

ITEM FOR FINANCE COMMITTEE

CAPITAL WORKS RESERVE FUND HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Transport Department

New Subhead “Installation of radio re-broadcasting system for digital audio broadcasting at 11 government road tunnels”

Members are invited to approve a new commitment of \$46.4 million for installation of radio re-broadcasting system for digital audio broadcasting at 11 government road tunnels.

PROBLEM

We need to equip government tunnels with a re-broadcasting system for broadcasting radio channels and emergency broadcasts transmitted in Digital Audio Broadcasting (DAB) format to tie in with the expected launch of DAB service from late 2011.

PROPOSAL

2. The Commissioner for Transport, with the support of the Secretary for Transport and Housing, proposes to install radio re-broadcasting system for broadcasting DAB channels at 11 government road tunnels¹ at an estimated cost of \$46.4 million.

/JUSTIFICATION

¹ The 11 government road tunnels are Aberdeen Tunnel, Cross Harbour Tunnel, Kai Tak Tunnel, Lion Rock Tunnel, Tseung Kwan O Tunnel, Shing Mun Tunnels, Cheung Tsing Tunnel in the Tsing Ma Control Area, and Nam Wan Tunnel, Eagle’s Nest Tunnel, Sha Tin Heights Tunnel and Tai Wai Tunnel in the Tsing Sha Control Area.

JUSTIFICATION

Launch of DAB service

3. It is the Government's policy to develop DAB in addition to the existing analogue radio broadcasting services to help reinforce our status as the forerunner of technological innovation and the broadcasting hub in the region. In March 2011, the Chief Executive in Council granted sound broadcasting licences to Digital Broadcasting Corporation Hong Kong Limited, Metro Broadcast Corporation Limited and Phoenix U Radio Limited for providing DAB service. The licensees are required to formally commence DAB service within the first 18 months after the licence grant date. They plan to roll out their DAB service in phases as early as from late 2011. In addition, Radio Television Hong Kong (RTHK) is also planning to launch its DAB service in late 2011.

Need for coverage in government road tunnels

4. The radio re-broadcasting system currently installed in government road tunnels is funded by the Government². It enables tunnel users to listen to radio channels and receive broadcast messages in respect of traffic and road safety information. However, it can only relay analogue radio broadcast transmitted via Amplitude Modulation (AM) and/or Frequency Modulation (FM) systems. The government tunnel operators are responsible for delivering emergency broadcasting services to tunnel users. To this end, the existing radio re-broadcasting system at government road tunnels is equipped with voice break-in services for message dissemination to tunnel users via AM/FM channels so that tunnel users can receive broadcast messages in respect of traffic and road safety information of the tunnel and also emergency broadcasts when needed.

5. Like analogue radio broadcasting, the DAB operators are required to provide their services on a territory-wide basis. Seamless reception of radio services across different areas including road tunnels is important to audience. Indeed, a significant portion of radio users are drivers and passengers who listen to radio programmes while they travel in vehicles. According to a survey conducted by RTHK in late 2010, it is estimated there are on average about 850 000 people listening to radio in private vehicles or public transport per day.

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² As for the one private (i.e. the Discovery Bay Tunnel) and four "Build-Operate-Transfer" (BOT) tunnels (i.e. the Eastern Harbour Crossing, Tai Lam Tunnel, Tate's Cairn Tunnel and Western Harbour Crossing), their existing AM/FM radio re-broadcasting systems are installed and funded by the private tunnel companies. We understand that the prospective DAB operators are discussing with the private/BOT tunnel companies on the installation of DAB re-broadcasting system in their facilities.

6. When compared with the existing analogue radio services, DAB service offers better sound quality, more stable reception, greater capacity to provide more programme channels, and transmission of ancillary visual services including text and images through the screens of DAB receivers. Motorists who have procured DAB receivers which are necessary for reception of DAB signals in their vehicles will expect that they could enjoy DAB in government road tunnels having regard to the Government's policy of developing DAB within the territory. Moreover, the Government should endeavour to provide a level playing field for DAB operators to compete against their analogue counterparts. With the introduction of DAB service, we need to ensure that tunnel users who have opted to listen to DAB in their vehicles could receive emergency broadcast messages in DAB channels, and that such messages would be received with better sound and reception quality. Hence, to tie in with the Government's policy to develop DAB and the timeframe for launching DAB service set out in paragraph 3 above, we need to kick-start the process of installation of DAB re-broadcasting system in government road tunnels as soon as possible.

FINANCIAL IMPLICATIONS

Non-recurrent Expenditure

7. We estimate that the capital cost of the project will be \$46.4 million, with the breakdown as follows –

	\$ million
(a) Installation of re-broadcasting system for DAB service for the 11 government road tunnels –	36.8
(i) DAB re-broadcasting equipment with radio break-in system	21.7
(ii) In-tunnel broadcasting monitoring system	6.2
(iii) Radiating coaxial cable ³ for three road tunnels	5.9
(iv) Interface equipment for existing radiating coaxial cable for the remaining eight road tunnels	3.0
	/(b)

³ A radiating coaxial cable is a special antenna installed inside the tunnel tubes to broadcast the DAB signals in the tunnel.

	\$ million
(b) Electrical and Mechanical Services Trading Fund project management charges	5.9
(c) Contingency (10% of item (a))	3.7
Total	<u>46.4</u>

8. Regarding paragraph 7(a) above, the estimated cost of \$36.8 million will cover the supply, delivery, installation, testing and commissioning of the radio re-broadcasting system for DAB service with all associated systems and equipment, including the radio break-in system and in-tunnel broadcasting monitoring system⁴ for the 11 government road tunnels. After a preliminary review on the existing radiating coaxial cables installed at the 11 government road tunnels, the Electrical and Mechanical Services Department has concluded that new radiating coaxial cables will have to be provided at the Aberdeen Tunnel, the Cheung Tsing Tunnel and the Lion Rock Tunnel in order to enable installation of the re-broadcasting system for DAB service. The existing radiating coaxial cables at the remaining eight government road tunnels can continue to be used to enable re-broadcasting of DAB signals with the installation of interfacing equipment.

9. Regarding paragraph 7(b) above, the estimated cost of \$5.9 million is for meeting the charges of the Electrical and Mechanical Services Trading Fund for carrying out site investigation; preparing the specifications of the requirements, design and project programme; arranging tendering; undertaking site inspection; supervising installation; arranging testing and commissioning of the system and monitoring the operation of the system and defect rectification work.

10. The estimated cash flow is as follows –

Year	\$ million
2011-12	4.0
2012-13	15.0
2013-14	27.4
Total	<u>46.4</u>

/Recurrent

⁴ The radio break-in system allows the tunnel operator to interrupt the re-broadcast of radio signals in order to broadcast emergency and traffic information messages. The in-tunnel broadcasting monitoring system is for monitoring the signal quality of radio signals and break-in messages in tunnel.

Recurrent Expenditure

11. The recurrent cost relating to the operation and maintenance of the re-broadcasting system for DAB service at the 11 government road tunnels will be absorbed in the respective management, operation and maintenance contracts of these tunnels.

Impact on Fees and Charges

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

IMPLEMENTATION PLAN

13. We plan to commence the project in the third quarter of 2011, and complete it in about 32 months. The first ten months are for preparation work including site investigation, detailed design and tendering. The remaining 22 months construction period are for design submission, equipment manufacturing, system installation, testing and commissioning. In order to minimise disruption of the normal tunnel operations and maintenance work, the installation work would only be carried out after midnight when the traffic volume is lower and the one-tube-two-way operation is implemented.

14. The implementation plan set out in paragraph 13 above is formulated after a critical examination of the circumstances of the project, including our aim of facilitating early reception of DAB service in all government road tunnels while minimising disruption to traffic, the scale of the project, the need to ensure the safe and efficient operation of the tunnels while installation works are being carried out, and the availability of competent contractors with relevant experience to carry out the project satisfactorily. To achieve the proposed implementation plan, installation of re-broadcasting system for all the 11 government road tunnels will commence concurrently. Given the constraint in work hours as mentioned in paragraph 13 above, the whole work programme will be completed by no later than February 2014. Various stages of the construction period, namely, design submission, equipment manufacturing and site work preparation, and system installation, testing and commissioning will also be conducted in parallel as far as practicable. In order to meet the expectation of tunnel users for early enjoyment of DAB service, we target to launch DAB service in the four government toll road tunnels with the highest traffic volume, namely the Aberdeen Tunnel, the Cross Harbour Tunnel, the Lion Rock Tunnel and

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Encl. the Tseung Kwan O Tunnel by December 2012, while DAB service in the remaining seven government road tunnels will be launched as soon as they are ready. A work programme is set out at the Enclosure.

PUBLIC CONSULTATION

15. We consulted the Legislative Council Panel on Transport on the present proposal at its meeting on 2 June 2011. Members in general supported the proposal but suggested that the Administration should explore the feasibility of further expediting the implementation timetable. In this light, we have critically re-examined the proposed work programme and concluded that it would be difficult at this stage to further compress the timetable taking into account the various considerations set out in paragraphs 13 and 14 above. Nonetheless, as we take forward the project, we will identify further room for expediting the work programme in the light of actual experience. Members also asked for information about the Administration's policy regarding installation of radio re-broadcasting system for DAB service at private and BOT tunnels. The Administration welcomes the private/BOT tunnel companies and prospective DAB operators undertaking measures to facilitate the reception of DAB signals within their tunnels. To this end, we have briefed the private/BOT tunnel operators on the development and technical information of DAB and introduced them to the prospective DAB operators to facilitate their discussion. We understand that the two sides are now discussing the feasibility of installing DAB re-broadcasting system at the private/BOT tunnels. Since this is a commercial negotiation, it should be left to the relevant tunnel operators and DAB operators to negotiate based on commercial principles, and would not be appropriate for the Government to interfere. We will separately respond in writing to Panel Members' request for information regarding the provision of radio reception services along railways of the Mass Transit Railway Corporation Limited for emergency broadcasts before the meeting of the Finance Committee on 24 June 2011.

BACKGROUND

16. The Government is committed to promoting digitisation of broadcasting services in Hong Kong. Following the successful launch of digital terrestrial television service in end 2007, the Government released a Band III multiplex in 2010 for interested operators to provide DAB service. All government road tunnels are currently equipped with radio re-broadcasting systems in respect of all radio platforms (i.e. both AM and FM channels) to ensure that tunnel users can receive radio channels and broadcast messages in respect of traffic and road safety information.

**Work Programme for
Installation of Radio Re-broadcasting System for Digital Audio Broadcasting at 11 Government Road Tunnels**

Work Items	Duration (months)	2011		2012		2013		2014		
		1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12	
<u>(a) Tendering Stage</u>										
1	Site Investigation and Detailed Design	5								
2	Tendering and Evaluation	5								
	<i>Sub-total for (a)</i>	<i>10</i>								
<u>(b) Construction Period</u>										
3	Design Submission	8								
4	Equipment Manufacturing and Site Work Preparation	12								
5	Installation, Testing and Commissioning	20								
	<i>Sub-total for (b)^(Note)</i>	<i>22</i>								
	Total	32								

Note: As parts of the work items 3 to 5 are expected to be carried out concurrently, the total duration for the construction period (22 months) is less than the sum of the durations of individual items.
