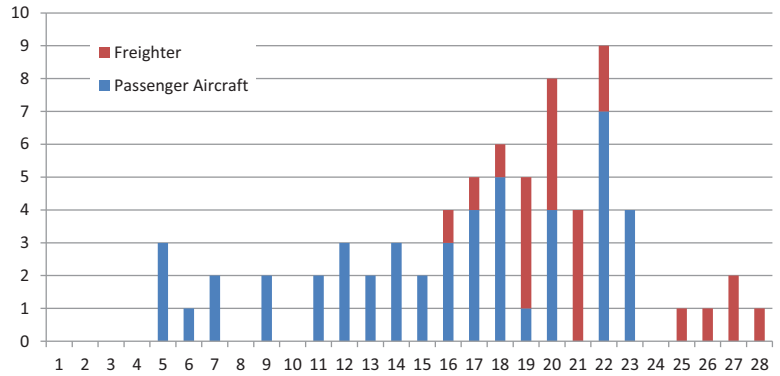
Supplementary Information from AAHK on 3RS EIA Report to ACE EIASC Secretariat

Item no.	Comment	Responses	Relevant Sections in EIA Report
	Air quality and noise impact		
1.	Statistical information on IATA survey in relation to locally based airlines regarding the aircraft phasing out programme (by type and make) in the past decade(s) to support the phasing-out assumption that the operational cycle of aircrafts is 20-25 years	The Hong Kong based airlines are Cathay Pacific, Dragonair, Hong Kong Airlines, Hong Kong Express and Air Hong Kong. Based on publicly available information on aircraft movements between different airlines and fleet status published by Planespotters (http://www.planespotters.net/), statistical information on the aircraft retirement ages are presented below for each of the above-mentioned locally-based airlines: Cathay Pacific Cathay Pacific phased out 70 aircraft from their fleet since 1997 at an average age of 17.6 years. The youngest aircraft phased out was 5 years old and the oldest 28 years old. Number of Cathay Pacific aircraft phased out since 1997 by age is illustrated in the figure below:  Passenger aircraft were phased out from Cathay Pacific's fleet when reaching about 16 years, while freighters stayed a bit longer until 21 years on average. Cathay Pacific is following a trend that is often observed as for other airlines whereby freighters have a slightly longer lifespan than passenger aircraft. Four freighters were phased out after 25 years. These four aircraft were kept beyond the reported 25 years to await the delivery of the more recent and more modern B747-400ERF in 2008 and 2009.	Section 2.3.4 and Appendix 2.1

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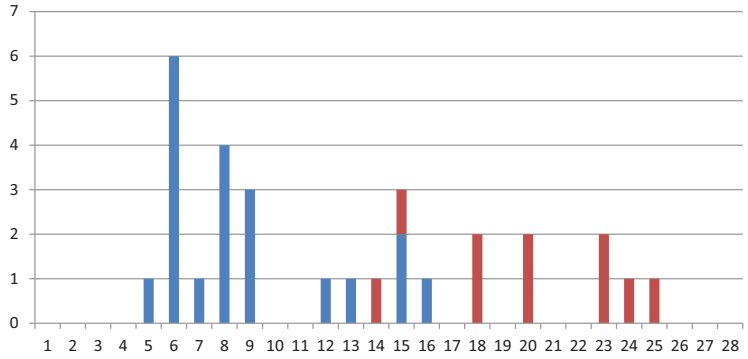
Available information on the age of Cathay Pacific's aircraft phased out since 1997 by aircraft type are given in the table below:

	Age																			
Aircraft type	5	6	7	9	11	12	13	14	15	16	17	18	19	20	21	22	23	25	26	27	28	Grand Total
Airbus A330-342				2				1	1	2	3	2										11
Airbus A340-313	3				2	2																7
Airbus A340-642		1	2																			3
Boeing 747-236F(SCD)																			1			1
Boeing 747-267B										1	1	2	1	2								7
Boeing 747-267B(SF)																		1				1
Boeing 747-267F(SCD)														1		1						2
Boeing 747-2L5B(SF)																				2	1	3
Boeing 747-367						1	2	2	1													6
Boeing 747-412												1		1			2					4
Boeing 747-412(BCF)										1	1	1	2	2	1	1						9
Boeing 747-444(BCF)													1		1							2
Boeing 747-467														1		7	2					10
Boeing 747-467(BCF)															2							2
Boeing 747-467F													1	1								2
Grand Total	3	1	2	2	2	3	2	3	2	4	5	6	5	8	4	9	4	1	1	2	1	70

<u>Dragonair</u>

Dragonair phased out 30 aircraft from their fleet since 1997 at an average age of 12.6 years. The youngest aircraft to be phased out was 5 years old and the oldest 25 years old.

Number of Dragonair aircraft phased out since 1997 by age:



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Passenger aircraft were phased out from Dragonair's fleet when reaching about 9 years while freighters stayed a bit longer until 20 years.

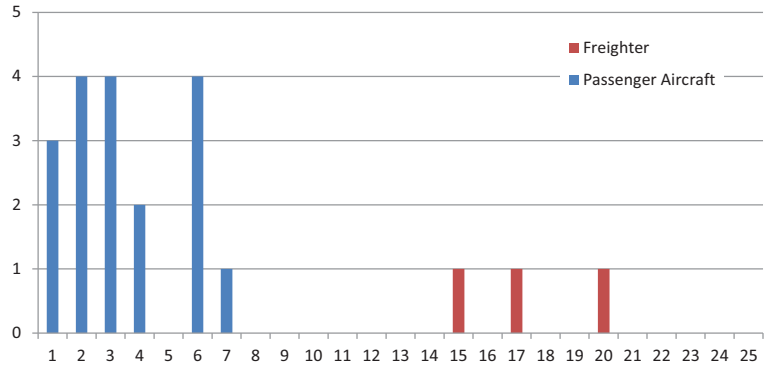
Age of Dragonair aircraft phased out since 1997 by aircraft type:

	Age															
Aircraft type	5	6	7	8	9	12	13	14	15	16	18	20	23	24	25	Grand Total
Airbus A300B4-203(F)														1	1	2
Airbus A320-231	1	6														7
Airbus A320-232					1	1										2
Airbus A330-342							1		2	1						4
Airbus A330-343			1	4	2											7
Boeing 747-209F(SCD)												1				1
Boeing 747-312(SF)												1	1			2
Boeing 747-3H6(SF)													1			1
Boeing 747-412(BCF)								1	1		2					4
Grand Total	1	6	1	4	3	1	1	1	3	1	2	2	2	1	1	30

<u>Hong Kong Airlines</u>

Since their creation in 2006, Hong Kong Airlines phased out 21 aircraft from their fleet at an average age of 5.5 years. The youngest aircraft to be phased out was less than one year old and the oldest 20 years old.

Number of Hong Kong Airlines aircraft phased out since 2006 by age:



Item no.	Comment	Responses	Relevant Sections in EIA Report

Passenger aircraft were phased out from Hong Kong Airlines' fleet when reaching about 5 years while freighters grew older until 17 years.

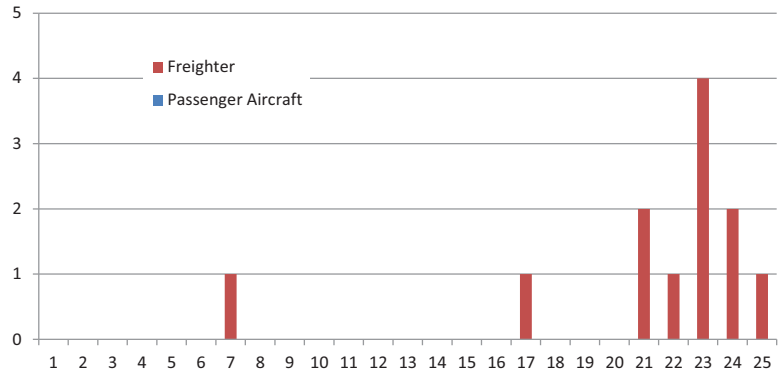
Age of Hong Kong Airlines aircraft phased out since 2006 by aircraft type:

	Age								
Aircraft type	1	2	3	4	6	7	15	17	20	Grand Total
Airbus A320-214	2	3								5
Airbus A330-343	1									1
Boeing 737-332(SF)									1	1
Boeing 737-39K(SF)							1	1		2
Boeing 737-808(WL)			1		1					2
Boeing 737-84P(WL)		1	2	2	1					6
Boeing 737-8FH(WL)			1							1
CRJ-200ER					1	1				2
CRJ-700					1					1
Grand Total	3	4	4	2	4	1	1	1	1	21

Air Hong Kong

Over the last 20 years, Air Hong Kong phased out 12 aircraft from their fleet at an average age of 21 years. The oldest aircraft to be phased out was 25 years old.

Number of Air Hong Kong aircraft phased out by age:



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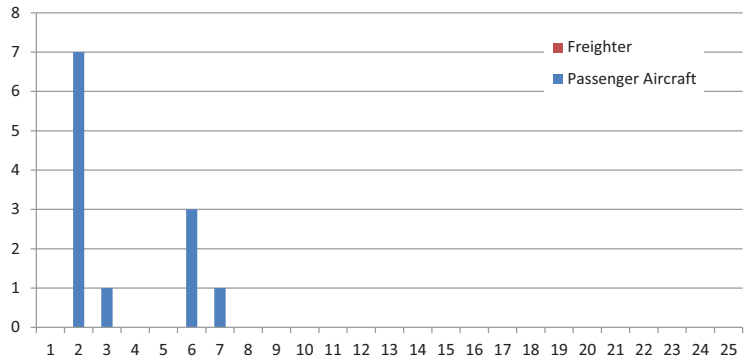
Age of Air Hong Kong aircraft phased out by aircraft type:

	Age							
Aircraft type	7	17	21	22	23	24	25	Grand Total
Airbus A300B4-203(F)				1	2			3
Airbus A300C4-605R	1							1
Boeing 747-121(SF)						1		1
Boeing 747-132(SF)					1	1	1	3
Boeing 747-249F(SCD)		1						1
Boeing 747-2L5B(SF)			2		1			3
Grand Total	1	1	2	1	4	2	1	12

<u>Hong Kong Express</u>

Since their creation in 2005 Hong Kong Express phased out 12 aircraft from their fleet at an average age of 4.5 years. The oldest aircraft to be phased out was 7 years old.

Number of Hong Kong Express aircraft phased out since 2005 by age:



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Age of Hong Kong Express aircraft phased out since 2005 by aircraft type:

	Age				
Aircraft type	2	3	6	7	Grand Total
Boeing 737-808(WL)	3			1	4
Boeing 737-84P(WL)		1	3		4
ERJ-170LR	4				4
Grand Total	7	1	3	1	12

IATA has reported that the surveyed airlines indicated that they planned to phase out their aircraft after 15 to 25 years of operations, with the vast majority of them (representing 82% of the traffic) saying between 20 and 25 years. With consideration of precise information on the mix of aircraft that has been made available to IATA by some airlines, IATA has also reported that in developing the detailed schedules for the air quality and aircraft noise impact assessments, the airline fleet mix was adjusted throughout the years to follow the plans communicated by each airline (or assumed for when data is not available), after also considering the actual age of the aircraft and the airlines' phasing out plans for specific aircraft types when available.

<table>
<tr><th>Item no.</th><th>Comment</th><th>Responses</th><th>Relevant Sections in EIA Report</th></tr>
<tr><td></td><td></td><td>Statistical information on the aircraft retirement ages of the locally based airlines are as detailed above and these are also summarized below for easy reference:
<table><tr><th>Locally based airline</th><th>Average age of phased out passenger aircraft</th><th>Average age of phased out freighter</th><th>Overall average age of phased out aircraft</th></tr><tr><td>Cathay Pacific</td><td>16</td><td>21</td><td>18</td></tr><tr><td>Dragonair</td><td>9</td><td>20</td><td>13</td></tr><tr><td>Hong Kong Airlines</td><td>3</td><td>17</td><td>5</td></tr><tr><td>Air Hong Kong</td><td>--</td><td>21</td><td>21</td></tr><tr><td>Hong Kong Express</td><td>4</td><td>--</td><td>4</td></tr><tr><td>All locally based airlines</td><td>11</td><td>21</td><td>14</td></tr></table>The presented statistical information have demonstrated that the average aircraft phasing out age of 20 to 25 years as determined by IATA from the survey of airlines operating at HKIA is reasonable and conservative.</td><td></td></tr>
<tr><td>2.</td><td>Relationship of the historical operational life span of the existing aircrafts with the aircraft substitution rate of up to 65% in 2030 and 2032</td><td>Aircraft substitution was required in the INM modeling in two instances, including:
1) either when the exact sub-type of the existing aircraft modelled did not exist in the INM noise database; or
2) when the the aircraft being modelled is a new type
The up to 65% aircraft substitution rate in years 2030 and 2032 applies to both the above instances, though there were only two existing aircraft types (i.e., A321 and B777F) that involved variants that required substitution in the INM modeling. Therefore, there is no direct relationship between the aircraft substitution rate in INM modeling and the operational life span of the existing aircraft. Nevetheless, based on the IATA's busy day flight schedules, it can be measured that existing and new aircraft types will represent about 40% and 60% respectively of the aircraft population in 2030, with "new aircraft type" defined as those that are not currently operating at HKIA but would be introduced in the coming years. The percentage of new aircraft in the IATA's flight schedules can be explained by the following considerations:
• Average aircraft phasing out age is of 20 to 25 years which means most aircraft currently operating at HKIA will need to be replaced by 2030/2032;
• When being replaced, new families of aircraft will be available. Actually it is expected that new types of aircraft will enter</td><td>Sections 2.3.4 and 7.3</td></tr>
</table>

<table>
<tr><th>Item no.</th><th>Comment</th><th>Responses</th><th>Relevant Sections in EIA Report</th></tr>
<tr><td></td><td></td><td>in service within the end of the decade replacing the popular aircraft types that were operating at HKIA in 2011. Most of these models are still to enter in service which means they are not supported in the INM database.

The table below illustrates the main aircraft families operating at HKIA in year 2011 and the new aircraft types that would be replacing them as projected by IATA for :

<table>
<tr><th>Aircraft Family</th><th>% ATM busy day 2011</th><th>Entry in Service</th><th>Replacement aircraft family</th><th>Entry in Service</th></tr>
<tr><td>A330</td><td>23%</td><td>1992</td><td>A350</td><td>2014</td></tr>
<tr><td>A320</td><td>20%</td><td>1987</td><td>A320neo</td><td>2015</td></tr>
<tr><td>B747-400</td><td>17%</td><td>1989</td><td>B747-8
B777-300ER</td><td>2012
2004</td></tr>
<tr><td>B777</td><td>15%</td><td>1994</td><td>B777-X</td><td>2020</td></tr>
<tr><td>B737</td><td>11%</td><td>1998</td><td>B737MAX</td><td>2017</td></tr>
<tr><td>A340</td><td>4%</td><td>1993</td><td>A350</td><td>2016</td></tr>
<tr><td>B767</td><td>2%</td><td>1995</td><td>B787</td><td>2011</td></tr>
</table>

Since data of current aircraft types have been used to substitute the listed new aircraft models that are expected to be quieter in the INM modeling, the adopted assessment approach would give more conservative results for the EIA study.</td><td></td></tr>
<tr><td>3.</td><td>Proposal of an effective mechanism which will ensure the timely phasing out of the aircrafts as assumed in AAHK's projection in model years</td><td>The environmental monitoring and audit (EM&A) programme proposed for the operational phase of the 3RS will include an annual review and reporting process that will allow AAHK to measure exactly how it stands compared to predicted operations used in the preparation of the EIA report. If there are any major variances, discrepancies and/or abnormalities that are observed during the ongoing process of data collection and analysis for preparation of the annual review when compared with the assumptions/ measures adopted in the assessment, early investigation will be carried out by AAHK for identification of the possible causes of the variances, discrepancies and/or abnormalities for avoiding any potential effect on meeting the environmental performance requirements set out in the EIA report for the 3RS project.

CAD has been actively monitoring the advancement in aircraft technologies and has banned the landing and take-off of all Chapter 2 aircraft since July 2002. With effect from end of March 2014, Marginally Compliant Chapter 3 (MCC3) Aircraft have already been banned for landing and take-off by CAD at night between 2300 and 0659 (MCC3-prohibited period). CAD has planned to extend the MCC3-Prohibited Period to cover the whole day from late October 2014.

AAHK will work closely with CAD in the ongoing aircraft noise EM&A programme and will identify any additional measures/ initiatives that may be required, similar to those new short-term measures including the introduction of MCC3-prohibited period as described above, to facilitate the timely phase out of old aircraft operating at HKIA.</td><td>Section 7.8 of EIA and Section 4.1 of EM&A Manual</td></tr>
</table>

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4.	Whether there is validation of the noise emissions from aircrafts predicted by the Integrated Noise Model (INM) which takes into account noise data from aircraft manufacturers	Yes, noise emissions from aircraft predicted by the INM have already been validated by the US Federal Aviation Administration (FAA) taking into account noise data from aircraft manufacturers. The INM released by the FAA includes a comprehensive International Aircraft Noise and Performance (ANP) database in accordance with the ICAO Doc 9911 recommendations, and the ANP database in INM is also included in the online international aircraft noise and performance (ANP) database maintained by EUROCONTROL, and may be accessed at: http://www.aircraftnoisemodel.org/ As descirbed in Section 2.4 of the ICAO Doc 9911, the ANP dabase contains aeroplane and engine performance coefficients and NPD relationships for a substantial proportion of the civil aeroplane types operating worldwide, and data on additional aeroplane types, old and new, will be added as soon as they have been supplied to, and verified by, the database managers. All new inputs are supplied or endorsed by the aeroplane manufacturers and generated according to SAE International's specifications that are approved by ICAO. For aeroplane types or variants for which data are not currently listed, the ANP database provides guidance on how they can best be represented by data for other similar aeroplanes that are listed.	Section 7.3
5.	Whether decibel (dB(A)) can be used in lieu of Noise Exposure Forecast (NEF) in the EM&A programme for better monitoring the health risks; communities in Ma Wan, Tsuen Wan, Siu Kau, Ting Kau and Tuen Mun could be the potential areas to be affected by 3RS	NEF is the applicable aircraft noise standard in Hong Kong that is specified in the EIAO-TM and also in the Hong Kong Planning Standards and Guidelines (HKPSG). NEF is a noise metric developed in the US to predict the degree of community annoyance from aircraft noise that takes into acount the subjective reactions of the human ears to specific aircraft noise stimulus, including loudness, frequency, duration, time of occurrence, and tone, etc. The calculation of NEF is based on Effective Perceived Noise Levels for individual aircraft flights combined together over a 24-hour period. Because events occuring at night are considered more intrusive than those in the daytime, the NEF includes a 16.7 penalty (approximately 12 dB) for nighttime events between 2200 to 0659. Most international airports, including HKIA, have adopted cumulative average noise energy metrics for noise planning pursuant to the recommendations of ICAO Document 9911. The aircraft noise standard adopted for Chek Lap Kok is relatively stringent compared with the noise standards specified in many other places. It shall be noted that the potential health impact of environmental noise including aircraft noise is a subject that is still under research internationally. While environmental noise may cause annoyance and sleep disturbance, there have yet been any concrete international research results showing that environmental noise causes other health problems directly. To be responsive to the EIA Study Brief with respect to the required aircraft noise Health Impact Assessment (HIA), an assessment approach that involved comparing the changes of potential health impacts between the operation of 3RS and 2RS in 2030 was developed after a review of the relevant prcactices in Hong Kong and overseas. The literature review carried out as part of the aircraft noise HIA of the EIA has identified L_{den} to be the noise metric that is widely adopted for assessment of self-reported annoyance, while L_{night} is commonly used to evaluate self-reported disturbance to sleep. L_{den} is a noise metric that is similar to NEF but represent the average sound pressure level over all days, evenings and nights in a year, and with a	Section 4.1 of EM&A Manual

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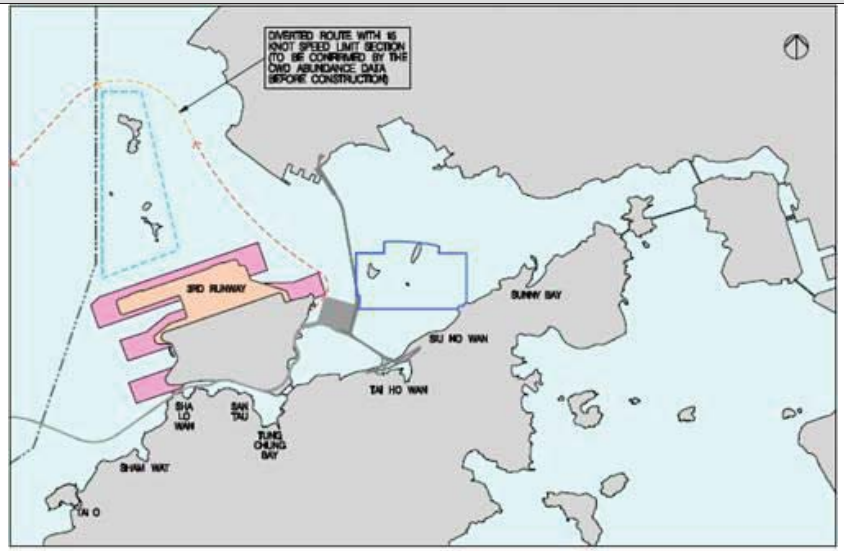
		penalty of 10 dB(A) for night time noise (2300 to 0700) and a penalty of 5 dB(A) for evening noise (1900 to 2300). L_{night} is the yearly average noise level for the night-time period (2300 to 0700), which does not contain any night-time noise weighting. Similar to NEF, the noise metrics including L_{den} and L_{night} adopted in the noise HIA are not represented by instanteous noise levels and hence cannot be measured directly. As of today, there are no internationally accepted threshold levels for direct health effects from exposure to aircraft noise as measured by L_{den} and L_{night}. To monitor aircraft noise impact, CAD has installed the Aircraft Noise and Flight Track Monitoring System (ANFTMS) since the opening of HKIA at Chek Lap Kok to help evaluate the track keeping performance and nosie impact of aircraft departing from or arriving at HKIA. As part of the proposed EM&A programme on aircraft noise, available aircraft noise monitoring data in decibel (dB(A)) recorded at CAD's ANFTMS for individual noise events will be obtained from CAD and analysed for the aircraft noise trends. While the instantaneous noise levels of individual noise events should not be used for land use planning in accordance with the recommendation of ICAO Document 9911, it is noted that the available data would be useful for a regular analysis of the aircraft noise trends and these can be taken account of in the ongoing EM&A programme and will facilitate the identification of the need of any additional measures/ initiatives with respect to aircraft noise.	
	Re-routing of SkyPier high speed ferries (HSF)		
1.	Impact assessment on CWD over the proposed speed limit and route diversion of SkyPier HSF, i.e. reduction of speed limit vs congestion of vessels and increase in traffic duration in the Sha Chau and Lung Kwu Chau waters	A range of literature has been reviewed on risks to dolphins from vessels travelling at speed and potential impact from vessel noise and in addition recent dedicated studies in Hong Kong investigating these aspects have been considered. Of all the vessel traffic anticipated to be using the area of open waters between HKIA and the SCLKCMP (this area of water expected to be further narrowed / constrained during 3RS construction), HSF traffic poses the most significant risk to dolphins in terms of both physical risks from collision and disturbance from underwater noise. AAHK therefore recommended that SkyPier HSFs using this stretch of open waters between HKIA and the SCLKCMP travelling to and from Macau / Zhuhai should be diverted to the north of SCLKCMP and at the same time be subject to a 15 knots speed limit through areas with relatively high CWD density, as illustrated in the diagram below.	13.9.2.91 to 13.9.2.112, and 13.11.5.12 to 13.11.5.13 , Appendix 13.13 (e.g. section 12.8)

Item no.	Comment	Responses	Relevant Sections in EIA Report
		 START OF CONSTRUCTION TO DESIGNATION OF MARINE PARK The EIA determined that this proposed mitigation measure for SkyPier HSFs - route diversion and speed restriction - is expected to reduce HSF impacts on CWDs as the SkyPier HSFs represent about 60% of all HSFs travelling across the area of open waters between HKIA and the SCLKCMP. Re-routing this traffic reduces the physical threat and underwater noise impact from fast-moving HSFs on CWDs in the area of open waters between North Lantau and the SCLKCMP. The assessment has also considered that re-routed HSFs will in turn pass through waters of known higher CWD abundance than in the open water area north of HKIA. However, the proposed 15 knot HSF speed limit as proposed for the part HSF journey across higher CWD abundant areas is expected to reduce impacts from the diverted HSFs to acceptable levels in these areas. In making this assessment, it was noted that it is the speed of vessels, as compared to the volume of traffic that is a fundamental factor for risk/ disturbance to CWDs. It is noted in the literature that a 10 knot vessel speed limit is an optimum criterion to mitigate against vessels hitting dolphins and that sounds produced by vessels travelling at 10 knots are of lower frequency and also tend to fall outside the frequency range of major CWD communication/ echolocation. However, the risk of vessel / dolphin collision and the reduction in noise from an HSF travelling at 15 knots rather than at 30-40 knots is considered to result in a considerable reduction of risk to a level that is acceptable to CWDs from the diverted HSFs.	13.11.5.4 to 13.11.5.13

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		AAHK has taken the initiative - as an additional precautionary measure in order to address public concerns raised on the SkyPier HSF issue - to limit the number of SkyPier HSFs to an annual daily average of 99 (i.e. capped at the present level) prior to the proposed designation of the marine park in 2023. On the issue of potential impact on marine traffic in Urmston Road resulting from the SkyPier HSF route diversion and speed restriction (i.e. congestion of vessels and increase in traffic duration in SCLKC waters), this aspect was considered in determining that the HSF route diversion and speed limit mitigation measure was of overall benefit to CWDs. The marine traffic impact assessment work done in conjunction with the EIA accordingly considered vessel types and speeds in the waters near HKIA including in Urmston Road. To assess the potential impacts from the HSFs travelling at slower speeds (e.g. leading to possible congestion in Urmston Road) the assessment considered a 15 knot slow-down for affected HSFs over an indicative 3-km section of the route through the area currently shown with comparatively higher CWD abundance. Simulations identified that slowing these HSFs to 15 knots for this part-journey would increase the journey time over the 3-km section by about 3-4 minutes. The diversion and slow-down together were found to increase total journey time between SkyPier and Macau / Zhuhai by around 15 minutes. Assessments considered the number of HSFs compared to other vessel activity in both the area of open waters north of HKIA and in Urmston Road. The number of diverted SkyPier HSFs to Urmston Road would constitute only approx. 6% of the total daily marine traffic in Urmston Road. The numbers that generate the 6% estimate are from Table 2 of Appendix 13.13: **Daily Average of High-Speed Ferries and Total Marine Traffic in Year 2011 and Projection to Year 2030:**	13.11.5.13 Appendix 13.13

Total Marine Traffic	Year	Daily Average (High-Speed Ferries)		Daily Average (Total Marine Traffic)
		SkyPier	Non-SkyPier	
(i) via South of Sha Chau				
	2011	34	24	Approx. 230
	2021	Approx. 45	Approx. 30	NA
	2030	Approx. 50	Approx. 35	Approx. 330
(ii) via Urmston Road				
	2011	54	54	Approx. 540
	2021	Approx. 70	Approx. 70	NA
	2030	Approx. 80	Approx. 80	Approx. 810

The number of diverted SkyPier HSFs is 34 in 2011 and projected to approx. 50 in 2030 compared to approx. 540 in 2011 and projected to approx. 810 in 2030 (i.e. about 6% of the total marine traffic in Urmston Road) While the additional diverted traffic (typically 1 – 4 movements per hour during SkyPier HSF operating hours) does make Urmston Road

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		marginally busier, the number of additional vessels is not significant compared to the total marine traffic in Urmston Road and is not anticipated to result in any congestion problem. Even with the proposed SkyPier (Macau/Zhuhai) HSF route diversion, the marine traffic density in Urmston Road in the future is lower than the marine traffic density in certain other Hong Kong shipping channels, for example in the Western Harbour. It is noted that even these other areas do not experience significant congestion issues and from the assessments above and experience in other busy area of Hong Kong waters, it is therefore summised that the proposed SkyPier (Macau/Zhuhai) HSF route diversion will not lead to any significant added congestion in Urmston Road. The additional diverted HSFs are expected to pass close to the area north of SCLKCMP and the expected impacts of this have also been considered. The EIA determined that the added HSFs travelling at 15 knots along the diverted route would pose an acceptable risk. Both the risk of vessel collision with CWDs (greatly reduced with the proposed section at slower speed) and underwater noise disturbance from HSFs traveling at 15 knots is significantly less than HSFs traveling at 30 – 40 knots. With the additional measure of a cap on HSF traffic from SkyPier as has been proposed, future impacts will be further reduced to a lower level than what was assessed as acceptable in the EIA.	13.9.2.94 to 13.9.2.96 13.9.2.102 13.9.2.107 & 13.9.2.112
2.	Consideration to extend HSF speed limit to PRE waters where core areas for dolphins can be identified	Current knowledge on CWD core areas is that in Hong Kong waters there is a very robust dataset developed over an 18 year period by AFCD and this is used to reliably determine CWD abundance and 'patterns of residency' in Hong Kong waters. This provides very accurate year to year indications on how CWDs use different areas within Hong Kong waters and identifies changes over time. A similarly robust dataset is unfortunately not available for the CWD populations in Mainland PRE waters. Although the PRE CWD National Nature Reserve covers a large area of the Mainland PRE, we have not been able to find a consolidated (or available) data-set from which abundance or patterns of habitat use can be determined in the way that it is in Hong Kong. It is known that the Reserve is split into three zones, a core area, a buffer area and experimental area. From the below Figure it can be seen that the SkyPier HSF diversion route going north of the SCLKC Marine Park may have the effect of reducing the amount of journey time that HSFs spend in the 'core area' of the CWD nature reserve. However the pros and cons of this are not actually known given the paucity of long term data to the west of the HKSAR boundary. The effectiveness of extending the SkyPier HSF speed limit to PRE waters is of course largely dependent on how the area is being used by CWDs. **As there is currently a lack of relevant CWD information in the PRE CWD National Nature Reserve, AAHK proposes to fund and support appropriate survey efforts including within the National Nature Reserve area in order to collect data that will allow patterns of CWD abundance and use to be determined over time.**	

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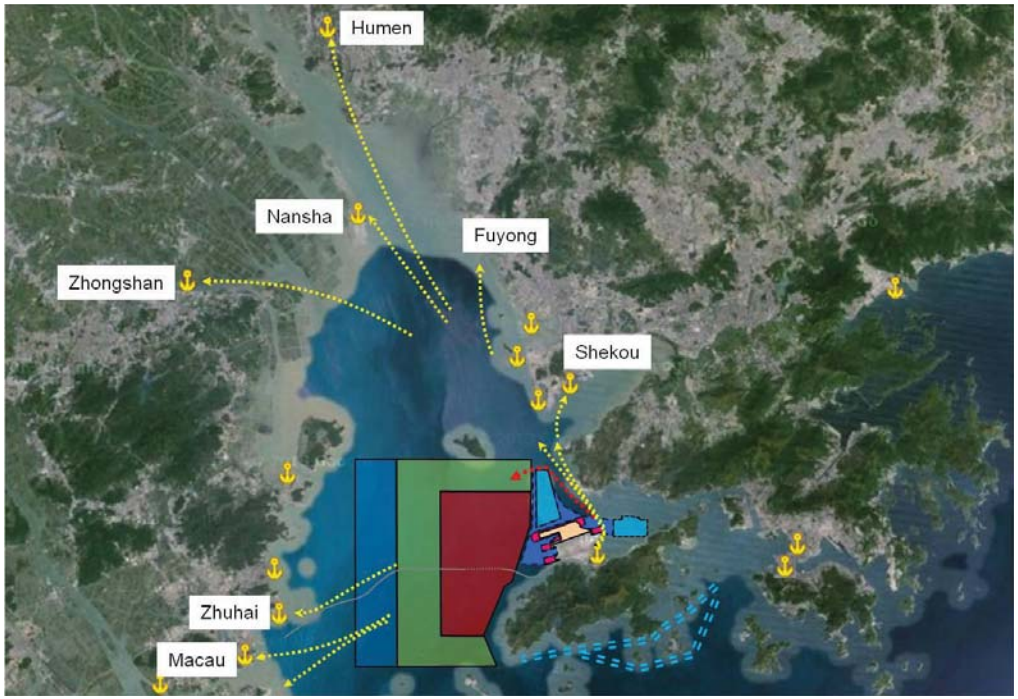
		Appropriate ways of getting good quality surveys undertaken are under development and are likely to include for example partnerships with expertise from those Mainland PRE universities that the National Nature Reserve Authorities are known to collaborate with already. Data can then be used to determine CWD abundance and patterns of use which will aid the development of effective conservation measures in coordination with the Mainland PRE side.  AAHK would then explore with the relevant Mainland Authorities on formulating CWD conservation measures across the whole PRE. The proposals on carrying out the CWD studies in Mainland PRE waters are one of the initiatives as outlined in the MEFE Plan (See section 5.3) that is submitted along with this RtC. It is noted that the PRC has jurisdiction over marine vessels operating in Mainland PRE waters. Vessels must comply with all applicable PRC regulations (e.g. speed controls etc.).	

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3.	Feasibility of re-locating SkyPier to the west part of HKIA to shorten ferry voyage distances and to avoid routing through CWD frequented areas, within and outside Hong Kong waters.	The SkyPier facility was located in its current location within the Restricted Area of HKIA to readily connect the transfer passengers between the aircraft terminal with mainland ports facilities via the Automated People Mover (APM) system. Re-routing SkyPier to the west may not actually bring about reduced impacts on CWDs, for the following reasons: • HSFs to northern ports would have to re-route into and through the PRE CWD National Nature Reserve, whereas from the current SkyPier this is not necessary; • HSFs to some northern ports (e.g. Shekou, Fuyong) may in turn need to re-route into airport north to Urmston Road to gain efficient access to and from these ports; and • 3RS EIA surveys have identified that the Airport West area is quite well used by CWDs, mainly for travelling but also for foraging with the area considered of slightly higher habitat quality than the airport north. In considering the viability of relocating SkyPier to the west, an apparent and significant disadvantage of the western location is that available water depth in the approach waters to a potential western HKIA SkyPier location are comparatively shallow, therefore a SkyPier location to the west would necessitate access channel dredging along with associated ongoing maintenance dredging to support the operation of SkyPier in this location.	13.4.6.113

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		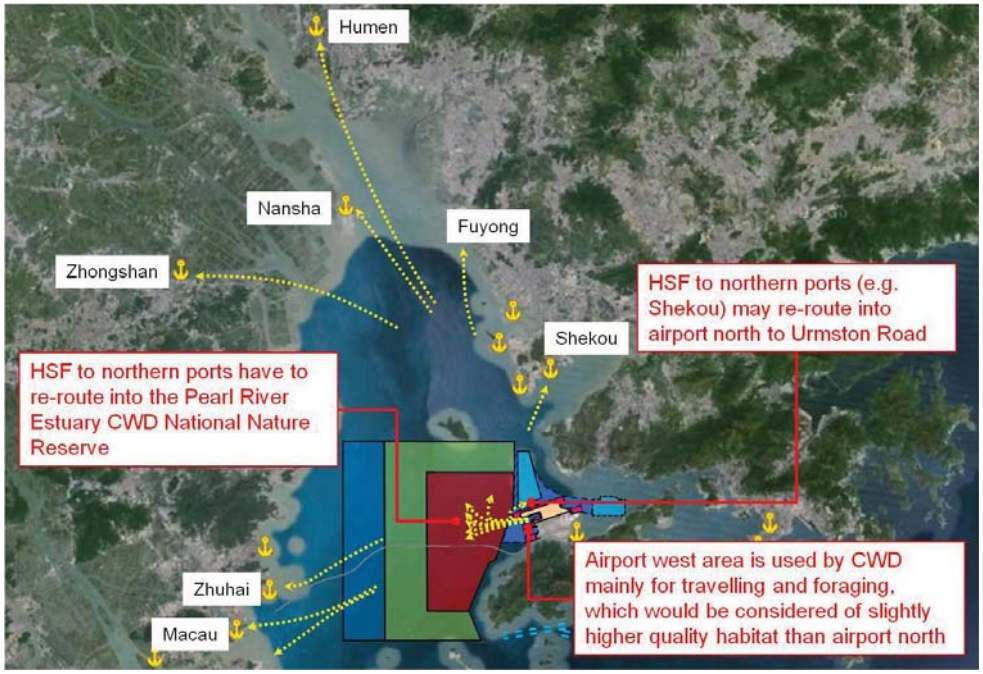 Moving SkyPier to a western HKIA location may also lead to operational challenges and restrictions, not limited to: - The need for substantial redevelopment of an existing and functional airport facility; - The westerly location being much further from passenger processing terminals (e.g existing T1 and future Three Runway Concourse); and - The need for substantial associated works to re-establish the connectivity between the pier and passenger processing terminals (e.g. provision of new APM or equivalent). As mentioned, in order to address public concerns raised on the SkyPier HSF issue **AA has committed to limiting the number of SkyPier HSFs to the current annual daily average of 99 without further growth prior to the proposed designation of the marine park in 2023**.	

Item no.	Comment	Responses	Relevant Sections in EIA Report
	Compensation for loss of habitats		
1.	Enhancement of West and/or Southwest Lantau as a safe zone (such as marine park) and alternative habitat for CWD displaced from Sha Chau and Lung Kwu Chau arising from the SkyPier re-routing activities, and those displaced from construction works around the planned The Brothers Marine Park; this as the compensation for the permanent habitat loss for dolphin habitats during the construction and operation phases of 3RS	AAHK has proposed - under the framework of the Marine Ecology and Fisheries Enhancement Strategy as attached - to develop / implement a range of additional initiatives and enhancement measures intended to further enhance marine ecology habitats in North Lantau waters, including waters around SCLKC and southwest Lantau waters during the construction phase of 3RS Please refer to section 4 of the attached Marine Ecology and Fisheries Enhancement Plan for details. It is expected that for the duration of the planned 3RS project construction period, CWDs would be able to continue to safely use the waters of SW Lantau as one of their key habitats and with the area continuing to be a healthy habitat (i.e. a "shelter") for CWDs including those CWDs that may temporarily be displaced by 3RS marine works disturbances. Further enhancements of marine habitats if and as possible during the construction phase are expected to positively influence the value of the area where the initiatives are undertaken.	Section 13.13
	Management plan for the future proposed marine park		
1.	Feasibility of phased designation of the proposed new marine park or setting up dolphin protected area(s) north of the works area (i.e. 2 400 ha – x)	Please refer to the attached Marine Ecology and Fisheries Enhancement Plan, which: • Outlines the preliminary management plan for the proposed marine park (section 3 of the Plan); • A dolphin protection area during the construction phase within 2,400 ha of the proposed Marine Park with stringent management control on SkyPier ferries and construction vessels of 3RS project (See Section 4 of the Plan); • Suggests marine ecology and fisheries resources enhancement measures for exsiting CWD hotspots in HK Waters that are expected to be developed and implemented after 3RS project approval, during the construction phase of 3RS (see section 4 of the Plan); • Proposes measures to support sustainable fisheries industry (section 8 of the Plan); • Identifies the potential areas for relevant scientific research and studies (section 6 of the Plan); and • Outlines planned uses and expected focus areas and intended use of the fund as well as the provisional fund amount (section 9 of the Plan)	
2.	A CWD conservation and marine life enhancement plan in Hong Kong waters with specific proposals to improve the carrying/holding capacity for dolphins moving down from Sha Chau and Lung Kwu Chau		
3.	A fisheries enhancement plan to improve fisheries resources and productivity in West Lantau waters		
4.	Information on the planned use of the proposed Marine Ecology Enhancement Fund to research into and implement "dolphin friendly" activities		

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	Water quality		
	Information on minimum number of construction vessels in work area to help set the action limit and action plan with regard to water quality assessment	A projection on vessel numbers was provided in the EIA, based on the preliminary programme from the 3RS project scheme design. It is apparent that the number of construction vessels working will be constantly changing as construction works progress, with peak phases during which a higher number of work and other vessels will be required. For information, the average and peak vessel numbers for barging activities are presented in Appendix 13.13 of the EIA report which identifies that while the average is 64 vessel movements per 24-hour day, the actual number of vessels can be expected to change markedly throughout the construction programme, hence a 'minimum' number identified for one phase of construction would not be applicable to another phase. The EIA also identifies that there would also be a number of predominantly stationary vessels working within the works area. While these stationary vessels are expected to only require slow position shifts (with limited water quality disturbance), their numbers are also expected to change markedly throughout the construction programme, hence a 'minimum' number identified for one phase of construction would not be applicable to another phase. AAHK's approach is to seek to ensure that all vessels operating in and around the works areas during 3RS works are effectively managed in order to reduce environmental impacts where possible. Therefore, in addition to the established good practice guidelines and general codes of practice that govern marine plant and equipment (summarised in the EIA report), AAHK intends to establish and implement additional management and control practices during the marine works phase to monitor, control and also to minimise the number of construction vessels. Proposed measures include: • Floating booms will be positioned in place to physically demarcate the construction works area from other waterspace to prevent construction vessels accidentally entering into the waterspace between the southern boundary of the existing Sha Chau and Lung Kwu Chau Marine Park and the northern boundary of the works area; • Two primary marine site accesses, one from east and the other from west of the site will be established (see Figure 3 below); • The maximum speed of construction vessels travelling in / close to the site will be restricted to not exceeding 10 knots; • All marine vessels deployed for 3RS construction will be registered under a permit system and will have identification tags mounted to make registered vessels more easily recognisable. Guard boats will be deployed at both east and west ends of the site to ensure no construction vessels moving along the waterspace between the southern boundary of the existing Sha Chau and Lung Kwu Chau Marine Park, and the northern boundary of the works area. A "Marine Traffic Monitoring System" (MTMS) will be set up on HKIA and GPS and AIS will be used to ensure all such registered construction vessels will strictly follow the designated marine access route to/from the works area or site,	13.9.2.91 to 13.9.2.96 Appendix 13.13 13.9.2.93 Appendix 13.13

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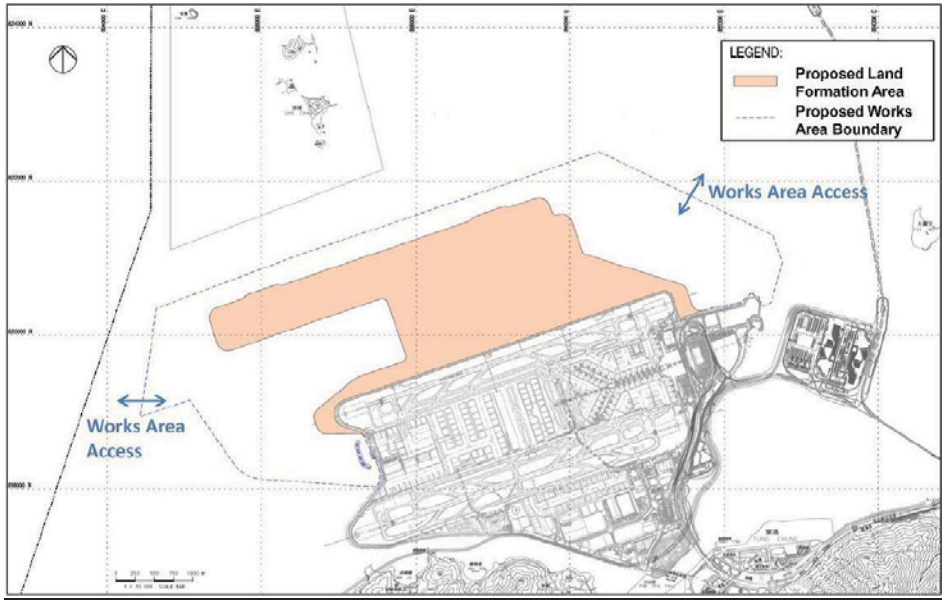
		the speed restriction and any other navigation controls as required throughout the construction period. The MTMS will be a centralised, real time system and will be implemented prior to the main reclamation commencing. Should any construction vessels violate these conditions, the master or the person-in-charge of the vessel will be issued a warning notice. Violation of any of the conditions specified in the permit more than two times will result in the vessel and the master being removed from the project; • All works contractors will be required to submit a monthly barging activities programme to report the actual construction vessels deployed and marine movements together with the planned marine vessel movements on a 3-month rolling basis, so as to identify the anticipated barge movements for the coming 3 months for optimum control and monitoring. Such rolling vessel plans provide a means of actively managing vessel activities during the 3RS project. Figure 3: Designated Marine Vessel Access Points  Construction management practices as listed above would ensure that construction vessel activity associated with 3RS are well controlled throughout the duration of construction works and for example these measures are expected to helpminimise any possible elevations in pollutants from vessel activities. In addition to the range of controls placed on the construction activities themselves and the management controls on	

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		vessels for the duration of works, a comprehensive water quality monitoring and auditing programme is proposed that will closely monitor water quality at the 12 impact stations surrounding the entire construction works area as well as at 8 key Water Sensitive Receiver locations for the duration of marine construction works. This monitoring will provide frequent and regular information (3 days per week, 2 times per day, until completion of marine construction works) on the water quality performance of all marine activities associated with the 3RS construction (including marine vessel movement). Our event and action plans (which are triggered by any observed exceedance of action / limit levels for the monitored water quality parameters) requires the ET, IEC and contractor to review activities that may be causing deterioration in water quality and to rectify any such practices accordingly. This will ensure that adverse impacts to WSRs will not arise as a result of the project.	