

PLANNING AND MANAGEMENT OF SHELTERED SPACE WITHIN HONG KONG WATERS

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1. In order to safeguard the safety of the vessels and their crew members, the Government is committed to ensuring that sufficient sheltered space is provided within Hong Kong waters for local vessels to take refuge during typhoons or inclement weather. The supply of sheltered space within Hong Kong waters mainly includes typhoon shelters (T/Ss) and sheltered anchorages (S/As). As at 30 June 2024, there were 14 T/Ss and 18 S/As in different areas of Hong Kong, providing a total sheltered space of 421.6 hectares and 184.2 hectares respectively. The Marine Department (MD) carries out daily patrols within Hong Kong waters including T/Ss and S/As. During the patrol, it ensures fairways and passage areas inside T/Ss are unobstructed, vessels are berthed in a safe and orderly manner and comply with existing marine legislation. In addition, it inspects and checks the condition of T/Ss and S/As, and conducts inspections on any safety issues related to vessels. Ancillary facilities and services are also provided by relevant government departments including the Civil Engineering and Development Department (CEDD) and the Water Supplies Department (WSD) to meet the needs of vessels berthed in T/Ss and S/As, including public landing facilities to facilitate embarkation and disembarkation to and from vessels, fresh water supply for shipping purpose and marine refuse cleansing services. The Audit Commission (Audit) has recently conducted a review to examine the planning and management of sheltered space within Hong Kong waters.

Planning and provision of sheltered space

2. *Need to closely monitor the demand and supply of sheltered space.* Around every five years, MD conducts the Assessment of T/S Space Requirements on the existing and projected situations of demand and supply of sheltered space for local vessels to take refuge during typhoons or inclement weather on a territory-wide basis. The latest assessment for the period from 2022 to 2035 projected that on a territory-wide basis the supply of sheltered space for local vessels could adequately meet the demand throughout the period up to 2035. The projected overall surplus will be 3.1 hectares in 2035, assuming that among others, projects in progress/under

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planning, including the expansion of Aberdeen South T/S, new sheltered space in Airport City Cove and under the Tung Chung New Town Extension, will be completed on schedule. If any of these projects cannot be completed by 2035, there may be a shortfall in sheltered space for meeting the projected demand (paras. 2.3, 2.4(b) and 2.6).

3. ***Need to explore using technology to assess the occupancy of T/Ss.*** In order to ensure that vessels' demand for sheltered space during typhoons can be met, MD keeps track of the highest occupancy of the 14 T/Ss during typhoons by counting the number of vessels by type and estimating the occupancy of T/Ss. However, MD does not assess the occupancy of T/Ss during normal days. As berthing areas in T/Ss are open to all vessels on a first-come-first-served basis, only limited sheltered space may be available during typhoons in T/Ss if there is a considerable occupancy during normal days. In Audit's view, a continuous assessment of occupancy of T/Ss will help MD better understand the usage of T/Ss by different types of vessels including the preference of working vessels to berth in certain T/Ss. Since the existing practice of counting the number of vessels involves substantial manpower and the estimation of occupancy may not be entirely accurate, MD needs to explore using technology to assess the occupancy of T/Ss during typhoons and normal days (paras. 2.8 to 2.10).

4. ***Need to make available layout plans of S/As for public information.*** Both T/Ss and S/As are open to all classes of local vessels on a first-come-first-served basis. While the Government does not assign any individual T/Ss and S/As for use by designated classes of vessels, some of the sheltered space are commonly used by certain classes of vessels due to location and ancillary facility factors, as well as usage habits and past practices. Pursuant to the Merchant Shipping (Local Vessels) (Typhoon Shelters) Regulation (Cap. 548E), MD prepares a plan of each T/S showing the passage and makes available a copy of such plan for inspection by the public. However, as there is no similar legislative requirement for S/As, MD does not upload the layout plans of S/As to its website showing their sizes and boundaries. In order to provide information on the sizes and boundaries of S/As, MD needs to make available on its website the layout plans of S/As for public information (paras. 1.6 and 2.11).

5. ***Need to keep in view the effectiveness of wave protection enhancement works in T/Ss.*** Based on the recommendations of a review completed by CEDD in August 2021, improvement works had been carried out so as to strengthen the wave resilience in Aberdeen South T/S, Aberdeen West T/S and Hei Ling Chau T/S.

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In June 2023, a temporary wave monitoring station was installed in Hei Ling Chau T/S for a one-year wave-monitoring programme to monitor the wave attenuation performance of the floating barriers installed in March 2023. According to CEDD, based on the interim results, the floating barriers appeared to be able to play a role in reducing waves. MD decided to extend the operation of the wave monitoring station to October 2024. The final assessment report on the wave attenuation performance of the floating barriers was expected to be completed by the end of 2024 (paras. 2.20 and 2.21).

6. ***Wave protection capability of S/As.*** According to MD, individual S/As had their local characteristics in berthing different classes of vessels, and were considered to be viable and effective to protect the vessels therein through prolonged past experience of passage of typhoons. Since technical standards on wave protection for T/Ss are not applicable to S/As, in the absence of a unified standard, the wave protection capability of S/As may vary depending on the local geographical environment. In the aftermath of Super Typhoon Mangkhut, MD distributed a pamphlet to relevant stakeholders such as owners/operators of local vessels to educate them to prevent damage and loss of vessels during typhoons or inclement weather. In order to enhance the safe berthing of vessels in S/As, MD needs to remind the owners/operators of local vessels to take precautionary measures promulgated in its pamphlet during typhoons or inclement weather (para. 2.24).

7. ***Room for improvement in conducting hydrographic surveys.*** According to MD, it normally conducts hydrographic surveys for T/Ss and S/As at an interval of 48 months subject to workload and job priority. Audit analysis revealed that:

- (a) as at 30 June 2024, of the 14 T/Ss and 18 S/As, the latest surveys of 4 (29% of 14) T/Ss and 8 (44% of 18) S/As were conducted more than 48 months ago (i.e. before 30 June 2020). In particular, the latest surveys of 2 S/As were conducted 104 months ago; and
- (b) MD took more than 270 days to complete the latest hydrographic surveys for 1 T/S and 5 S/As (paras. 2.35 and 2.36).

8. ***Dredging work to increase the water depth of fire lanes.*** In late April 2022, the Fire Services Department completed a review on fire lanes of the 14 T/Ss and proposed to MD that in 5 T/Ss (including Aberdeen South T/S), the width

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of fire lanes should be adjusted to at least 20 metres and all fire lanes should have a water depth not less than 4.5 metres. As the water depth of some parts of fire lanes in Aberdeen South T/S was less than 3.5 metres, in May 2023, MD proposed to CEDD to carry out maintenance dredging. According to the dredging programme as of April 2024 and the notes of meetings between MD and CEDD, maintenance dredging work was scheduled to commence in April 2026 tentatively. In order to enhance the fire safety of sheltered space, MD needs to collaborate with relevant stakeholders to facilitate the dredging work in Aberdeen South T/S for meeting the requirement on water depth (i.e. not less than 4.5 metres) of fire lanes as far as practicable (paras. 2.39, 2.40(a) and 2.41).

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9. *Need to step up efforts in tackling expired licence/laid-up permission cases during daily patrol.* The Merchant Shipping (Local Vessels) Ordinance (Cap. 548) stipulates that every local vessel shall be certificated and licensed/granted permission for a laid-up vessel. In June and July 2024, with the accompany of MD staff, Audit visited 7 T/Ss and 1 S/A and sample checked 770 local vessels berthed therein by taking photographs. Upon matching their certificate of ownership (COO) numbers painted on deck housing/hull with the database of licensed local vessels/vessels with laid-up permissions as at 30 June 2024, Audit found that:

- (a) 67 (9%) local vessels were without valid operating licences/laid-up permissions. Of which, 43 local vessels were not issued with certificates of survey as required; and
- (b) the operating licences/laid-up permissions of 29 (43% of 67) local vessels had expired for more than 1 year (paras. 3.4 and 3.6).

10. *Need to step up efforts to ensure timely renewal of operating licences/laid-up permissions by vessel owners.* From 2021 to 2023, 1,144 prosecutions (involving 1,085 vessels) were initiated against the local vessels in T/Ss and S/As without valid operating licences/laid-up permissions. According to MD's database of local vessels as at 30 June 2024, of the 27,155 certificated local vessels, the operating licences/laid-up permissions of 6,500 (24%) local vessels had expired. Audit noted that after sending the notification letter of expiry to the vessel owner when the operating licence/laid-up permission had expired for more than

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2 months, no further follow-up action would be taken by MD's Licensing and Port Formalities Section (paras. 3.8 and 3.9).

11. ***Need to recover the costs of removing sunken vessels from vessel owners.*** From January 2021 to June 2024, MD incurred an expenditure of \$1.1 million for removing 28 sunken vessels. Among them, the ownership of 17 sunken vessels could not be ascertained whereas the ownership of the remaining 11 sunken vessels could be traced. Pursuant to the Merchant Shipping (Local Vessels) Ordinance, MD may recover the cost of any action taken or caused to be taken including all disbursements and other expenses incurred thereby as a civil debt from the vessel owners. However, as of August 2024, MD had not issued demand notes to the 11 vessel owners requesting them to repay the cost of removing the sunken vessels totalling \$448,500 (para. 3.16).

12. ***Need to expedite the removal of sunken vessels.*** From 2021 to 2023, there were 130 sunken vessels identified by MD in the sheltered space, 113 of which had been removed by MD or the vessel owners as at 30 June 2024. Audit analysed the number of days lapsed for removing the 113 sunken vessels and noted that 37 (33%) vessels were removed more than 30 days after being identified by MD. Moreover, as at 30 June 2024, there were 19 sunken vessels located in 4 T/Ss and 1 S/A pending removal. Audit selected To Kwa Wan T/S with 14 (74%) sunken vessels pending removal for examination and noted that:

- (a) 4 sunken vessels with known COO numbers were identified by MD during 2018 to 2022 (Vessel A in 2018, Vessel B in 2021 and Vessels C and D in 2022); and
- (b) 7 and 3 sunken vessels with unknown COO numbers were identified in July and October 2023 respectively (paras. 3.15, 3.17 to 3.19).

13. ***Need to consider increasing the penalty level on failure to comply with removal/direction notices.*** Pursuant to section 56 of the Merchant Shipping (Local Vessels) Ordinance, failure to comply with the removal/direction notices constitutes an offence with a maximum fine of level 4 (i.e. \$25,000 as at 30 June 2024) and imprisonment for 1 year. Although there were 44 successful prosecutions taken against the owners of Vessels A to D (see para. 12(a)) since 2021 with a total fine of \$178,600 due to repeated failure to comply with removal/direction notices, the owners

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had not taken action to remove these vessels. In order to increase the deterrent effect, MD needs to consider making legislative amendment to the Merchant Shipping (Local Vessels) Ordinance to increase the penalty level on failure to comply with removal/direction notices and to introduce a fine each day during which the non-compliance continues (paras. 3.20 and 3.21).

14. *Need to step up efforts in monitoring the situation of non-permitted floating structures in sheltered space.* Audit visited To Kwa Wan T/S and Sam Ka Tsuen T/S on 27 June and 10 July 2024 respectively and found some non-permitted floating structures. In particular, some non-permitted floating structures were placed in the passage area of To Kwa Wan T/S. As non-permitted floating structures occupy the berthing area of T/Ss or S/As, MD needs to step up efforts in monitoring the situation of non-permitted floating structures in sheltered space, and take enforcement action in a timely manner (paras. 3.26 and 3.27).

Ancillary facilities and services

15. *Room for improvement in planning and provision of public landing facilities.* Audit examined CEDD records of two cases of new public landing facilities constructed/under planning for T/S users in Tuen Mun and Aberdeen and found the following room for improvement:

- (a) *Need to review need of providing additional public landing facilities within Tuen Mun T/S.* In 2019, in view of the high utilisation rates of the two existing public landing facilities within Tuen Mun T/S and the inherent danger of people climbing the breakwater to board and alight their vessels, a new public landing facility was constructed at the back of Tuen Mun T/S, and was open for public use in November 2021. However, the Transport Department's on-site utilisation survey conducted in 2023 showed that the utilisation of the new public landing facility was low. Moreover, Audit's site visit in June 2024 found that there were more than ten makeshift landings alongside the breakwater facing Tuen Mun T/S. These indicated that the three existing public landing facilities might not have fully addressed the need of the users; and
- (b) *Need to closely monitor the implementation of the provision of additional public landing facilities at Aberdeen South T/S.* The construction works of two sets of new public landing facilities located at Aberdeen South T/S

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were originally planned to be completed by the first quarter of 2024. However, longer time was taken for conducting public consultation and responding to the objections received during the statutory consultation period upon gazetting of the proposed construction works. According to the latest schedule, the construction works were planned to be completed in the second quarter of 2026 (para. 4.3).

16. ***Need to ensure proper endorsement of cleaning completion reports submitted by contractors.*** CEDD has engaged contractors to carry out routine inspections, cleansing and maintenance to ensure that public landing facilities are proper for public use. Audit reviewed CEDD's Port Maintenance Information System (PMIS) records of the 75 public landing facilities located at T/Ss or S/As from July 2023 to June 2024 and noted room for improvement. For example, of the 2,755 cleaning completion reports (indicating any defective items identified during routine inspections) involved, 511 (19%) (involving 22 public landing facilities) had not been endorsed by CEDD through PMIS (paras. 4.4 and 4.5).

17. ***Need to closely monitor the issue of works orders.*** In May to July 2024, Audit conducted site visits to the 34 public landing facilities located at 5 T/Ss and 1 S/A and found defects in 3 (9%) public landing facilities. While those defects had been reported by the contractors through PMIS, CEDD took extra time to issue the works orders for carrying out rectification works. For example, for the two defective landing facilities reported by the contractors in October 2023 and March 2024 respectively, up to August 2024 (i.e. 10 and 5 months respectively after reporting by the contractor), CEDD had not yet issued the relevant works orders (para. 4.7).

18. ***Need to improve the operation of shipping water selling machine.*** According to the Waterworks Regulations (Cap. 102A), the charge for fresh water for shipping purposes shall be \$4.58 and \$10.93 per cubic metre when supplying to or for use on local vessels and non-local vessels respectively. Before purchasing fresh water from the shipping water selling machine, at which the water charge rate for local vessels is adopted, customers are required to enter their COO numbers into the machine. Audit analysed the sales records of July 2024 extracted from the machine and found that of the 320 transactions, COO numbers of 109 (34%) transactions could not be matched with those recorded in MD's list of local vessels as of June 2024 (paras. 4.14 and 4.17).

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19. ***Need to investigate possible cases of non-compliance with the Waterworks Regulations.*** Owners of water boats who wish to sell or offer for sale water from the waterworks to vessels are required to obtain permission from WSD. Of the 18 licensed water boats as at 30 June 2024 according to MD's records, no permission had been granted by WSD in relation to 6 water boats. Audit noted that:

- (a) 2 of the 6 water boats, of which their owners had not been granted WSD permission, had obtained fresh water of 3,218 cubic metres in July 2024 from the Tuen Mun water selling kiosk (including those from the shipping water selling machine) after checking to relevant sales records; and
- (b) in 5 of the 12 permissions, the holders of the permission were different from the owners of the concerned water boats as recorded in MD's records (paras. 4.19 and 4.20).

20. ***Need to ensure proper handling of waste oil.*** Under the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C), waste oil is chemical waste and should be transported to licensed chemical waste disposal facilities (e.g. Chemical Waste Treatment Centre) for proper disposal. Audit analysis of the monthly information submitted by the marine refuse cleansing contractor revealed that about 30,000 litres of waste oil were handled by the contractor from October 2022 (contract commencement) to June 2024. However, Audit noted that the collection of waste oil was outside the scope of the cleansing contract. According to MD, the vessels employed by the marine refuse cleansing contractor did not meet relevant safety standards and the staff employed by the contractor had not received any relevant safety training, and therefore were not fitted for collecting waste oil from local vessels. In Audit's view, MD needs to instruct the cleansing contractor to cease the current practice of handling waste oil, and collaborate with relevant parties to work out an arrangement for handling waste oil produced by local vessels during operation at an early date (paras. 4.26 to 4.28).

Audit recommendations

21. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has recommended that the Director of Marine should:**

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- (a) **closely monitor the demand and supply of sheltered space and explore fallback options to address the shortfall in sheltered space if there is any project slippage (para. 2.17(a));**
- (b) **explore using technology to assess the occupancy of T/Ss during typhoons and normal days (para. 2.17(b));**
- (c) **make available on MD's website the layout plans of S/As for public information (para. 2.17(c));**
- (d) **take measures to ensure the timely completion of the final assessment report on the wave attenuation performance of floating barriers, and keep in view the effectiveness of wave protection enhancement works in T/Ss (para. 2.30(a) and (b));**
- (e) **remind the owners/operators of local vessels to take precautionary measures promulgated in MD's pamphlet during typhoons or inclement weather (para. 2.30(c));**
- (f) **take measures to ensure that hydrographic surveys are arranged and completed within a reasonable interval and timeframe (para. 2.42(a));**
- (g) **collaborate with relevant stakeholders to facilitate the dredging work in Aberdeen South T/S as far as practicable (para. 2.42(b));**

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- (h) **step up efforts in tackling expired licence/laid-up permission cases during daily patrol, and make strenuous efforts to prosecute owners of certificated local vessels without valid operating licences or laid-up permissions (para. 3.12(a) and (b));**
- (i) **consider adopting e-service (e.g. iAM Smart) in the renewal of the operating licences/laid-up permissions, and step up efforts in following up with vessel owners on expired operating licences/laid-up permissions (para. 3.12(d) and (e));**

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- (j) take proactive measures, including considering taking legal action, to recover the costs of removing the sunken vessels from the vessel owners (para. 3.22(a));
- (k) take urgent rectifying action in removing sunken vessels in T/Ss and S/As (para. 3.22(b));
- (l) consider making legislative amendment to the Merchant Shipping (Local Vessels) Ordinance to increase the penalty level on failure to comply with removal/direction notices and to introduce a fine each day during which the non-compliance continues (para. 3.22(c));
- (m) step up efforts in monitoring the situation of non-permitted floating structures in sheltered space, and take enforcement action in a timely manner (para. 3.28);

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- (n) in collaboration with relevant government departments, review the need of providing additional public landing facilities within Tuen Mun T/S (para. 4.10); and
- (o) instruct the cleansing contractor to cease the current practice of handling waste oil, and in collaboration with relevant parties, work out an arrangement for handling waste oil produced by local vessels during operation at an early date (para. 4.29(b) and (c)).

22. Audit has *recommended* that the Director of Civil Engineering and Development should:

- (a) closely monitor the implementation of the provision of the new public landing facilities at Aberdeen South T/S to ensure their timely completion (para. 4.11(a));
- (b) take measures to ensure that all cleaning completion reports submitted by contractors through PMIS are endorsed in a timely manner (para. 4.11(b)); and

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- (c) **closely monitor the issue of works orders on the rectification works for defective public landing facilities (para. 4.11(c)).**
23. **Audit has *recommended* that the Director of Water Supplies should:**
- (a) **ascertain the reasons for COO numbers recorded by the shipping water selling machine not matching those recorded in MD's list of local vessels, and enhance the functions of the shipping water selling machine (para. 4.21(a) and (b)); and**
 - (b) **investigate the possible cases of non-compliance with the Waterworks Regulations and take follow-up actions to rectify any non-compliance identified (para. 4.21(d)).**

Response from the Government

24. The Secretary for Transport and Logistics, the Director of Marine, the Director of Civil Engineering and Development and the Director of Water Supplies agree with the audit recommendations.

