

**For discussion
12 May 2015**

Legislative Council Panel on Transport

Replacement of Tunnel Lighting System in the Kai Tak Tunnel

PURPOSE

This paper informs Members of our proposal to replace the tunnel lighting system (“TLS”) in the Kai Tak Tunnel (“KTT”).

BACKGROUND

2. Effective functioning of TLS is critical to the operation of a road tunnel. The existing lighting system of KTT has been in use for over 30 years and has reached the end of its economic serviceable life¹. We need to replace the concerned TLS to ensure the continued safe, reliable and efficient operation of KTT.

PROPOSAL

3. We propose to replace the existing TLS in the KTT at an estimated cost of \$85,900,000.

JUSTIFICATION

4. The existing TLS was put to use when KTT was commissioned in 1982. TLS comprises mainly lighting fittings, power supply equipment, cables and the control system.

5. Electrical and Mechanical Services Trading Fund (“EMSTF”) is responsible for monitoring the tunnel operator’s performance on repair and maintenance of the electrical and mechanical facilities in the tunnel area. According to the EMSTF, TLS in the KTT has approached the end

¹ The economic serviceable life of a TLS is around 25 years.

of its economic serviceable life. It has become increasingly difficult to maintain the system in good condition due to the lack of certain spare parts of TLS in the market. If not replaced timely, any failure in TLS coupled with the lack of spare parts will affect the operation of KTT. The operation of KTT may even have to be suspended, resulting in serious impact on the traffic of the major road networks on both sides of the tunnel.

6. To enhance the stability, reliability and efficiency of TLS, new equipment of higher quality and energy efficiency will be procured. The new equipment will meet the relevant international standards and comply with the latest design requirements stipulated by Government departments.

FINANCIAL IMPLICATIONS

Non-recurrent Expenditure

7. We estimate the capital cost of the project to be \$85,900,000 with relevant breakdowns as follows –

	\$ million
(a) Replacement of	66.17
(i) lighting fittings inside tunnel tubes	38.17
(ii) power supply and control equipment inside tunnel	20.00
(iii) tunnel lighting control console in control room	3.00
(iv) cables	5.00
(b) Removal and reinstatement of tunnel wall panels	2.00
(c) EMSTF project management charges	10.91
(d) Contingency (10% of item (a) and (b) above)	6.82
Total	<u>85.90</u>

8. Regarding paragraph 7(a) and (b) above, the estimated cost of \$68,170,000 will cover the supply, installation, testing and commissioning of all lighting fittings, control equipment and the tunnel lighting console; the replacement of the electrical switchboard; the associated electrical works such as cabling and wiring; and the removal and reinstatement of tunnel wall panels.

9. Regarding paragraph 7(c) above, the estimated cost of \$10,910,000 is for meeting the charges for management of the replacement project by the EMSTF for carrying out the feasibility study on different proposals; preparing the specifications, design and project programme; arranging the tender; supervising the installation; testing and commissioning of the new system; and monitoring the operation of the system and defect rectification work.

10. The estimated cash flow is as follows –

Year	\$ million
2015-16	1.00
2016-17	7.00
2017-18	30.00
2018-19	40.00
2019-20	7.90
Total	85.90

Recurrent Expenditure

11. The annual recurrent expenditure of the maintenance and electricity cost of the existing TLS is about \$3 million. Since new equipment of higher energy efficiency² will be procured, it is estimated that the annual recurrent expenditure of the new TLS will be lower than that of the existing TLS. The recurrent expenditure will be borne by the operator of KTT in accordance with the contract to be signed with the Government.

IMPLEMENTATION PLAN

12. We plan to commence the project in August 2015 and complete it in about 44 months according to the following schedule –

² According to EMSTF's preliminary estimation, the new system is expected to consume about 3 to 5% less electricity as compared with the existing system.

	Task	Target Completion Date
(a)	System engineering study and preliminary site survey	January 2016
(b)	Detailed design and preparation of tender document	June 2016
(c)	Tendering and evaluation of bids	December 2016
(d)	Equipment manufacturing and installation	December 2018
(e)	Equipment testing and commissioning	March 2019

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

WAY FORWARD

14. We plan to seek funding approval of the Finance Committee in June 2015 for this replacement project.

ADVICE SOUGHT

15. Members are invited to comment on the proposal of replacing TLS in the KTT.

**Transport and Housing Bureau
May 2015**