

For information

LEGISLATIVE COUNCIL PANEL ON TRANSPORT

Replacement of Tunnel Lighting System in the Aberdeen Tunnel

PURPOSE

This paper informs Members of our proposal to replace the existing tunnel lighting system in the Aberdeen Tunnel (ABT).

BACKGROUND

2. An effectively functional tunnel lighting system is critical to the operation of a road tunnel. We need to plan ahead to replace the existing tunnel lighting system in the ABT before it reaches the end of its economic serviceable life.

PROPOSAL

3. We propose to replace the existing tunnel lighting system in the ABT at an estimated cost of \$83.0 million.

JUSTIFICATION

4. The existing tunnel lighting system was put to use when the ABT was commissioned in 1982. The Electrical and Mechanical Services Trading Fund (EMSTF), responsible for monitoring the maintenance of the system, advises that the system needs to be replaced before the end of its economic serviceable life. Otherwise, it may be difficult to maintain the system in good working condition due to the lack of spare parts in the market.

5. Any failure in the system will lead to a suspension of the operation of the ABT and will almost certainly result in serious traffic congestion on the alternative routes linking Aberdeen to other parts of Hong Kong Island, and will likely have a knock-on effect on other major road networks on the Island. Timely replacement of the existing lighting system is therefore essential to ensuring safe, reliable and efficient operation of the tunnel.

6. To enhance the stability, reliability and efficiency of the tunnel lighting system and for the safety of tunnel users, a new system using higher quality and energy efficient light tubes will be procured. The new system will comply with the latest design requirements for lighting systems stipulated by the Transport Department and Highways Department as well as relevant international standards.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be \$83.0 million, broken down as follows –

		\$ million
(a) Replacement of		58.4
(i) lighting fittings inside tunnel tubes	44.6	
(ii) power supply and control equipment inside tunnel	3.2	
(iii) tunnel lighting console in control room	1.9	
(iv) cables	8.7	
(b) Removal and reinstatement of tunnel wall panels		7.5
(c) EMSTF project management charges		10.5
(d) Contingency (10% of (a) and (b))		6.6
	Total	<u>83.0</u>

8. Regarding paragraphs 7(a) and (b) above, the total estimated cost of \$65.9 million will cover the supply, installation, testing and commissioning of all lighting fittings, control equipment and tunnel lighting console for the tunnel lighting system, the associated electrical works such as cabling and wiring as well as the removal and reinstatement of tunnel wall panels.

9. Regarding paragraph 7(c) above, the estimated cost of \$10.5 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.

10. We intend to phase the expenditure as follows –

Year	\$ million
2011 – 2012	0.5
2012 – 2013	11.0
2013 – 2014	50.0
2014 – 2015	21.5
Total	83.0

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

12. As a general policy, operating cost of Government tolled tunnels will be recovered through the toll charges. Accordingly, the depreciation cost of the proposal, which is one of the operating costs of the ABT, will be taken into account in setting the toll charges in future. Nevertheless, the estimated impact on the ABT's tolls is immaterial.

IMPLEMENTATION PLAN

13. We plan to start the replacement project in December 2011 and complete it in about 40 months. The first 13 months are for preparatory work including system engineering study and preliminary site survey, detailed design and tendering. The remaining 27 months are for equipment manufacture, system installation, testing and commissioning. A work programme is set out at the Enclosure.

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

WAY FORWARD

15. We plan to seek funding approval of the Finance Committee in December 2011 for this replacement project.

ADVICE SOUGHT

16. Members are invited to note our proposal to replace the tunnel lighting system in the ABT.

Transport and Housing Bureau

October 2011

**Work Programme for
Replacement of Tunnel Lighting System
in the Aberdeen Tunnel**

	Work Item	Duration (months)	2011	2012		2013		2014		2015	
			7 – 12	1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12
1	System engineering study and preliminary site survey	4		■							
2	Detailed design and preparation of tender document	4		■							
3	Tendering and evaluation	5			■						
4	Equipment manufacture, installation, testing and commissioning	27				■					