a safety specialist to develop and conduct specific safety training for the 3RS construction works.

20. As of March 2018, the 12-month rolling Accident Frequency Rate ("AFR"²) per 1 000 workers per year for the 3RS project was 2.1, which was far lower than that of the Hong Kong construction industry's average of 34.5 in 2016 as reported by the Labour Department. AAHK's efforts in adhering to the highest construction safety has been recognised by the Lighthouse Club³, which awarded a Gold Award to AAHK for the Safety Leadership Award 2018 (Client-Developer Category).

(d) Environmental-Related Issues

21. AAHK has remained vigilant with regard to environmental monitoring and audit ("EM&A"). To ensure compliance with the Environmental Permit ("EP") requirements, a full-time on-site Environmental Team ("ET") has been commissioned by AAHK to carry out comprehensive EM&A in connection with Chinese White Dolphins

² AFR is the number of reportable accidents per 1,000 workers per year. This calculation is in accordance with the Labour Department and is widely used in the Hong Kong construction industry.

³ The Lighthouse Club, originally established in England and later becomes worldwide, promotes and improves health and safety in the construction industry, amongst its other work.

(“CWDs”), ecology, air, noise, water etc.. Furthermore, a full-time on-site Independent Environmental Checker (“IEC”) was appointed to audit, review, and verify all EM&A data and EP submissions. Both the ET and the IEC, which were commissioned by AAHK before the commencement of the 3RS construction works, work independently and are properly empowered to monitor and audit the contractors’ works in connection with environmental compliance.

22. Following the commencement of land-based and marine-based construction activities, the construction dust and noise impact monitoring commenced in December 2015, while the CWDs and water quality impact monitoring began in August 2016. All EM&A information, including finalised EP submissions, environmental monitoring results, implementation status of environmental mitigation measures, events of non-compliance and the corresponding follow-up actions etc., are reported on a monthly basis and summarised in the Monthly EM&A Reports, which are publicly available at a dedicated website⁴. The EM&A programme and all the required environmental mitigation measures for the 3RS project were properly implemented since commencement of construction.

23. AAHK continues to fulfil its commitments to enhancing marine ecology and fisheries for the benefit of marine ecology (including the CWDs) and fisheries resources in the vicinity of the project area. The Marine Ecology Enhancement Fund and the Fisheries Enhancement Fund approved ten projects with a total funding of more than \$8 million for Year 2017/18. Successful applicants include tertiary institutions, research groups and associations from the fisheries industry. The second round of applications for these two funds for Year 2018/19 closed recently, and successful applicants will be informed in the third quarter of 2018. Meanwhile, AAHK has commenced preparation of a number of marine ecology and fisheries enhancement measures funded directly by AAHK, including the eco-enhancement seawall design, artificial reef deployment, fish fry release etc. AAHK has consulted the relevant stakeholders, including the Advisory Council on the Environment, fishermen groups etc., in late 2017 and early 2018 on the implementation of these proposed enhancement measures.

24. To enhance transparency and communication with the community in a proactive way, AAHK continues to engage its stakeholders, through meetings with Professional (“PLG”) and

⁴ <http://env.threerunwaysystem.com/en/index.html>

Community (“CLGs⁵”) Liaison Groups to facilitate communications, enquiries and complaints handling on all environmental issues related to the 3RS project. Since December 2016, two rounds of meeting were held – PLG in May and November 2017, and CLGs in July and December 2017. Members of the liaison groups were updated on the latest progress of the 3RS project and associated environmental matters.

(e) **Financial Arrangement Plan**

25. At the meeting of the Subcommittee on 7 February 2017, Members noted, vide LC Paper No. CB(4)491/16-17(01), that in devising the overall financial arrangement plan for the 3RS project which is estimated at \$141.5 billion in money-of-the-day prices, AAHK has proposed to fund the 3RS through three funding sources, namely: (a) retaining AAHK’s operating surplus; (b) levying an Airport Construction Fee, and (c) borrowing/raising funds up to an estimated \$69 billion from the market.

26. At the meeting of the Subcommittee on 29 September 2017, Members were further briefed on the 3RS detailed funding plan as recommended by AAHK’s financial advisor The Hongkong and Shanghai Banking Corporation Limited, vide LC Paper No. CB(4)1620/16-17(01). The indicative implementation timeline of the detailed funding plan is set out in **Appendix 2**.

27. In accordance with the roadmap, AAHK is actively preparing for the near term funding activities which include the issuances of a long-dated United States dollar (“USD”) bond to institutional investors and a Hong Kong dollar (“HKD”) retail bond to retail investors starting from 2018/19. AAHK has begun dialogues with financial institutions with a view to setting the scene for the forthcoming fund raising exercises. According to the funding plan, the USD bond will be a USD500 million issue with a ten-year tenor while the HKD retail bond will be a HKD5 billion issue with a three-year tenor. The final details, and the timing of issue, of the bonds will depend on the funding needs of the AAHK and market environment. In addition, AAHK is supportive of the Government’s initiatives to promote Hong Kong as a green finance hub, including the possible issuance of bonds and/or borrowing of loans in green format.

⁵ Five CLGs were set up in the neighbouring districts of Hong Kong International Airport, namely Islands, Kwai Tsing, Shatin, Tsuen Wan and Tuen Mun.

28. In sum, AAHK will continue to monitor the 3RS project progress and funding requirements to fine tune the funding plan. As and when the timing is appropriate and the market conditions allow, AAHK will execute the financing transactions accordingly.

The Way Forward

29. Overall, the progress of the 3RS project is on track to meet the target commissioning by the end of 2024 and the budget of \$141.5 billion. AAHK will continue to take forward the 3RS project progressively and remain vigilant in the light of the highly challenging construction programme.

Advice Sought

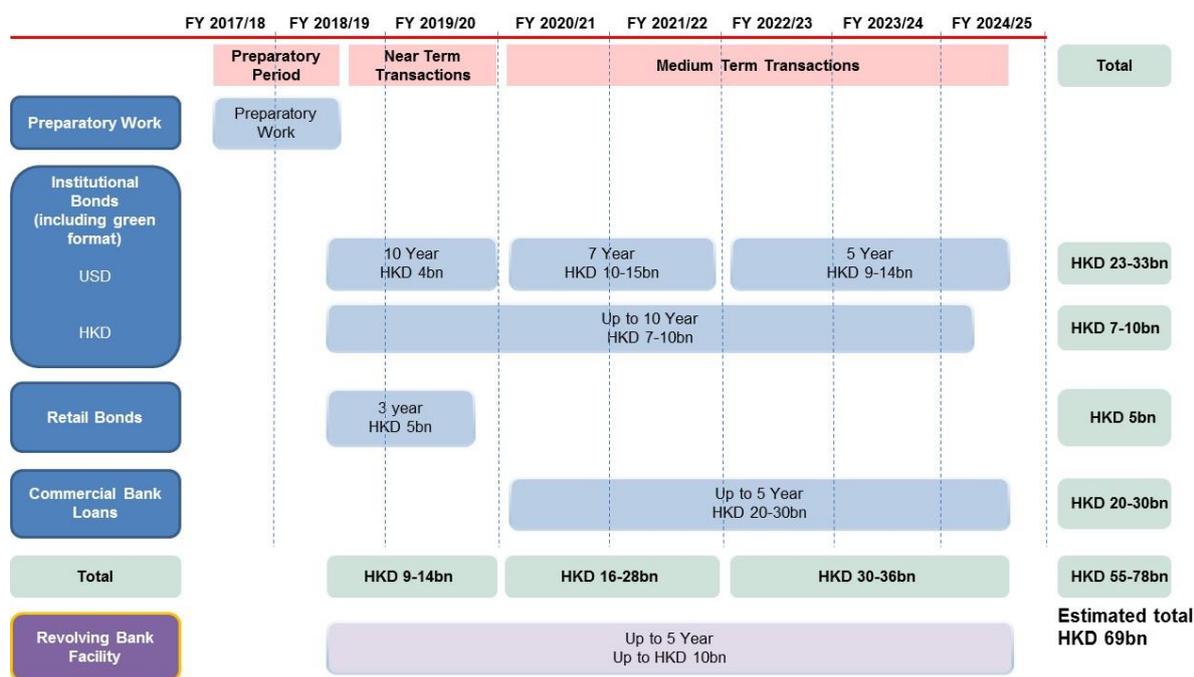
30. Members are invited to note the progress of the 3RS project discussed in this paper.

Airport Authority Hong Kong
April 2018

Three-Runway System Layout Plan Illustrating the Project Scope



The Detailed Funding Plan and Indicative Implementation



Source: AAHK, 3RS Consultancy Study: Detailed Funding Plan for Three-runway System (3RS) at HKIA – Financial Advisor Report, HSBC (2017)

Notes :

1. Revolving bank facilities serve to provide liquidity only and do not form part of the core debt funding required for the 3RS.
2. As market conditions and the terms of different instruments would vary from time to time, ranges indicating the potential issuance sizes for each debt instrument in the medium term are used to provide flexibility for AAHK to optimise the choice of instruments closer to the time of fund raising.
3. For the avoidance of doubt, the total aggregate debt issuance across all instruments in the recommended funding plan is not expected to exceed the debt requirement to fund the 3RS.
4. \$55-78 billion represents the summation of the lowest and highest range of each debt instrument type.