

## ITEM FOR FINANCE COMMITTEE

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

Transport Department

New Subhead “Replacement of Tunnel Ventilation System in the Cross Harbour Tunnel”

Members are invited to approve a new commitment of \$69.30 million to replace the tunnel ventilation system in the Cross Harbour Tunnel.

#### PROBLEM

We need to plan for the replacement of the existing ventilation system (including its associated control system) in the Cross Harbour Tunnel (CHT) before it reaches the end of its economic serviceable life.

#### PROPOSAL

2. The Commissioner for Transport, with the support of the Secretary for Transport and Housing, proposes to replace the existing tunnel ventilation system in the CHT at an estimated cost of \$69.30 million.

#### JUSTIFICATION

3. The existing tunnel ventilation system was put to use when the CHT was commissioned in 1972. The Electrical and Mechanical Services Trading Fund (EMSTF) advises that there is a need to start the replacement of the system now, or it may be difficult to maintain the system in good condition due to the lack of spare parts in the market.

4. The CHT is strategically and centrally located and is the busiest road harbour crossing in Hong Kong. The ventilation system is the core component for tunnel ventilation and smoke control during fire. Breakdown of the system will directly affect the air quality, visibility and fire safety of the tunnel. Any disruption in tunnel operation thus caused will almost certainly result in serious traffic congestion on the major road networks on both sides of the tunnel. Timely replacement of the existing ventilation system is therefore important for ensuring safe, efficient and reliable tunnel operation.

## FINANCIAL IMPLICATIONS

### Non-recurrent Expenditure

5. We estimate that the capital cost of the project will be \$69.30 million, with the breakdown as follows –

		<b>\$ million</b>
(a)	Replacement of –	55.00
	(i) 20 ventilation fans and associated ductwork	30.00
	(ii) acoustic treatment	12.00
	(iii) associated electrical installation	5.00
	(iv) pneumatic control system	5.00
	(v) fan control system	3.00
(b)	EMSTF project management charges	8.80
(c)	Contingency (10% of item (a))	5.50
	<b>Total</b>	<b><u>69.30</u></b>

6. Regarding paragraph 5(a) above, the estimated cost of \$55.00 million will cover the supply, installation, testing and commissioning of the whole tunnel ventilation system with all associated equipment.

7. Regarding paragraph 5(b) above, the estimated cost of \$8.80 million is for meeting the charges of EMSTF for conducting a system engineering study and detailed site survey; 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.

8. We intend to phase the expenditure as follows –

Year	\$ million
2010-2011	0.50
2011-2012	0.80
2012-2013	30.00
2013-2014	33.00
2014-2015	5.00
<b>Total</b>	<b>69.30</b>

### **Recurrent Expenditure**

9. The proposed replacement will not incur any additional recurrent expenditure.

### **IMPLEMENTATION PLAN**

10. We plan to commence the replacement project in the fourth quarter of 2010 for completion in around the second quarter of 2014. The first 14 months are for preparation work including detailed investigation, system design and tendering. The remaining 30 months are for equipment production, delivery, installation, testing and commissioning. A work programme is set out at the Enclosure.

Encl.

11. To minimise disruption to tunnel operation, works affecting the traffic of the tunnel tubes will be carried out at night when individual tubes are closed for normal maintenance.

### **PUBLIC CONSULTATION**

12. We issued an information paper on the present proposal to the Legislative Council Panel on Transport on 24 May 2010. Members had no comment on the proposal.

**/BACKGROUND .....**

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13. The operation and management of the 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 EMSTF. About 44 million vehicles used the CHT in 2009. The gross revenue for 2009-10 was in the region of \$710 million.

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Transport and Housing Bureau  
June 2010

**Work Programme for  
Replacement of Tunnel Ventilation System  
in the Cross Harbour Tunnel**

	Work Items	Duration (months)	2010		2011		2012		2013		2014	
			1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12
1	System engineering study and detailed site survey	4										
2	Detailed design and preparation of tender document	5										
3	Tendering	5										
4	Equipment manufacture, installation, testing and commissioning	30										

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