

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Transport Department**

#### **New Subhead “Replacement of High Voltage Switchboards and Power Transformers of the Power Supply System in the Cross-Harbour Tunnel”**

Members are invited to approve a new commitment of \$15.35 million to replace the high voltage switchboards and power transformers of the power supply system in the Cross-Harbour Tunnel.

#### **PROBLEM**

The existing high voltage switchboards and power transformers of the power supply system in the Cross-Harbour Tunnel (CHT) have reached the end of their economic serviceable life after 35 years of service.

#### **PROPOSAL**

2. The Commissioner for Transport, with the support of the Secretary for Transport and Housing, proposes to replace the existing high voltage switchboards and power transformers in the CHT at an estimated cost of \$15.35 million.

#### **JUSTIFICATION**

3. The existing high voltage switchboards and transformers have been in use since the CHT was opened in 1972. According to the Electrical and Mechanical Services Department (EMSD), it has become increasingly difficult to maintain them in good condition. In addition, as these switchboards and transformers are mostly of an old design, most of their spare parts are not readily available in the market.

4. The CHT is strategically located and is the busiest cross-harbour road tunnel in Hong Kong. Any failure of the electricity supply system will directly affect the normal operation of the tunnel, and is very likely to result in serious traffic congestion on the road networks on both sides of the tunnel. It is necessary to replace the aforementioned high voltage switchboards and power transformers which are core components of the electricity supply system to ensure a stable and reliable power supply for safe and efficient tunnel operation.

## FINANCIAL IMPLICATIONS

### Non-recurrent Expenditure

5. We estimate the capital cost of the project to be \$15.35 million, with the breakdown as follows -

	<b>\$ million</b>
(a) Replacement of	12.30
(i) two high voltage switchboards	6.50
(ii) four transformers	3.00
(iii) high voltage cables	1.80
(iv) cable containment and mounting accessories	1.00
(b) Electrical and Mechanical Services Trading Fund (EMSTF) project management charges	1.85
(c) Contingency (10% of item (a))	1.20
<b>Total</b>	<b>15.35</b>

6. Regarding paragraphs 5(a) above, the estimated cost of \$12.30 million will cover the supply, installation, testing and commissioning of the high voltage switchboards, power transformers and the associated equipment (e.g. temporary switchgear, cable, etc.).

7. Regarding paragraph 5(b) above, the estimated cost of \$1.85 million is for meeting the charges of EMSTF for carrying out the feasibility study; preparing the specifications, design and project programme; overseeing the tendering process; undertaking site inspection; supervising the installation, testing and commissioning of the system; and monitoring the operation of the system and defect rectification work during the defect liability period.

8. We intend to phase the expenditure as follows -

Year	\$ million
2008-2009	0.30
2009-2010	2.40
2010-2011	11.85
2011-2012	0.80
<b>Total</b>	<b>15.35</b>

### **Recurrent Expenditure**

9. Since this is a replacement project, there will not be any additional recurrent expenditure.

10. We expect that the proposal will have no impact on the toll charges of the CHT.

### **IMPLEMENTATION PLAN**

11. We plan to start the replacement project in the third quarter of 2008 for completion in around mid-2011. The first 15 months are for preparation work including detailed investigation, system design and tendering. The remaining 20 months are for equipment production, delivery, installation, testing and commissioning. A work programme is set out at the Enclosure.

Encl.

12. To minimise disruption to the tunnel operation, most of the works will be carried out in the closed tube at night when the tunnel is under one-tube-two-way operation for normal maintenance.

**/PUBLIC .....**

**PUBLIC CONSULTATION**

13. We issued an information paper on the present proposal to the Legislative Council Panel on Transport on 15 May 2008. Members have not raised any comment on the proposal.

**BACKGROUND**

14. The operation and management of CHT are undertaken by a management contractor. The Transport Department is responsible for the timely replacement of major systems in the tunnel in consultation with EMSD. About 45 million vehicles used CHT in 2007. The gross revenue for 2007-08 was in the region of \$ 743.5 million.

-----

Transport and Housing Bureau  
June 2008

**Work Programme for Replacement of High Voltage Switchboards and  
Power Transformers of the Power Supply System in the Cross-Harbour Tunnel**

	Work Items	Duration (months)	2008		2009		2010		2011		2012
			1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12	1-6
1	System engineering study and preliminary site survey	4		█							
2	Detailed design and preparation of tender document	6		█							
3	Tendering	5			█						
4	Equipment manufacture, installation, testing and commissioning	20				█	█	█	█		

-----