

**For Discussion
on 16 February 2016**

**Legislative Council Subcommittee
to Follow Up Issues Relating to the
Three-runway System at the Hong Kong International Airport**

**Mitigation and Enhancement Measures in connection with the
Conservation of Marine Ecology and Chinese White Dolphins**

Introduction

This paper sets out :

- (a) an overview of the proposed mitigation and enhancement measures in connection with the conservation of marine ecology and Chinese White Dolphins (“CWD”); and
- (b) the latest progress on the implementation of these measures.

Background

2. At the meeting on 3 November 2015, Members were briefed on an overview of the Three-Runway System (“3RS”), covering, among others, the latest progress on the statutory Environmental Impact Assessment (“EIA”) process. Members noted that the Airport Authority Hong Kong (“AAHK”) aims to achieve “development alongside environmental conservation” in the implementation of the 3RS project. Members also noted the granting of the Environmental Permit (“EP”) by the Director of Environmental Protection (“DEP”) to AAHK in November 2014, and AAHK’s efforts in fulfilling the requirements of the EP, including stakeholder engagement activities. Upon Members’ request, AAHK undertook to provide :

- (a) membership and background of the Professional Liaison Group (“PLG”) and measures adopted by AAHK to engage those environmental groups which refused to join the PLG; and

- (b) measures that would be adopted by AAHK to comply with/fulfill the 56 conditions set out in the EP for the 3RS project. This paper focuses on the relevant progress on the implementation of mitigation and enhancement measures for the conservation of marine ecology and CWD. Progress of the remaining measures will be provided in due course.

Granting of EP and Measures Adopted by AAHK to comply with the Conditions Set out in the EP

3. On 7 November 2014, DEP granted to AAHK the EP for the 3RS project. The EP sets out a number of conditions, covering proposed environmental mitigation measures, monitoring, and submission requirements during different stages of the project.

4. Further to the granting of the EP, AAHK has worked out a detailed work plan to comply with the EP requirements. Three external consultants have been engaged to ensure AAHK's delivery of the EP requirements and EIA commitments. A full time on-site Environmental Team ("ET") has been commissioned to carry out comprehensive environmental monitoring and audit ("EM&A") in connection with CWD, ecology, air, noise, water etc. Furthermore, a full time on-site Independent Environmental Checker ("IEC") is appointed to audit, review, and verify all EM&A data and EP submissions. Both the ET and the IEC are directly employed and managed by AAHK to ensure that they are properly empowered to monitor and audit the construction contractors' works in connection with environmental compliance. Besides, AAHK has appointed an experienced specialist environmental consultant to support AAHK in the delivery of marine ecology and fisheries related EP requirements, including preparatory work for the proposed marine park designation and the implementation of marine ecology and fisheries mitigation and enhancement measures.

Dolphin Survey and Impact of the 3RS Project on the CWD

5. As part of the EIA study, AAHK invited two well respected and highly qualified international marine mammal biologists Dr Bernd Würsig and Dr Thomas Jefferson to lead the impact assessment on CWD. The two experts have been working extensively in Southeast Asia, with a primary research focus on the conservation biology of CWD population in Hong Kong since 1995. Dr Thomas Jefferson also developed the dolphin survey technique that has been adopted by the Agriculture, Fisheries and Conservation Department ("AFCD")

and other researchers in Hong Kong in the past 20 years.

6. During the course of the 3RS EIA study, a combination of dolphin survey techniques was employed to collect 12-14 months of project specific data on CWD. The data provided information on CWD density and abundance; ranging patterns of individual dolphins; swimming and movement patterns of dolphin groups; CWD responses to vessels; as well as daytime and night-time information on dolphin presence and vocal activity. The data collected facilitated a thorough analysis of how CWD are utilizing the affected habitat. The assessment has also taken into account the historic long-term CWD monitoring dataset collected by AFCD.

7. The EIA concluded that the 3RS project will result in some impact on the CWD population in Hong Kong waters, mostly related to the loss of CWD habitat; the reduction of the size of CWD travelling areas between the east and west of the airport; and the associated impact on habitat fragmentation and carrying capacity, largely as a result of the new land formation, as well as impact from the SkyPier high speed ferries (“HSFs”) traffic.

8. A range of measures has been proposed in the EIA to minimize, mitigate and compensate for the potential impact on CWD and marine ecology during the construction and operational phases of the project. A Marine Ecology and Fisheries Enhancement Strategy is also recommended in the EIA for the purpose of enhancing the marine environment for the benefit of marine ecology (including CWD) and fisheries resources. Details of these measures are set out in paragraphs 9 to 28 below.

Proposed Marine Park

9. The establishment of a new marine park (see map at **Annex A** on the preliminary boundary) is a key mitigation measure for the identified impact on CWD. It is generally recognized from international experience that marine parks are most effective when they are large in relation to the ranges of the protected animals, and when they can provide linkages between areas of core habitat for important life functions. This experience has been utilized in the development of the proposed marine park mitigation for local CWD population.

10. With a size of about 2,400 hectares, the proposed marine park is nearly four times that of the proposed 3RS reclamation area and about the same as the total aggregated area of all existing marine parks in Hong Kong. The

proposed marine park will connect the Hong Kong International Airport Approach Areas (“HKIAAA”)¹ with the existing Sha Chau and Lung Kwu Chau Marine Park (“SCLKCM”)² to its north and with the committed marine park in the Brothers Islands to the east (to be designated under the Hong Kong–Zhuhai–Macao Bridge Hong Kong Boundary Crossing Facilities project), forming a huge continuous stretch of marine protected area of about 5,200 hectares. The synergy thus gained would contribute significantly to the long-term conservation of CWDs, and provide a protected habitat for other marine ecology. In particular, the CWD will benefit from significant protection from high-speed vessel traffic; certain fishing activities; and other human based threats. The proposed marine park is also expected to be beneficial in protecting important travelling areas for CWD between the recognized CWD “hotspots” of Sha Chau and Lung Kwu Chau (“SCLKC”), and around the Brothers Islands. The proposed marine park will be contiguous with the Pearl River Estuary (“PRE”) CWD National Nature Reserve established by the Mainland, thereby linking the protected habitat between Hong Kong and the Mainland.

11. Early establishment of the proposed marine park has been considered. Nevertheless, it was found to be impracticable to seek to designate the new marine park while construction activities for the 3RS project are ongoing. The restrictions of a marine park would preclude planned construction activities. That said, AAHK will carry out a detailed study on the preparatory work for marine park designation and lead the associated stakeholder consultation activities, with the support and participation from AFCD throughout the detailed study. As the authority under the Marine Parks Ordinance, AFCD will be responsible for the designation, management and operation of the proposed marine park². A liaison group involving AAHK and AFCD is proposed to be set up to facilitate direct and ongoing liaison with AFCD with a view to strengthening the management of the proposed marine park after its establishment.

12. Separately, under the EM&A programme of the 3RS Project, AAHK will conduct CWD monitoring to assess the effectiveness of the proposed marine park as a mitigation measure for the Project after the marine park has been designated. Data collected will be shared with AFCD.

¹ Hong Kong International Airport Approach Area (“HKIAAA”) is an area established in the vicinity of the airport island to safeguard the operation of aircraft and radio navigational aids whereby entrance of vessels into the area is restricted. As a result of the restricted access by vessels, it will benefit the conservation of marine ecology.

² AAHK will seek to assist in completing the designation of the proposed marine park before the operation of the 3RS project.

Mitigation Measures for Potential Disturbance of Marine Traffic on CWD

13. The potential impact on CWD due to the construction and operational phase marine traffic has been examined as part of the EIA study. Mitigation measures in relation to marine traffic are formulated to reduce the acoustic disturbance, risk of injury or mortality and changes to abundance and patterns of habitat use of CWD.

14. A key mitigation measure focuses on the SkyPier HSFs traffic. In order to reduce the physical threat and the high noise levels generated by the HSFs travelling at speeds of over 30 knots across the narrow waters between the airport island and the SCLKCMP during the construction of the project, the SkyPier HSFs travelling to/from Zhuhai and Macau would be diverted to the north of SCLKCMP with their speed restricted to 15 knots across areas with high CWD abundance (see **Annex B**). In doing so, the disturbance to CWD habitat due to HSF traffic in the core zone of the PRE CWD National Nature Reserve could be minimized. In addition, AAHK has committed to capping the SkyPier HSFs traffic movement at an annual average daily level of 99 prior to the successful designation of the proposed marine park described above.

15. Workshops were held to enhance the understanding of HSF captains on the threats and disturbance to CWD due to HSFs, as well as details on the required diversion and speed restriction. Implementation of the SkyPier HSFs diversion and speed restriction has commenced on 28 December 2015. All the concerned SkyPier HSFs are required to be equipped with Automatic Identification System transponders to facilitate route and speed tracking for proper monitoring.

16. Regarding construction vessels, although they normally travel at low speeds and are therefore not expected to be a significant threat to CWD, a range of mitigation measures are nevertheless initiated. These measures cover the use of predefined and regular routes to reduce disturbance from vessel activities on CWD; a speed limit of 10 knots within CWD hotspots and within 3RS works areas (which is de facto equivalent to the speed limit imposed inside a marine park); measures to keep the number of working or stationary vessels present on-site to a practical minimum; and skippers training for safe construction vessel operation in the presence of CWD.

Other Construction Phase Mitigation Measures for CWD

17. In addition to the above, the following measures will be put in place during the construction of the project in connection with the protection of CWD:

- (a) adoption of advanced designs and specific construction methods (such as using non-dredge methods to carry out reclamation during land formation, deep cement mixing over existing contaminated mud pits, and horizontal directional drilling for submarine pipeline diversion) that minimize environmental impact;
- (b) complete avoidance of marine percussive piling and avoidance of bored piling during the peak calving season for CWD;
- (c) acoustic decoupling of construction equipment mounted on construction barges to minimize acoustic disturbance to CWD;
- (d) establishment of dolphin exclusion zones for intensive and noisy marine construction activities to reduce the risk of potential disturbance to CWD; and
- (e) implementation of spill response plan as precautionary measure for protection of marine water quality.

Marine Ecology and Fisheries Enhancement Strategy

18. As part of the EIA study, AAHK has committed to formulating and implementing a Marine Ecology and Fisheries Enhancement Strategy (“MEFES”) for the 3RS project. The MEFES would be set up for the purpose of enhancing the marine environment for the benefit of marine ecology (including CWD) and fisheries resources in the vicinity of the project area, in Hong Kong western waters and further afield into the PRE. The MEFES also provides support and assistance to affected fishermen to promote more sustainable fishing operations. In accordance with the EP conditions, AAHK shall, inter alia,:

- (a) establish a Marine Ecology Enhancement Fund (“MEEF”) and submit a Marine Ecology Conservation Plan (“MECP”); and
- (b) establish a Fisheries Enhancement Fund (“FEF”) and submit a Fisheries Management Plan (“FMP”)

19. As stipulated in the EP, the MECP should be formulated for the conservation of marine life, particularly the CWD, within the Hong Kong and the PRE waters. The MECP shall cover:

- (a) the relevant marine parks and other important marine habitats in Hong Kong to enhance their carrying capacity;
- (b) “dolphin friendly” activities;
- (c) the recovery of fisheries resources; and
- (d) scientific research for the overall benefits of marine mammals, particularly CWD, in the PRE during the construction and operation of the project.

20. The EP specifies that the FMP should support the fishing industry and enhancing fisheries resources in the western Hong Kong waters, especially the Lantau waters.

21. The MECP and the FMP outline the proposed mechanisms for implementation of the MEFES, including funding arrangements, and the establishment of management committees for the MEEF and the FEF. Some potential examples of enhancement initiatives were also included in the Plans to provide guidance to the management committees on a range of potentially suitable initiatives for MECP and FMP support.

22. AAHK will ensure that both the MECP and the FMP are implemented in compliance of the EP requirements. To meet the objectives of the two Plans, substantial resources, both financial and manpower support, are essential. MEEF and FEF, managed by two separate management committees, will be established to ensure effective implementation of the two Plans.

23. A total funding amount of HK\$150 million will be put under an endowment arrangement to generate a targeted annual budget income of about HK\$6 million to support the MEEF initiatives. The investment income from the endowment will be made available to support relevant conservation initiatives. To ensure stable funding support, any shortfall on the targeted annual return of HK\$6 million (due to possible fluctuations in investment income) will be topped up by an additional HK\$100 million “top-up” fund established for both the FEF and the MEEF.

24. Consultation with the fishery sector has been undertaken to better understand their specific support needs under FEF. As the key objectives of FEF are to support the fishing industry and to enhance fisheries resources in the western Hong Kong waters consequent to 3RS construction, with a particular focus on supporting measures that help to achieve sustainable management and enhancement of fisheries resources, it is expected that a significant portion of the funding support is likely to be needed in the initial years, particularly during the marine construction stage of the project. It is therefore proposed to allocate HK\$50 million (out of the proposed HK\$150 million) at the onset to support relevant initiatives. The remaining HK\$100 million would be put under an endowment arrangement to generate a targeted annual income of about HK\$4 million to support long-term and sustainable fisheries enhancement efforts. Similar to the arrangement for MEEF, any shortfall to the annual investment income will be topped up from the HK\$100 million “top-up” fund described above.

25. Two separate management committees will be responsible for the management and operation of the two Funds to ensure effective selection and implementation of relevant initiatives, including approval of qualifying funding applications within the budgeted annual funding support of the respective funds. The management committee of MEEF would include relevant academics, dolphin experts, green groups, relevant stakeholders and AAHK members; whereas the management committee of FEF would include fishermen’s association representatives, fisheries experts, relevant stakeholders and AAHK members. Community leaders as well as individuals having expertise/experience in managing similar funds would also be considered for appointment into the management committees.

26. In addition to the two management committees, it is proposed to establish a Steering Committee to provide overall directional guidance and policies for the two Funds to ensure that sufficient resources will remain available for the two Funds to meet their objectives in a long-term and sustainable manner. If the total funding amount of the applications recommended by the two management committees exceeds the anticipated annual funding support in any particular year, the Steering Committee may exercise discretion by using the “top-up” fund to meet the shortfall.

27. The Steering Committee will be chaired by AAHK. Membership will include the chairpersons of the two management committees, and other individuals who have relevant professional expertise/experience.

28. A MECP and a FMP, including details on the proposed arrangements for the two Funds, have been prepared in consultation with AFCD and presented to ACE on 7 December 2015 for their comment. It is anticipated that the Management Committees of the two Funds will be established by the second quarter of 2016 with fund applications invited and received in the third quarter of 2016, subject to the final approval by DEP.

Stakeholder Engagement

29. To enhance transparency and communication with the community in a proactive way, AAHK set up five Community Liaison Groups (“CLGs”) in 2012 in the neighbouring districts of HKIA, namely Islands, Kwai Tsing, Shatin, Tsuen Wan and Tuen Mun. The CLGs have a total of about 160 members, including district councillors and community leaders. AAHK leverages on the CLGs to exchange views with the community on the latest airport developments. In addition, the CLGs also provide the platforms for AAHK to update the community leaders and listen to their views on various topics related to HKIA and the 3RS project, including the environmental issues. CLG members were updated on the latest progress of the 3RS project, the EP requirements and the EM&A organization structure at the meetings in July 2015.

30. In September 2015, AAHK also set up the Professional Liaison Group (“PLG”) comprising 22 relevant professional/experts in different relevant environmental fields to facilitate communications, enquiries and complaints handling on all environmental issues related to the 3RS project. The membership list is shown in **Annex C**. The first meeting of the PLG was held on 15 October 2015.

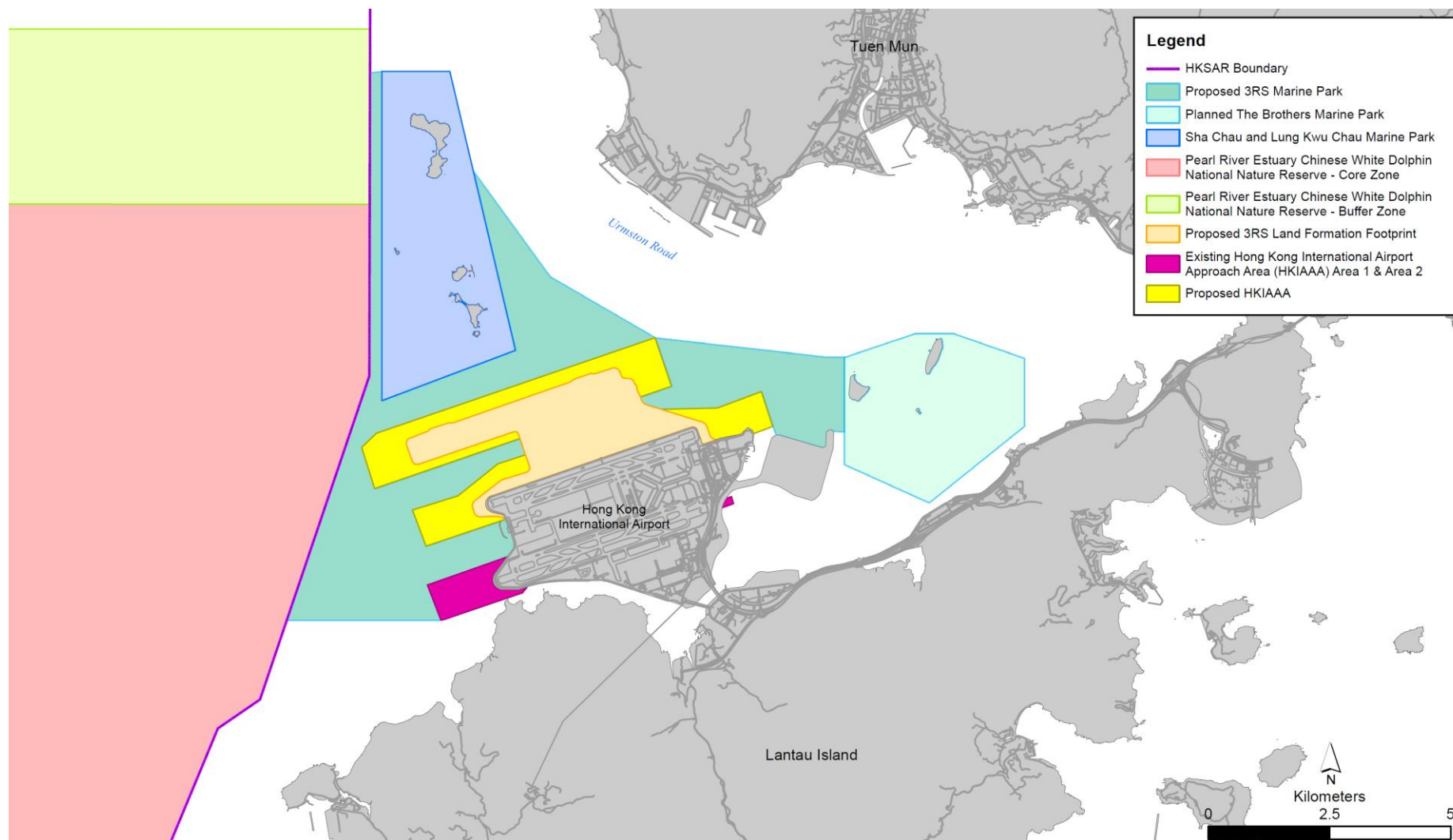
31. In setting up the PLG, AAHK had issued invitation letters to 18 green groups in June 2015. Despite AAHK’s efforts and goodwill, some of the green groups refused to join the PLG. That said, AAHK will spare no effort in continuing its efforts in engaging various green groups on the 3RS issues. A green NGOs roundtable was held recently in early January 2016 to update the green groups on the latest progress of the 3RS project, including the MECP and FMP, as well as Marine Travel Routes and Management Plan for HSFs of SkyPier. AAHK is highly transparent in its work concerning the CLGs and the PLG; the TORs of these Groups, their membership and meeting material have all been uploaded onto a dedicated website at <http://env.threerunwaysystem.com/en/index.html>.

Advice Sought

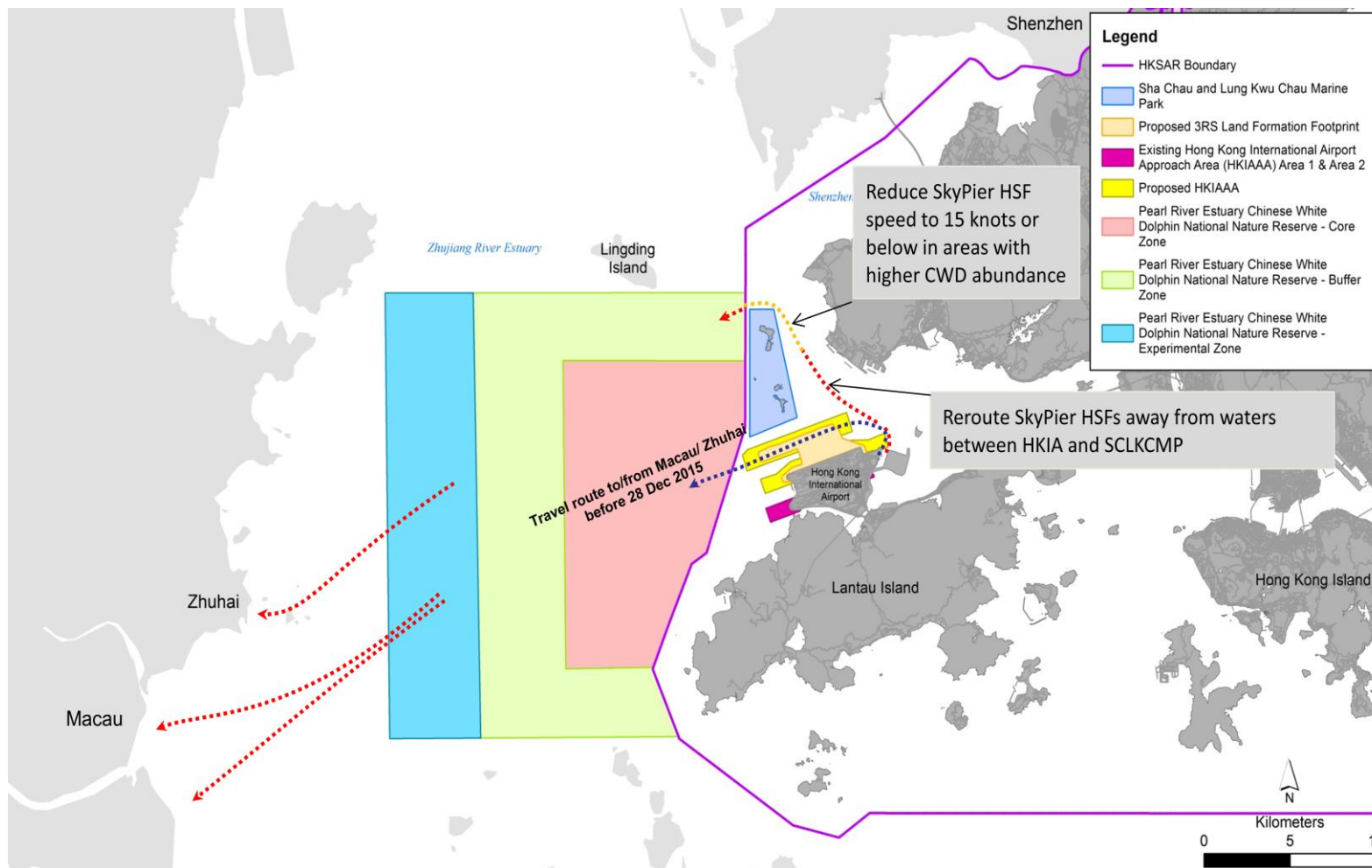
32. Members are invited to note and comment on the issues covered in this paper.

**Airport Authority Hong Kong
February 2016**

Preliminary Boundary of the Proposed 3RS Marine Park



**Diverted Travel Routes of SkyPier HSFs operating to/from Zhuhai and Macau
and the Pearl River Estuary CWD National Nature Reserve**



Professional Liaison Group Membership

<u>Name</u>	<u>Organization</u>
1. Mr. Grant Abel	Ocean Park Hong Kong
2. Ms. Evelyn Chan	International Air Transport Association
3. Prof. Li Cheng	Department of Mechanical Engineering, The Hong Kong Polytechnic University
4. Mr. Ken Ching	Eco-Education and Resources Centre
5. Dr. Helen Chiu	American Chamber of Commerce in Hong Kong
6. Ir. Gordon Cho	Dashun Policy Research Centre
7. Mr. Dee Hwa Chong	Ichthyological Society of Hong Kong
8. Prof. Chu Ka-hou	School of Life Sciences, The Chinese University of Hong Kong
9. Ms. Helen Cochrane	Environment & Energy Committee, The British Chamber of Commerce in Hong Kong
10. Ms. Suzanne Gendron	Ocean Park Conservation Foundation Hong Kong
11. Prof. Jackson Ho	Hong Kong Airline Service Providers Association
12. Ms. Yvonne Ho	International Air Transport Association
13. Dr. Brian C W Kot	Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University
14. Prof. Alexis Lau	Division of Environment, Hong Kong University of Science and Technology
15. Mr. Ken Lau	Airports Council International, Asia-Pacific Region
16. Ir. Lee Ping Kuen	The Hong Kong Institution of Engineers
17. Dr. Lui Sun Wing	The Hong Kong Association for the Advancement of Science and Technology
18. Mr. Simon Ng	Civic Exchange
19. Ms. Shadow Sin	Ocean Park Conservation Foundation Hong Kong
20. Ir. Kenny Wong Siu Wai	The Hong Kong Institution of Engineers
21. Ir. Prof Steve Wong	The Environment & Sustainability Committee, The Hong Kong General Chamber of Commerce
22. Dr. Cynthia Yau	Marine And Fisheries Ecologist