For information
14 December 2012

LEGISLATIVE COUNCIL PANEL ON TRANSPORT

Replacement of Tunnel Lighting System and Monitoring and Management Supervisory Systems in the Shing Mun Tunnels

PURPOSE

This paper informs Members of our proposal to replace the existing Tunnel Lighting System (TLS) and Monitoring and Management Supervisory Systems (MMSS) in the Shing Mun Tunnels (SMT).

BACKGROUND

2. Effective functioning of TLS and MMSS are critical to the operation of a road tunnel. We need to plan ahead the replacement of the existing TLS and MMSS before they reach the end of their economic serviceable life to ensure that the operation of SMT can continue to be safe, reliable and efficient.

PROPOSAL

3. We propose to replace the existing TLS and MMSS in SMT at an estimated cost of $131,970,000.

JUSTIFICATION

4. The existing TLS and MMSS were put to use when SMT was commissioned in 1990. TLS comprises mainly lighting fittings, power supply equipment and cables. MMSS comprises the Environmental and Monitoring Control System, Plant Monitoring System and Management Supervisory System, which perform the functions of monitoring the lighting level and reporting failure of individual lighting units, etc. TLS and MMSS together form an integral system to ensure the safe operation of SMT.

5. According to the Electrical and Mechanical Services Trading Fund (EMSTF), TLS and MMSS of SMT are approaching the end of their economic serviceable life[Note]. Timely replacement of the existing systems is essential for ensuring safe, reliable and efficient operation of the tunnel. It has become increasingly difficult to maintain the systems in good working condition due to the lack of certain spare parts in the market. Any failure in TLS or MMSS will lead to suspension of the operation of SMT and will result in traffic congestion on the alternative routes linking Tsuen Wan and Sha Tin, which will in turn have a knock-on effect on other major road networks in the New Territories.

6. To enhance the stability, reliability and efficiency of TLS and MMSS, and the safety of tunnel users, new equipment of higher quality and energy efficiency will be procured. They will meet the relevant international standards and comply with the latest design requirements stipulated by the Transport Department, Highways Department and Electrical and Mechanical Services Department.

[Note] The economic serviceable life of a TLS is around 25 years, while that of a MMSS is around 20 years.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $131,970,000, with the breakdown as follows –

			$ '000
(a)	Replacement of		94,700
	(i) lighting fittings inside tunnel tubes	69,400	
	(ii) MMSS equipment	7,000	
	(iii) power supply equipment	5,000	
	(iv) tunnel lighting console in control room	2,300	
	(v) cables	11,000	
(b)	Removal and reinstatement of tunnel wall panels		10,000
(c)	EMSTF project management charges		16,800
(d)	Contingency [10% of items (a) and (b) above]		10,470
	Total		**131,970**

8. Regarding paragraphs 7(a) and (b) above, the total estimated cost of $104,700,000 will cover the supply, installation, testing and commissioning of all lighting fittings, control equipment and console for the new TLS and MMSS, the replacement of the electrical switchboard, 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 $16,800,000 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 the new systems; and monitoring the operation of the systems and defect rectification work.

10. We intend to phase the expenditure as follows –

Year	$ '000
2012 –13	200
2013 –14	800
2014 –15	45,000
2015 –16	55,000
2016 –17	30,970
Total	**131,970**

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

12. As a general policy, the operating cost of Government tolled tunnels will be recovered through the toll charges. Since the depreciation cost of the proposal is part of the operating costs of SMT, it will be taken into account in setting the toll charges in future.

IMPLEMENTATION PLAN

13. We plan to start the replacement project in February 2013 and complete it in about 44 months according to the following schedule –

	Activity	Target Completion Date
(a)	System engineering study and preliminary site survey	May 2013
(b)	Detailed design and preparation of tender document	September 2013
(c)	Tendering and evaluation of bids	February 2014
(d)	Equipment manufacture and installation	July 2016
(e)	Equipment testing and commissioning	September 2016

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 January 2013 for this replacement project.

ADVICE SOUGHT

16. Members are invited to note our proposal to replace TLS and MMSS in SMT.

Transport and Housing Bureau
December 2012