

ITEM FOR FINANCE COMMITTEE

HEAD 186 – TRANSPORT DEPARTMENT

Subhead 603 Plant, vehicles and equipment

New Item “Replacement of Specialised Vehicles for the Tsing Ma Control Area, Lion Rock Tunnel, Aberdeen Tunnel and Kai Tak Tunnel”

Members are invited to approve a new commitment of \$88.9 million to replace 17 specialised vehicles for the Tsing Ma Control Area, Lion Rock Tunnel, Aberdeen Tunnel and Kai Tak Tunnel.

PROBLEM

We need to replace 17 specialised vehicles in the Tsing Ma Control Area (TMCA), Lion Rock Tunnel (LRT), Aberdeen Tunnel (ABT) and Kai Tak Tunnel (KTT) as they have either reached or are approaching the end of their economic serviceable life after over nine years of service.

PROPOSAL

2. The Commissioner for Transport, with the support of the Secretary for Transport and Housing, proposes to replace the following 17 specialised vehicles at an estimated cost of \$88.9 million –

| | |
|------|--|
| TMCA | 4 Heavy recovery vehicles 5 Medium recovery vehicles 1 Double-end Bus 1 Special tractor 1 Trailer-mounted bowser 1 Tunnel washer vehicle 1 Bridge inspection vehicle |
| LRT | 1 Jet washer |
| ABT | 1 Heavy recovery vehicle |
| KTT | 1 Heavy recovery vehicle |

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JUSTIFICATION

3. At the annual vehicle inspection in 2007 by the Electrical and Mechanical Services Department, the 17 specialised vehicles mentioned above purchased in or before 1999 were found to have reached or to be approaching the end of their serviceable life. Their replacement is called for to ensure efficient and effective functioning of the TMCA and the tunnels concerned. The functions of the 17 vehicles are as follows –

(a) Heavy and medium recovery vehicles

A heavy recovery vehicle is used for recovery operations for heavy and medium goods vehicles, double-deck buses and container vehicles. A medium recovery vehicle is used for recovery operations of medium and light goods vehicles. The four heavy recovery vehicles and five medium recovery vehicles in the TMCA now proposed for replacement were purchased in 1997, while the heavy recovery vehicles in the ABT and the KTT now proposed for replacement were purchased in 1999. They have either reached or are approaching the end of their serviceable life with functions deteriorating. If they are not replaced, the overall efficiency for vehicle recovery in TMCA, ABT and KTT will be hampered.

(b) Double-end bus

In the TMCA, double-end buses are placed at the two entrances of the lower deck of the Lantau Link on a stand-by mode. When there is an emergency incident inside the lower deck, the double-end buses would be used for evacuating road transport or railway passengers to a safe place. The double-end buses are required because the lower deck of the Lantau Link is a single-lane carriageway where vehicle u-turning and overtaking are not practical. The double-end bus now proposed for replacement was purchased in 1997. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to ensure the safety of users in the lower deck of the Lantau Link during emergencies.

(c) Special tractor

A special tractor is fitted with a hydraulic turntable enabling it to turn 180 degrees at a fixed spot. It is used for vehicle recovery inside the lower deck of the Lantau Link, which is a single-lane carriageway

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where vehicle u-turning and overtaking are not practical. It is also used for towing the trailer-mounted bowzers for fire fighting operations on the Lantau Link and Ting Kau Bridge where fire mains are not available. The special tractor now proposed for replacement was purchased in 1997. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to ensure the efficiency of incident clearance and fire fighting operations on the bridges in the TMCA.

(d) Trailer-mounted bowser

A trailer-mounted bowser is a water tank with a fire hose mounted on a trailer used for fire fighting operations on the Lantau Link and Ting Kau Bridge where fire mains are not available. The trailer-mounted bowser now proposed for replacement was purchased in 1997. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to ensure the efficiency of fire fighting operations on the bridges of the TMCA.

(e) Tunnel washer vehicle

A tunnel washer vehicle is used for tunnel wall cleansing to maintain a clean environment and to ensure a good level of illumination inside a tunnel. The tunnel washer vehicle in the TMCA now proposed for replacement was purchased in 1997. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to ensure the proper cleanliness and thus traffic safety in Cheung Tsing Tunnel of TMCA.

(f) Bridge inspection vehicle

A bridge inspection vehicle is specifically designed to facilitate the inspection and maintenance of the two long span cable-supported bridges in the TMCA, namely Tsing Ma Bridge (TMB) and Kap Shui Mun Bridge (KSMB). Its boom configuration is able to overcome physical constraints such as suspenders and main cables of TMB and stay cables of KSMB in reaching out the sidings and underside of the above bridges. The bridge inspection vehicle now proposed for replacement was purchased in 1997. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to facilitate timely inspection and maintenance of the exterior portions of the above bridges, thus ensuring the safe operation of the TMCA.

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(g) Jet washer

A jet washer is used for cleansing the road surface of the LRT. The jet washer now proposed for replacement was purchased in 1996. It has been in service for over ten years and has reached the end of its serviceable life with functions deteriorating. It should be replaced to ensure the proper cleanliness and thus traffic safety in the LRT.

4. While the management, operation and maintenance of the TMCA and the concerned tunnels have been contracted out, the Government is responsible for providing the necessary vehicles and equipment for the operators to ensure efficient and effective incident management, as well as a smooth traffic flow in the TMCA and the concerned tunnels. The Government, as the owner of the vehicles, would also ensure smooth and flexible changeover from one operator to another upon expiry or termination of a contract.

5. As the existing vehicles are mostly Euro I vehicles, their early replacement is conducive to improving the environment. Except the double-end bus for which no Euro V standard model is available on the market and the trailer-mounted bowser which has no engine, all the other specialised vehicles to be procured would be of Euro V standard.

FINANCIAL IMPLICATIONS**Non-recurrent Expenditure**

6. We estimate the cost of the proposed replacement of the 17 specialised vehicles to be \$88.9 million, with the breakdown as follows –

| | | Unit Cost | Sub-total | Total |
|-------|-------------------------|------------------|---------------------|---------------------|
| | | Qty | (\$ million) | (\$ million) |
| (a) | Replacement of | | | 76.8 |
| (i) | Heavy recovery vehicle | 6 | 4.8 | 28.8 |
| (ii) | Medium recovery vehicle | 5 | 3.6 | 18.0 |
| (iii) | Double-end bus | 1 | 6.0 | 6.0 |
| (iv) | Special tractor | 1 | 2.4 | 2.4 |

| | Qty | Unit Cost (\$ million) | Sub-total (\$ million) | Total (\$ million) |
|--|-----|---------------------------|---------------------------|-----------------------|
| (v) Trailer-mounted bowser | 1 | 2.4 | 2.4 | |
| (vi) Tunnel washer | 1 | 4.8 | 4.8 | |
| (vii) Bridge inspection vehicle | 1 | 12.0 | 12.0 | |
| (viii) Jet washer | 1 | 2.4 | 2.4 | |
| (b) Electrical and Mechanical Services Trading Fund (EMSTF) project management charges | | | | 4.4 |
| (c) Contingency (10% of (a)) | | | | 7.7 |
| | | | Grand Total | 88.9 |

7. On paragraph 6(a)(i) above, the estimated cost of \$28.8 million is for procuring six heavy recovery vehicles, installed with hydraulic lifting booms and an under lift, dual deck winches on rear body and a winch at the front bumper.

8. On paragraph 6(a)(ii) above, the estimated cost of \$18 million is for procuring five medium recovery vehicles, installed with hydraulic lifting booms and under lift and winch.

9. On paragraph 6(a)(iii) above, the estimated cost of \$6 million is for procuring one double-end bus with double-end truck chassis which allows dual steering on both ends and passenger entry at either end.

10. On paragraph 6(a)(iv) above, the estimated cost of \$2.4 million is for procuring one special tractor, fitted with a hydraulic turntable enabling it to turn 180 degrees at a fixed spot.

11. On paragraph 6(a)(v) above, the estimated cost of \$2.4 million is for procuring one trailer-mounted bowser, installed with water pump and water spray nozzle, and quick pump drive unit for fire-fighting.

12. On paragraph 6(a)(vi) above, the estimated cost of \$4.8 million is for procuring one tunnel washer, installed with hydraulic booms, fixed rotating brushes and water spray nozzles.

13. On paragraph 6(a)(vii) above, the estimated cost of \$12 million is for procuring one bridge inspection vehicle, installed with a set of hydraulic booms with an inspection platform mounted at the end for inspection of the TMB and KSMB.

14. On paragraph 6(a)(viii) above, the estimated cost of \$2.4 million is for procuring one jet washer, installed with a water tank, pumps, auxiliary pipes and high-pressure nozzles for cleansing road surface.

15. Regarding paragraph 6(b) above, the estimated cost of \$4.4 million is for payment to the EMSTF for the preparation of the tender specifications and tender documents, evaluation of the tender submissions, overseeing the vehicle procurement and delivery process, attending factory acceptance tests, undertaking inspection and commissioning tests, and providing training to the contractors managing the ABT, KTT, LRT, TMCA on the operation and maintenance of the specialised vehicles.

16. We intend to phase the expenditure as follows –

| Year | \$ million |
|--------------|-------------|
| 2008-2009 | 4.4 |
| 2009-2010 | 33.8 |
| 2010-2011 | 50.7 |
| Total | 88.9 |

Recurrent Expenditure

17. As this is a replacement proposal, no additional recurrent cost will be incurred.

18. It is expected that the proposal will have no impact on the toll charges of the TMCA, LRT, and ABT.

IMPLEMENTATION PLAN

19. We plan to commence the proposed replacement of the 17 vehicles in the third quarter of 2008 for completion in around mid-2010. The project will take about 26 months to complete as the vehicles have to be tailor-made according to our specifications. The detailed replacement programme is at the Enclosure.

Encl.

PUBLIC CONSULTATION

20. We issued an information paper on the present proposal to the Legislative Council Panel on Transport on 15 May 2008. Members have not raised any comment on the proposal.

BACKGROUND

21. The specialised vehicles are required for incident management and various operational uses in strategic road links and tunnels. In respect of the TMCA which was opened to traffic in 1997, we began in mid-2007 a programme to replace specialised vehicles that have been in use for over ten years. The replacement of five specialised vehicles, including three special tractors, one double-end bus and one heavy recovery vehicle, commenced last year at an estimated cost of \$18.29 million upon approval from the Finance Committee. The present proposal includes the replacement of further 14 specialised vehicles for the TMCA, and three specialised vehicles for LRT, ABT and KTT.

Transport and Housing Bureau
June 2008

**Replacement of 17 Specialised Vehicles for the Tsing Ma Control Area,
Lion Rock Tunnel, Aberdeen Tunnel and Kai Tak Tunnel**

| | Activities | Duration (months) | 2008 | | | | 2009 | | | | 2010 | | | | | |
|---|--|-------------------|------|--|------|--|------|--|------|--|------|--|------|--|--|--|
| | | | 1-6 | | 7-12 | | 1-6 | | 7-12 | | 1-6 | | 7-12 | | | |
| 1 | Drafting of tender specifications | 5 | | | | | | | | | | | | | | |
| 2 | Tender invitation | 2 | | | | | | | | | | | | | | |
| 3 | Tender evaluation | 4 | | | | | | | | | | | | | | |
| 4 | Ordering, construction, testing and delivery of vehicles | 15 | | | | | | | | | | | | | | |
