

## **ITEM FOR FINANCE COMMITTEE**

### **HEAD 45 - FIRE SERVICES DEPARTMENT Subhead 603 Plant, vehicles and equipment**

Members are invited to approve a commitment of \$70.75 million for the acquisition of a replacement fireboat.

#### **PROBLEM**

Fireboat 6 is reaching the end of its economic serviceable life after over 20 years of service. It can no longer provide effective support to the current maritime fire-fighting and rescue operations.

#### **PROPOSAL**

2. The Director of Fire Services (D of FS), on the advice of the Director of Marine (D of M) and with the support of the Secretary for Security (S for S), proposes to replace Fireboat 6 by a new fireboat with enhanced fire-fighting and rescue capabilities.

#### **JUSTIFICATION**

##### ***Functions of Fireboat 6***

3. Commissioned in 1981, Fireboat 6 is one of the two purpose-built, steel-hulled major fire-fighting vessels. It has on board fire pumps, fire monitors, foam-making equipment, salvage equipment and two speedboats for use as work boats in shallow waters. It is currently deployed at Tsing Yi Fireboat Station to provide maritime fire cover to vessels berthed or anchored in the western waters of

Hong Kong. It also supports fire-fighting operations along the coastline of Hong Kong, particularly for the oil terminals and other potentially hazardous installations on Tsing Yi Island and the container terminals at Kwai Chung. Moreover, it provides diving support to underwater rescue operations. It also serves as an on-site command post and a casualty collecting point during major maritime incidents.

### *Maintenance problems*

4. D of M advises that the estimated life expectancy of a steel-hulled vessel in the Government fleet is about 20 years after which it will be beyond economic repair. Fireboat 6 has been in service for over 20 years and is reaching the end of its economic serviceable life. D of M further advises that due to ageing, Fireboat 6 is in poor condition and its performance has been deteriorating. Certain parts of the hull are corroded badly. The auxiliary engines are ageing and cannot support simultaneous operation of the ventilation system, hydraulic system, lighting system and fire-fighting equipment when performing emergency operations, hence hampering the operational efficiency of the vessel. Moreover, its maintenance downtime has been increasing. In the past three years, the annual average maintenance downtime for normal repair to the vessel was 59 days, which was 25% higher than the average of 47 days normally allowed for a vessel of the Government fleet. The repair time for breakdowns sometimes takes up to almost a week. The long downtime has constrained operational readiness and efficiency of the vessel.

5. In addition, in a recent routine annual overhaul, D of M has identified some major defects and expected maintenance problems with the vessel. To enable the vessel to remain in service beyond its usual life expectancy, it would be necessary to effect substantial renewal or replacement of various parts of the vessel, including its hull plating, superstructure, two auxiliary engines, piping for fire-fighting and cooling systems and some ancillary equipment. These major renewal and replacement works would cost about \$8 million and six months to complete. It would cost an additional \$12 million and another three months for a complete overhaul to the hull structure and renewal of the electrical fitting and fixtures on board. In view of the long downtime and substantial maintenance costs, D of M, D of FS and S for S consider that it would be more cost-effective to replace the vessel as soon as possible.

### *The proposed replacement vessel*

6. The design of Fireboat 6 is outdated. It cannot fully meet current operational requirements due to its restricted fire-fighting capability, poor sea

keeping capability<sup>1</sup> and inadequate working and accommodation areas. To meet today's more stringent and sophisticated operational requirements, the proposed replacement vessel should have the following upgraded features -

- (a) a stronger hull structure and a stabilising tank for improving the sea keeping capability of the vessel under rough sea conditions;
- (b) a bow thruster for maintaining the vessel in position in fire-fighting operations and three fire pumps, each with water/foam output capacity four times as large as the existing one's;
- (c) larger fuel and oil tanks to enable the vessel, with all fire-fighting equipment in operation at maximum capacity, to sustain operation for not less than 96 hours as compared to 54 hours' operation time for the existing one;
- (d) a foam tank that is twice as large as the existing one for fighting fires involving vessels carrying flammable liquids;
- (e) fire monitors with a throw range twice that of the existing ones for tackling fires on ocean going vessels with high freeboard and superstructures (such as large oil tankers, containers vessels and cruise ships);
- (f) a capacity which can accommodate a maximum of 100 casualties instead of 57 with the existing vessel; and
- (g) an on-site two-compartment decompression chamber<sup>2</sup> to provide suitable safety protection to Fire Services divers as laid down in the 'Code of Practice on Safety and Health at Work for Industrial Diving' issued by the Labour Department and to facilitate the treatment of maritime casualties suffering from decompression sickness, thus enhancing the efficiency and effectiveness of diving rescue operations.

### ***Implementation timetable***

7. Subject to funding approval, D of FS plans to procure the replacement vessel according to the following timetable -

/(a) .....

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<sup>1</sup> Sea keeping capability is the ability of a vessel to remain stable and reduce the seasickness of the crew and passengers on board under rough sea conditions.

<sup>2</sup> The decompression chamber is intended to serve the entire waters of Hong Kong.

(a)	Design and specifications preparation	July 2001 to September 2001
(b)	Tendering	October 2001 to December 2001
(c)	Tender evaluation and award of contract	January 2002 to April 2002
(d)	Construction and delivery of vessel	May 2002 to October 2003

8. Prior to the commissioning of the replacement vessel in end 2003, Government Dockyard will continue to carry out the necessary repairs to the existing Fireboat 6 to keep it operational. To maintain an acceptable level of maritime fire protection and rescue service, D of FS will temporarily deploy the maintenance reserve fireboat to stand in for Fireboat 6 during its downtime.

## FINANCIAL IMPLICATIONS

### *Non-recurrent cost*

9. On the advice of D of M, D of FS estimates that the cost of procuring a replacement fireboat installed with the necessary fire-fighting, rescue and communications equipment, and on-site decompression facilities is \$70.75 million, broken down as follows -

		<b>\$ million</b>
(a)	Basic vessel	52.85
(b)	Spare parts	
	(i) spare main engine set, gearbox, electricity generator units, pump engine and pump unit	7.60
	(ii) onboard running spare parts	2.50
	(iii) electronic spare parts, testing equipment and tools	0.70
(c)	Decompression chamber	6.00
(d)	Payment to the Electrical and Mechanical Services Trading Fund (EMSTF) for project management	0.65
(e)	Typhoon mooring facilities	0.45
	<b>Total</b>	<b>70.75</b>

/10. ....

10. As regards paragraph 9(a), the estimate of \$52.85 million covers the costs of the basic vessel, navigational equipment, electrical installations, radiotelephony equipment, external fire-fighting system, water spray system, one work boat<sup>3</sup>, diving moon pool, diving cage cum winch, hydraulic crane, four life rafts and survivor cabin.

11. As regards paragraph 9(b), the estimate of \$10.80 million is for purchasing the necessary initial spare parts so as to keep the downtime of the fireboat to the minimum. The Government Dockyard may have some of these spare parts. However, we do not know if the Government Dockyard's spare parts will be appropriate for the new fireboat since the World Trade Organisation prohibits the specification of the engine types and models in the contract tender. We therefore need to set aside funds for the possible purchase of some spare parts for the new boat if such spare parts are not available in the Government Dockyard. If the spare parts of the finally selected machinery and equipment are available in the Government Dockyard, further procurement of these items will not be necessary and the cost estimate will be reduced accordingly. The exact spare parts requirement will be finalised at the tender evaluation stage.

12. As regards paragraph 9(c), the estimate of \$6 million is for the provision of an on-site two-compartment decompression chamber as explained in paragraph 6(g).

13. As regards paragraph 9(d), the estimate of \$0.65 million is to defray the project management fee charged by EMSTF, which is based on the standard charging rates.

14. As regards paragraph 9(e), the estimate of \$0.45 million is for laying two new mooring buoys as the replacement vessel is larger and heavier than the existing Fireboat 6. The existing mooring buoys will be re-deployed by Marine Department for use by other vessels.

15. The estimated cashflow is as follows -

	<b>\$ million</b>
2002-03	24.76
2003-04	45.99
<b>Total</b>	<b>70.75</b>

*/Recurrent .....*

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<sup>3</sup> One larger work boat with better performance will be provided to replace the existing two work boats of smaller size.

***Recurrent cost***

16. D of FS estimates that the additional recurrent expenditure of the new vessel, net of the annual recurrent expenditure of \$2.36 million for the existing Fireboat 6, will be \$1.63 million per annum. The breakdown is as follows -

	<b>\$ million</b>
(a) Repairs and maintenance	1.17
(b) Fuel consumption	0.46
<b>Total</b>	<b>1.63</b>

17. As regards paragraph 16(a), the estimate of \$1.17 million is to cover the additional maintenance costs for the basic vessel, the decompression chamber and the new typhoon mooring buoys. Such increase is proportionate to the enhanced features and capabilities of the replacement fireboat.

18. As regards paragraph 16(b), the estimate of \$0.46 million is to defray additional fuel cost attributable to higher vessel power and enhanced maritime fire-fighting and rescue capabilities.

19. D of FS will deploy existing staff to man the replacement vessel and no additional staff is required. He will also absorb the additional fuel cost of \$0.46 million by his existing resources. The net additional recurrent expenditure arising from the replacement vessel is therefore \$1.17 million under paragraph 16(a).

20. If Members approve the proposal, we will include sufficient provision in the 2002-03 and 2003-04 draft Estimates for the purpose.

**CONSULTATION WITH LEGISLATIVE COUNCIL PANEL**

21. We consulted the Legislative Council Panel on Security on 7 June 2001. Members supported the proposal.

**/BACKGROUND .....**

**BACKGROUND INFORMATION**

22. The existing fireboat fleet comprises two major fireboats, three medium fireboats, one personnel carrier, two speedboats, one maintenance reserve fireboat, and one reserve catamaran rescue boat. Each fireboat has a specific role to perform in Hong Kong waters. Any depletion in this protective network of fire coverage could have serious consequences for life and property.

Encl. 23. The two major and three medium fireboats are strategically deployed to provide fire cover at specific areas. Details of the coverage are at the Enclosure. The two speedboats are provided for rescue diving purposes but sometimes mobilised to support fire-fighting operations in shallow water area. The catamaran is an ex-rescue boat for the former Kai Tak Airport. It has been modified to serve as a reserve vessel to cater for some contingency purposes, such as serving as a reserve rescue vessel for the Hong Kong International Airport.

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Security Bureau  
June 2001

## Enclosure to FCR(2001-02)25

### Deployment of major and medium fireboats in Hong Kong waters

<b>Name of fireboat (Category)</b>	<b>Berthing base</b>	<b>Regions of deployment</b>	<b>Functions</b>
Fireboat 2 (Medium)	Mui Wo Fireboat Station	Western Waters	To provide fire cover to vessels berthed or anchored in Lantau Island and protect on-shore residents of Lantau Island, Cheung Chau, Peng Chau, Tai A Chau and Hei Ling Chau.
Fireboat 4 (Medium)	Aberdeen Fireboat Station	Southern Waters	To provide fire cover to Aberdeen Harbour and Typhoon Shelter, East Lamma Channel, Tai Tam Bay, Lamma Island and the Lamma Power Station.
Fireboat 5 (Medium)	Tuen Mun Fireboat Station	Western Waters	To provide fire cover to the River Trade Terminal, Tuen Mun Area 38 and supplement the level of fire protection to the adjacent Hong Kong International Airport, potentially hazardous installations, Sha Chau and the future Tuen Mun Port Development.
Fireboat 6 (Major)	Tsing Yi Fireboat Station	Western Waters	To provide fire cover to oil tankers and container ships berthed at the nearby oil terminals, potentially hazardous installations, container terminals, floating docks and shipyards.
Fireboat AG (Major)	Central Fireboat Station	Victoria Harbour	To provide fire cover to vessels berthed or anchored in the harbour and assistance to on-shore installations in the close proximity.