

**For discussion
on 17 January 2012**

Legislative Council Panel on Economic Development

Replacement / Upgrading of Vessel Traffic Services System

Purpose

This paper briefs Members on our proposal to replace the Vessel Traffic Services (VTS) system for maintaining effective marine traffic control and ensuring navigational safety in Hong Kong waters.

Background

2. The Marine Department (MD) provides VTS to vessels visiting Hong Kong to ensure their safety and facilitate their arrivals and departures as expeditiously as possible. The first VTS system was established in Hong Kong in 1989 to -

- (a) monitor and regulate ocean-going vessel (OGV) traffic, thus facilitating the safe and expeditious movement of OGVs in Hong Kong waters;
- (b) maintain port call records of OGVs for issuance of invoices for port related charges; and
- (c) provide vessel information to port users, government agencies and the general public.

3. When the first generation VTS system reached the end of its serviceable life, all the components¹ of the system, except for the 11 radars, were replaced in 2002 by the second generation VTS system which is currently in use. The existing VTS system comprises various sub-systems to perform a range of functions essential to marine traffic control. The radars and the multi-sensor fusion tracking and display

¹ They include radars, multi-sensor fusion tracking and display, Very High Frequency radio communication and directional finders, microwave network, telephone and integrated voice communication system, VTS simulators and automatic identification system.

sub-system enable MD's Vessel Traffic Centre (VTC) to virtually visualise the marine traffic situation in different areas of Hong Kong on electronic display units. The Very High Frequency (VHF) radio communication and other sub-systems allow the VTC to give advice / directions to mariners on traffic information and traffic organisation, and to provide navigational assistance where necessary. The data obtained from the VTS system is shared with the Hong Kong Police Force and the Customs and Excise Department to support their law enforcement work.

4. The VTS system is installed at the Hong Kong - Macau Ferry Terminal (MFT) where the VTC is located. Throughout the years, the VTC has been operating the VTS system round the clock to guide the entry and departure of OGVs and river trade vessels of 1 000 gross tonnage or over visiting or transiting Hong Kong. The VTS system has become an essential tool to improve safety and efficiency of vessel traffic and to protect the marine environment. Given its importance, it is being used by all major ports around the world.

Proposal for Replacement

5. We need to plan ahead for the replacement and upgrading of the existing system before it reaches the end of its serviceable life by around 2016. The Electrical and Mechanical Services Trading Fund (EMSTF) has recently examined the maintainability of the VTS system and found that many of its components are showing signs of aging which may affect the system's reliability. There is a need to start planning for the replacement of the system now; otherwise it may be difficult to maintain it in good condition due to the lack of spare parts in the market. In order not to compromise navigational safety in Hong Kong waters, MD proposes to procure a replacement VTS system for commissioning in 2016. The replacement is a full-scale one which also includes the 11 radars that have been in operation since 1989. To achieve this, MD needs to start the process now in order to allow lead time for tendering and production of VTS equipment, as well as installation which will be conducted under a phased programme, and test-runs. In the interim period, MD is developing maintenance strategies and operational contingency plans to cope with any random failure of the system.

6. In procuring the new VTS system, MD will stipulate the use of the most advanced technology in the tender specifications in compliance with the latest international requirements as prescribed by the

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the International Maritime Organization (IMO).

Benefits of the Replacement Proposal

7. Timely replacement of the VTS system will ensure continued provision of reliable VTS for vessels visiting Hong Kong. It will also enable MD to carry out its monitoring and regulation of marine traffic more effectively and efficiently with up-to-date technology. The new VTS system can detect and track up to 10 000 vessels which is a significant enhancement compared to the existing handling capacity of 5 000 vessels. With improved functions, small and fast vessels can be readily detected by the new VTS system and the chance of losing vessel tracks under inclement weather will be reduced, thus further improving the capability of MD to respond to the congested traffic and potential hazards in bad weather. The new VTS system can also capture more information relating to vessel movements and eliminate the need for manual data input. The new system is expected to meet the operational needs up to 2030.

8. Above all, the upgraded VTS system will be able to meet the evolving international operational standards of VTS equipment, which is important in reinforcing our position as a world-class shipping hub port and an international maritime centre. It can also support sharing of VTS data with neighbouring ports in Guangdong, Shenzhen and Macao for better regional traffic management as recommended by the IALA and IMO.

Financial Implications

9. We estimate that the replacement of the VTS system will incur a total non-recurrent expenditure of \$558.2 million with breakdown as follows –

		\$ million
(a)	Equipment to be procured includes:	336.5
	(i) Radar	90.5
	(ii) Tracking and Display	69.5
	(iii) VHF Communication and Directional Finder	38.5

(iv)	Close Circuit Television	27.9
(v)	Microwave and Network	21.9
(vi)	Integrated Voice Communication and Private Automatic Branch Exchange	21.7
(vii)	VTS simulator and ship simulator upgrade	19.0
(viii)	Power Supplies	12.5
(ix)	Other systems such as Automatic Identification System, Vessel Height Detection System and Remote Control & Monitoring	15.0
(x)	Spare parts	20.0
(b)	System installation and commissioning	75.0
(c)	Construction and fitting out works for VTC and remote sites, etc.	55.0
(d)	System transition arrangement	10.0
(e)	EMSTF project management charges	34.0
(f)	Contingency (10% of items (a) to (d) above)	47.7
	Total	558.2

10. We intend to phase the expenditure as follows –

Year	\$ million
2012-2013	7.0
2013-2014	63.0
2014-2015	142.0
2015-2016	119.5
2016-2017	226.7
Total	558.2

11. We estimate that the annual recurrent cost for maintenance of the new VTS system would be \$24.2 million from 2016-17 onwards, which slightly increases over that of the existing VTS system at about \$22 million for 2011-12 by about \$2 million. Such requirements will be reflected in the Estimates of the relevant years.

Implementation Plan

12. We plan to implement the replacement project according to the following timeframe -

<u>Activities</u>	<u>Timing</u>
Preparation of tender documents	May 2012 – February 2013
Tendering, evaluation and award of contract	March 2013 – December 2013
VTS equipment manufacturing, delivery and installation by phases	December 2013 – February 2016
VTS testing and commissioning by phases	May 2015 – August 2016
Commissioning of the entire system	September 2016

Public Consultation

13. The Port Operations Committee (POC) indicated support for the proposed replacement of the VTS system when it was consulted on 2 September 2011. POC comprises members representing the interests of different port users, such as shipowners, shippers, container terminal operators, dockyard and harbour tug operators, etc..

Advice Sought

14. Members are invited to offer views on the proposal. Subject to Members' comments, we would seek funding approval from the Finance Committee in April 2012.

**Transport and Housing Bureau
January 2012**