

APPENDIX 13.13

Existing and Projected Marine Traffic Activities during Construction and Operation Phases

Introduction

This appendix provides a summary of the existing and projected marine activity within the study area during both construction and operation phases of the third-runway project, which serves as a basis for assessing potential impacts to Chinese White Dolphins (CWDs) associated with marine traffic.

Existing Marine Traffic

Existing marine traffic activity was established by conducting visual traffic surveys to supplement and validate the Marine Department Automatic Identification System (AIS) and Radar Data in September and October 2012. Comprehensive coverage of the study area has been provided by capturing over one month of traffic activity (6 September 2012 - 16 October 2012) in compliance with Marine Department guidelines. Surveys were conducted during daylight hours (7am to 7pm) using time-lapse video capture.

The following survey gates, as presented in **Figure 1a**, have been adopted for this assessment:

Gates 1 and 2 - Cameras were located at the West Sea Rescue Berth. These cameras provide views towards the southwest (Y3 Anchorage) and west (Lantau Island No.2) respectively.

Gates 3 and 4 - Cameras were installed on the roof of the AsiaWorld-Expo. The cameras provide views towards the northwest (Sha Chau) and north (Tuen Mun).



Figure 1a Visual Traffic Survey Gates

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The survey results of the four gates are summarised in **Figure 1b and Table 1**. A significant survey resource was made available with Marine Department's provision of 24-hour AIS and Radar data, at 30 second intervals. Detailed vessel characteristics such as timing, position, speed, heading, approximate length and beam of all vessels within the study area can be extracted from these data. The use of both radar and AIS data, when further validated by the visual traffic survey data, provides a comprehensive profile of traffic activity within the study area. **Figure 2** summarises the key traffic routes for the existing marine traffic environment within the study area.



Figure 1b Visual Traffic Survey Results (average daily traffic during daylight hours (7am to 7pm))

Table 1	Average Daily	Davlight	Traffic Volume	(07:00-19:00)) between 6 Se	p and 16 Oct 2012

	Ocean-going (OG)	River-trade (RT)	Tug & Tow (T&T)	Fast Ferry (FF)	Fast Launch (FL)	Small Craft (SC)
Transect	VISUAL SURVEY SUMMARY (07:00 - 19:00)					
Towards Y3 Anchorage	0	29	1	10	7	62
Towards Lantau island No.2 Anchorage	0	39	1	19	8	56
Channel between Sha Chau and Chek Lap Kok	0	31	1	28	7	39
Urmston Road	24	155	10	86	12	46

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Figure 2 Key Traffic Routes for Existing Traffic Environment

Apart from the visual traffic survey which provided the average daily traffic during daylight hours (7am to 7pm), the daily average marine traffic in particular the high-speed ferries in Year 2011 has also been established for projection of future marine traffic, which is shown in **Table 2**.



Construction Marine Traffic

During construction phase, marine traffic will be generated from barging activities associated with the construction works which will follow established routes within Hong Kong's existing fairways and channels. On a local scale around the existing airport, there will be changes in both traffic volume and behaviour within the marine environment as marine traffic will be generated from construction vessels entering/exiting the works area as shown in **Figure 3** and existing routes will be required to shift northward from the reclamation footprint.



Figure 3 Proposed Works Area for Third Runway Project

Barging Activities:

In order to handle the significant volumes of materials necessary for the construction works, a large quantity of marine plant and a sizeable fleet of barges will be required. An assessment identifying the amount of material that will be generated from each construction activity and what production rates can be achieved has been undertaken.

Based on the envisaged reclamation works phasing the required fill allocation and the expected production rates of plant and vessels, the barging vessels which excludes marine plant working solely within the works area will build up from 2016 with the barge movements of approximately 180 transits/day during the peak period. On average, the marine traffic generated by the barging activities would be 64 transits/day throughout the construction period.

The bulk of barging volume has been directed to arrive at the works area principally via the west in order to minimise the impact on existing traffic. This includes the barges entering Hong Kong waters from the north which have mostly been routed west and south around Lung Kwu Chau instead of through Urmston Road. The distribution of barging routes developed through this process results in about two-thirds of the barging volume being directed away from major channels. The anticipated average and peak forecast traffic movements are presented in **Figure**

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4 and Figure 5, respectively.

Figure 4 Forecast Daily Construction Traffic Movements associated with Barging Activities on Average



Figure 5 Forecast Daily Construction Traffic Movements associated with Barging Activities during Peak Period



Construction Vessels:

Apart from the barging activities, various rigs and ships such as derrick, tugboat, DCM and PVD barge will stay and work within the works area during construction. They will be mainly deployed for ground improvement works and stationary for most of the time. About 100 vessels are anticipated to be working within the works area during the peak periods in 2016/2017.

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Future Marine Traffic

Future marine traffic activity was projected to Year 2030 in the Marine Traffic Impact Assessment for the Master Plan 2030. In reviewing the future traffic flows it is necessary to identify the likely traffic levels associated with future local and strategic developments within the study area up to 2030. These requirements necessitate consideration of a series of local and international issues, including:

- 1. Future port developments scenarios based on best available data sources during the time of study, taking into account the most optimistic cargo projections, vessel size increases and forecast variance;
- 2. Local and international growth expectations; and
- 3. Changes in shipping operations.

Figure 6 summarises the key traffic routes for the future marine traffic environment within the study area during both construction and operation phases of the third-runway project. Of the future marine traffic flows used for assessing potential impacts to CWDs, the high-speed ferries (HSFs) are considered to present the largest risk and therefore only the high-speed ferries have been specifically highlighted together with the total marine traffic projected up to Year 2030 is present in **Table 2**. Based on the MTIA study, it is expected that the fast ferry traffic will increase by 42% by 2030 over 2011 level, with an annual growth rate of approximately 2.9% for SkyPier HSFs. The projected fast ferry traffic in Year 2021 based on the annual growth rate is also shown in **Table 2**.







	Voor	Daily Average (Daily Average (Total Marine Traffic)	
Teal		SkyPier		
Gate 3				
	2011	34	24	Approx. 230
	2021	Approx. 45	Approx. 30	NA
	2030	Approx. 50	Approx. 35	Approx. 330
Gate 4				
	2011	54	54	Approx. 540
	2021	Approx. 70	Approx. 70	NA
	2030	Approx. 80	Approx. 80	Approx. 810

Table 2Daily Average of High-Speed Ferries and Total Marine Traffic in Year 2011 and
projection to Year 2030