

For information

Legislative Council Panel on Transport

**Replacement of Tunnel Ventilation Supply Fan System
in the Lion Rock Tunnel**

PURPOSE

This paper informs Members of our proposal to replace the tunnel ventilation supply fan system in the Lion Rock Tunnel (LRT).

BACKGROUND

2. A tunnel ventilation system is essential for ventilation and smoke control during fire. The ventilation system in LRT comprises three systems: the supply fan system, the exhaust fan system and the jet fan system. While the latter two systems were upgraded in 1995, the existing supply fan system has been in use for over 30 years and has reached the end of its economic serviceable life.

PROPOSAL

3. We propose to replace the existing tunnel ventilation supply fan system in the LRT at an estimated cost of \$30.00 million.

JUSTIFICATION

4. The existing tunnel ventilation supply fan system in the LRT was put to use since the tunnel was opened in 1967 (Southbound tube) and 1978 (Northbound tube). According to the Electrical and Mechanical Services Department, it has become increasingly difficult to maintain the system in good condition. In addition, as most supply fans are of an old design, their spare parts are no longer readily available in the market.

5. The LRT is strategically located and is the busiest tunnel connecting the urban areas and Sha Tin. Any failure of the supply fan system will adversely affect the air quality, visibility and smoke clearing efficiency of the tunnel. This will undermine the safety and comfort of tunnel users, and any accident thus caused will result in serious traffic congestion on the road networks connecting the tunnel. It is necessary to replace the ventilation supply fan system to ensure stable and reliable air supply for safe and efficient operation of the tunnel.

IMPLEMENTATION PROGRAMME

6. We plan to commence the replacement project in the fourth quarter of 2009 for completion in about 35 months. A work programme is set out at the Annex. 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.

7. To minimise disruption to the tunnel operation, works affecting the tunnel tubes will only be carried out at late night in the closed tube when the tunnel is under one-tube-two-way operation.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be \$30.00 million with breakdown as follows -

		\$ million
(a)	Replacement of	24.80
	(i) sixteen (16) ventilation supply fans, associated ductwork and acoustic treatment equipment	20.40
	(ii) fan control system	1.60
	(iii) associated electrical installation	2.80
(b)	Electrical and Mechanical Services Trading Fund (EMSTF) project management charges	3.96
(c)	Contingency (5% of item (a))	1.24
	Total	30.00

9. Regarding paragraph 8(a) above, the estimated cost of \$24.80 million will cover the supply, installation, testing and commissioning of the whole ventilation supply fan system with all associated equipment.

10. Regarding paragraph 8(b) above, the estimated cost of \$3.96 million is for meeting the charges of the 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.

11. We intend to phase the expenditure as follows -

Financial Year	\$ million
2009-2010	1.00
2010-2011	10.00
2011-2012	14.00
2012-2013	5.00
Total	30.00

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

13. The cost of the proposal will be taken into account in setting the toll and other charges of the LRT. Nevertheless, the estimated impact is immaterial.

WAY FORWARD

14. We will seek funding approval from the Finance Committee on 22 May 2009 for this project.

ADVICE SOUGHT

15. Members are invited to note our proposal to replace the ventilation supply fan system in the LRT.

Transport and Housing Bureau
April 2009

**Work Programme for
Replacement of Tunnel Ventilation Supply Fan System
in the Lion Rock Tunnel**

	Work Items	Duration (months)	2009		2010		2011		2012		2013
			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					■	■	■	■	