

**For Information
on 30 November 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. Following the last update of the 3RS project presented to Panel on Economic Development on 23 April 2018, this paper presents the latest major developments of the 3RS project, 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

3. A layout plan showing the 3RS project scope is at Annex A. 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

4. There were some existing facilities, including the submarine power cables and aviation fuel pipelines between the airport island and Sha Chau, which need to be diverted. The necessary diversion works were completed, and the diverted facilities are now in operation.

(ii) *Land Formation*

5. The 3RS project involves the reclamation of 650 hectares of land, of which about 40% of the area is underlain by filled Contaminated Mud Pits (“CMPs”). Since the commencement of 3RS construction on 1 August 2016, Deep Cement Mixing (“DCM”) works, one of the main components of the reclamation works for improving ground conditions, have been substantially completed in the critical reclamation areas and under the seawall areas. Having considered the effectiveness of the DCM works in ground improvement, AAHK has optimised the overall reclamation design at earlier stages to suit the construction needs by increasing the use of DCM method. The related works have been substantially completed. Currently, the subsequent reclamation works are proceeding in full swing.

6. Sand blanket laying works are also substantially completed and prefabricated vertical drain works are progressing on target. More than 7.5 km long seawall areas have been handed over from the DCM contractors to the main reclamation contractor for construction of the seawall, in which over 3 km long rock core has been placed to-date. Mass reclamation filling inside the seawall areas has commenced since May 2018.

7. The supply of fill materials is essential to the reclamation works and the rate of filling will need to substantially increase to maintain the reclamation progress in the coming year. Given the large quantity of fill materials required for the reclamation, it has always been the plan to use different types of fill materials from various sources. At the moment, the main reclamation contractor has been using a combination of fill materials from a number of sources, predominantly manufactured sand; supplemented by public fill generated locally as well as fill materials imported from different areas. Since last reported in April 2018, the number of production lines in the Mainland supplying manufactured sand to the 3RS project has been increased from six to nine to increase output. Four more production lines will be able to commence production of manufactured sand by the end of the year. The main reclamation contractor is also investigating other potential new quarries for establishing additional production lines. The overall market for manufactured sand is experiencing competing demands, particularly from the construction industry in the Mainland. It is anticipated that the strong demand for manufactured sand will continue in the region, thus posing challenges to the 3RS project. AAHK will continue to work with

the main reclamation contractor to secure more supply of manufactured sand despite the tight market situation.

8. In order to maximise the utilisation of public fill, two sorting facilities have been set up in Tseung Kwan O Fill Bank (“TKOFB”) in May and October 2018 respectively. AAHK is in close liaison with the Civil Engineering and Development Department (“CEDD”) on measures to facilitate the intake of the public fill material from TKOFB. Construction of a third sorting facility is in progress and is due to be commissioned in December 2018. Another sorting facility is being set up in Tuen Mun Fill Bank to step up the use of public fill materials in the reclamation works, with target commencement of operation in the first quarter of 2019. With the setting up of more sorting facilities, AAHK aims to maximise the intake of suitable public fill in the 3RS project. Materials generated from other AAHK’s projects and local infrastructure projects are also being used as fill in the reclamation works.

9. The Central People’s Government has given its full support for the 3RS project, including the supply of marine sand from the Mainland. AAHK and the main reclamation contractor continue to work proactively with the Mainland authorities on the procedural arrangement required for exportation of marine sand from the Mainland. Apart from the Guangdong Province, potential sand sources from the Guangxi Province are being explored. It is anticipated that after going through the various processes, marine sand export licence could be obtained for supplying marine sand from Mainland sources to the 3RS project in the first half of 2019. The Government has been assisting AAHK and the main reclamation contractor in the liaison process so as to facilitate the main reclamation contractor to discharge its contractual obligation to source the reclamation fill materials, be it from the Mainland or from other sources. Apart from the Mainland sources, the reclamation contractor has been exploring other overseas sources of sand supply. A trial delivery from Malaysia has arrived in early November 2018. Further deliveries from Malaysia and the Philippines are also being arranged.

10. The inclement weather conditions during typhoon seasons, in particular the impact of the two typhoons¹ in September 2018, have

¹ Typhoon Mangkhut is one of the two typhoons hit Hong Kong on 16 September 2018. The intensity of the storm was the most powerful the city has experienced since records began in 1946, prompting the Hong Kong Observatory to issue a typhoon signal No 10 that remained in place for 10 hours. In addition, between June and September 2017, Hong Kong experienced 5 tropical cyclones when signal number 8 was hoisted on 4 occasions, with the fifth one being signal number 10.

caused disruption to the 3RS works. As in each typhoon, the disruption was exacerbated by the need to begin demobilising all construction vessels for refuge at typhoon shelters prior to typhoon signal number 1 being hoisted.

11. In summary, inclement weather conditions and the supply of fill materials have posed challenges to the progress of the reclamation works and caused a slight slippage in the schedule of reclamation filling, in the region of a few weeks, which has no significant impact on the overall programme to commission the new Third Runway by 2022 and the entire 3RS system by the end of 2024, and within the budget of HK\$141.5 billion.

(iii) Building and Infrastructure Works

12. 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.

13. The site works relating to T2 foundations and substructure are continuing as planned with utilities diversions, bridge demolition, South Annex Building works, diaphragm wall works and both bored and H-rock socket piling works ongoing. The detailed design of the expanded T2, which will provide full-fledged terminal services, serving departure, arrival and transfer operations, is being finalised for inviting expressions of interest in November 2018. To ensure the buildability of the feature roof, a contract for a section of the roof to be trial-assembled as a mock-up is progressing well for completion in the second quarter of 2019.

14. The detailed design for the TRPB, which commenced in 2016, is progressing well according to programme. The detailed designs of the new North Runway and the associated taxiways are substantially completed while the detailed design of the remaining airfield infrastructure 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.

15. In addition to the above works, the 3RS project also includes 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 are in progress. The APM and BHS tunnels on the existing airport island, which commenced construction in mid-2017, are also proceeding as planned. Overall, the implementation of the major components of the 3RS project is progressing according to plan and within budget.

(iv) Quality Control

16. AAHK has set out and is implementing a stringent monitoring and audit mechanism to ensure that the project works meet the construction timeline and deliver high standards in quality. To take forward the 3RS project, AAHK has established the Third Runway Division (“TRD”), a dedicated team developed from the core team of the then-Project Division that has over 20 years of experience in project management at Hong Kong International Airport (“HKIA”) since the commencement of the construction of the existing airport in the early 1990s. While taking reference from international best practices and applying them to the management of various projects, the team of in-house professionals has further expanded in size to cope with the challenging tasks and specialised designs, some of which are unique in the industry, for example, airport infrastructure works, specialised APM/BHS systems and DCM etc.

17. All contractors must comply with all the specific requirements as stipulated by AAHK in addition to fulfilling the statutory requirements. AAHK monitors their works closely in order to ensure compliance and quality. Within the TRD, a dedicated team in the Project Management Office (“PMO”) is responsible for monitoring and documentation of construction quality matters, with a view to ensuring that contractors fulfil all the necessary requirements. The Project Delivery Team focuses on managing the construction delivery, which also entails the supervision of contractors’ work on site to ensure compliance and quality.

18. The PMO reports to the senior management of AAHK on a regular basis. If any non-compliance is found, the PMO will report promptly to the senior management of AAHK. Close communication is also maintained with the Government via the Airport Expansion Project Coordination Office under the Transport and Housing Bureau.

(b) Labour Supply

19. AAHK has been monitoring the labour requirements for the 3RS project. Currently, 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 buildings. To moderate the manpower demand during peak periods, AAHK is also planning to maximise some construction processes off-site which include pre-cast concrete element and prefabrication of roof modules completed with building services installations etc. At the same time, AAHK will continue to liaise closely with the Government and the relevant authorities to project the capacity of the local labour market to ensure the employment opportunities of the local workers on the one hand and a sufficient supply of skilled labour on the other.

20. Subsequent to Labour Department's approval of the reclamation contractor's application under the Supplementary Labour Scheme in April 2018, imported skilled workers are being deployed to fill up positions under specialist marine trades to supplement its workforce. AAHK is committed to according priority to fill available job vacancies with local workers. Apart from on-going recruitment of local workers through various channels, AAHK has also been working with its contractors and the Construction Industry Council ("CIC") to provide training courses under the "Construction Tradesman Collaborative Training Scheme" ("CTS") in relation to these specialist marine trades for local workers. To date, the reclamation contractor has worked out CTS training courses for five trades and implemented two of them.

(c) Construction Safety

21. AAHK accords the highest priority to construction safety and has adopted a wide range of related measures. 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. As regards education and publicity, the first promotion under AAHK's V Commit Safety Programme in respect of workplace housekeeping has been rolled out in October 2018 to all 3RS contractors. Under the programme, eligible supervisors and workers will receive commendation for their commitment to construction safety. In addition, AAHK's Augmented Collaborative Safety Culture Programme is being

rolled out with a view to enhancing communication with construction workers in respect of safety issues on site.

22. As of October 2018, the 12-month rolling Accident Frequency Rate (“AFR²”) per 1,000 workers per year for the 3RS project is 1.21, which is substantially lower than that of the Hong Kong construction industry’s average of 32.9 in 2017 as reported by the Labour Department. Four 3RS contractors received safety awards at the Lighthouse Club Hong Kong Contractor Safety Awards Ceremony in September 2018.

(d) Environmental-Related Issues

23. AAHK remains vigilant with regard to environmental monitoring and audit (“EM&A”). All EM&A information, including finalised Environmental Permit submissions, monitoring results, implementation status of 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 website³. The EM&A programme and all the required environmental mitigation measures for the 3RS project have been properly implemented since commencement of construction.

24. AAHK continues to fulfil its commitments to enhancing marine ecology and fisheries for the benefit of marine ecology (including the Chinese White Dolphins) and fisheries resources in the vicinity of the project area. More than HK\$9.8 million in total has been granted from the Marine Ecology Enhancement Fund and Fisheries Enhancement Fund, set up by the AAHK, to eight projects for a 12-month period with effect from 1 July 2018 to 30 June 2019, details of which can be found at the dedicated websites.⁴ The funded projects are managed and conducted by universities, research groups, or associations from the fisheries industry.

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

⁴ Marine Ecology Enhancement Fund webpage:
<http://env.threerunwaysystem.com/en/meef/index.html>
Fisheries Enhancement Fund webpage:
<http://env.threerunwaysystem.com/en/fef/index.html>

25. Meanwhile, AAHK provides funding for and manages several potential marine ecology and fisheries enhancement measures in Lantau waters on a voluntary basis. These include:

- (i) eco-enhancement seawall design, which incorporates concrete seawall blocks and vertical seawall panels with rough surfaces to facilitate and promote colonisation of epifauna and to increase microhabitat complexity;
- (ii) a six-month voluntary surveillance programme since May 2018 covering the Sha Chau and Lung Kwu Chau Marine Park and The Brothers Marine Park intending to identify over time any activities suspected to be non-compliant with the Marine Parks Ordinance. Upon completion of the programme, AAHK will review the effectiveness and share the information and experience with the Agriculture, Fisheries and Conservation Department (“AFCD”); and
- (iii) the preparatory works for pilot tests on artificial reef (“AR”) deployment and fish fry restocking, intended to evaluate their sustainability within the proposed 3RS Marine Park. It is anticipated that the pilot test for fish fry restocking would commence in late 2018/early 2019 whereas the pilot test for AR deployment would commence in 2019 or 2020 (subject to the gazettal under the Foreshore and Sea-bed (Reclamations) Ordinance and statutory authorisation).

26. As recommended in the approved 3RS EIA Report, a new marine park comprising an area of approximately 2 400 hectares will be designated in north Lantau waters to tie in with the full operation of the 3RS project in 2024. AAHK commenced a detailed study in 2016 to refine the marine park boundary and management plan. AAHK has liaised with stakeholders to solicit their views on the goals, boundary and preliminary management plan for the 3RS Marine Park. Further consultations with stakeholders including green groups, fishery sectors, local communities and other consultative and advisory committees are planned in late 2018 to mid-2019. AAHK will continue to work with AFCD in the preparatory works for the designation of the proposed 3RS Marine Park.

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

Community (“CLGs⁵”) Liaison Groups, with a view to facilitating communications, enquiries and complaints handling on all environmental issues related to the 3RS project. Since last reported in April 2018, another round of meetings for PLG and CLGs were held in July 2018. Members of the liaison groups were updated on the latest progress of the 3RS project and associated environmental matters.

(e) **Financial Arrangement Plan**

28. At the meeting on 23 April 2018, Members were further updated on the detailed funding plan to raise third-party debts from the market as advised by AAHK’s financial advisor, The Hongkong and Shanghai Banking Corporation Limited (“HSBC”). The indicative implementation timeline of the detailed funding plan is set out in **Annex B**. According to this funding plan, from the second half of FY2018/19 to FY2019/20, AAHK will:

- (a) issue a 10-year USD500 million bond or approximately HK\$4 billion equivalent to institutional investors under the Medium Term Note (“MTN”)⁶ programme;
- (b) issue a 3-year HK\$5 billion retail bond to retail investors. AAHK will try to coordinate with the Government’s retail bond offering programme to ensure that both timing and terms of AAHK’s programme are appropriate and optimized; and
- (c) increase the size of AAHK’s existing HK\$5 billion standby revolving bank facility or arrange multiple facilities, up to HK\$10 billion.

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.

⁶ The MTN programme allows AAHK to raise funds in the international institutional market. The multi-currency feature of the programme enables AAHK to issue notes in major currencies (such as Hong Kong dollars, US dollars, Australian dollars, pound sterling, euro, Japanese yen etc.).

29. AAHK has begun the following preparatory work:
- (i) keep the current MTN programme up to date and the programme has been upsized from USD1 billion to USD8 billion;
 - (ii) hold regular meetings with lending banks, investment banks, and credit rating agencies to provide updates and gather information on the market condition; and
 - (iii) develop the Green Bond framework and ensure compliance with the Equator Principles ⁷ to facilitate AAHK's borrowings when needed.

30. To kick-off the funding exercise, AAHK plans to tap the institutional investor market for a 10-year USD500 million bond when the preparatory work in the fourth quarter of 2018 is completed. The second exercise for the funding plan will be the 3-year HK\$5 billion retail bond. As it will involve the general public as investors and also the potential listing of the bond, AAHK has started liaising with banks and regulators. It will appoint lead managers for the transaction in the fourth quarter of 2018 and prepare draft offering documentations, marketing plan, selling protocols and listing application to regulators; and to liaise with placing banks, securities brokers and relevant parties in the first or second quarter of 2019.

31. To provide sufficient standby liquidity and refinancing of AAHK's existing HK\$5 billion standby revolving bank facility upon its expiry in 2020 in a timely manner, AAHK has been kept abreast of the market environment and condition through constant engagement with the major lending banks. In good time, AAHK will arrange an expanded HK\$10 billion standby revolving facility to act as the backup to the funding exercise.

32. AAHK also plans to issue HKD bond to institutional investors beyond 2018/19.

⁷ Equator Principles is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence and monitoring to support responsible risk decision-making.

33. The final details and the timing of the above financing transactions will depend on the funding needs of the AAHK, 3RS project progress and market environment. As and when the timing is appropriate and the market conditions allow, AAHK will execute the financing transactions accordingly.

Way Forward

34. Despite various challenges, AAHK maintains its target to commission the new runway in 2022 and the entire 3RS by the end of 2024 and within the budget of HK\$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

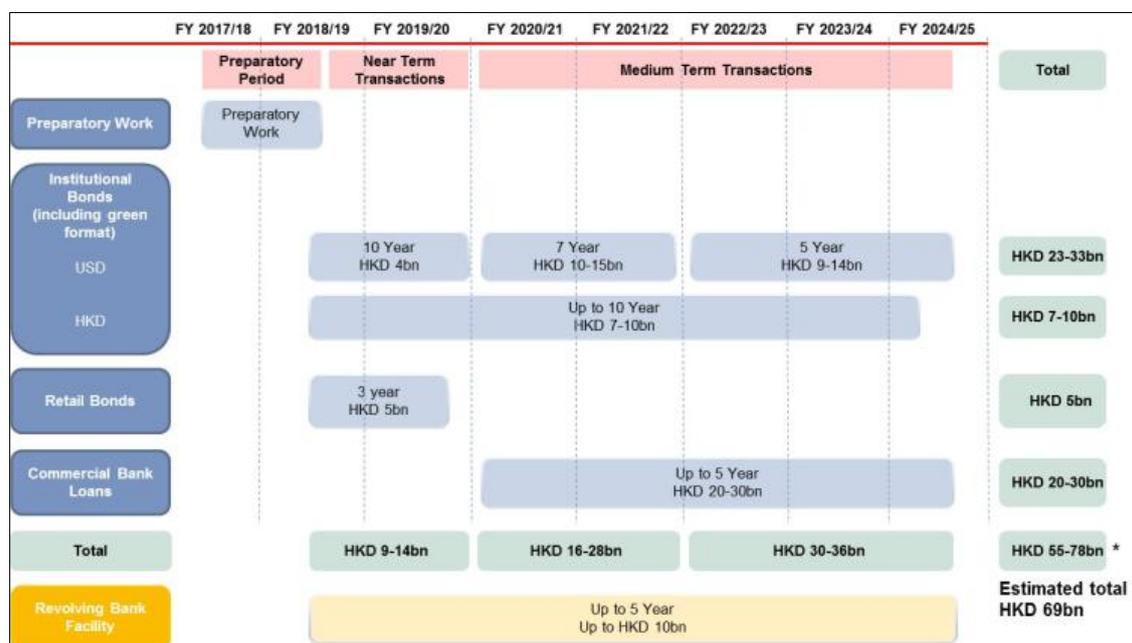
35. Members are invited to note the above.

Airport Authority Hong Kong
November 2018

Three-Runway System Layout Plan Illustrating the Project Scope



The Detailed Funding Plan and Indicative Implementation Timeline



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 optimize 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. HK\$55-78 billion represents the summation of the lowest and highest range of each debt instrument type.