

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

**Transport Department**

**New Subhead "Installation of electronic audible traffic signal"**

Members are invited to approve a new commitment of \$52.7 million to replace the existing electro-mechanical audible traffic signals installed at some signalised pedestrian crossings with electronic audible traffic signals and to install such signals at all other signalised pedestrian crossings currently without any audible devices.

### **PROBLEM**

The existing audible traffic signals (ATS), installed at pedestrian crossings to ensure the safety of the visually impaired, are causing nuisance and inconvenience to some local residents particularly at night time. Separately, 75% of the total number of the existing ATS are approaching the end of their useful life and some of the existing signalised pedestrian crossings are not yet provided with ATS.

**/PROPOSAL .....**

## PROPOSAL

2. The Commissioner for Transport proposes a non-recurrent commitment of \$52.7 million to replace the existing electro-mechanical ATS installed at some signalised pedestrian crossings with a new type of electronic audible traffic signals (e-ATS) and to install such e-ATS at all other signalised pedestrian crossings currently without any audible devices.

## JUSTIFICATION

### Current Problem

3. The current ATS are of the electro-mechanical type, which generate “tic-tac” sound at a fixed output level. The sound level is set according to the background noise level. Normally, it is set equivalent to 68 decibels (dB) at one metre from source. Relevant organisations for the visually impaired<sup>1</sup> have been consulted and agreed to adopt this sound level. Although this sound level has been found to be generally acceptable during daytime, nearby residents may find that the sound level is on the high side when the environment is relatively quiet, i.e. at night.

4. When complaints are received from nearby residents, we consult relevant organisations for the visually impaired on proposed adjustments to the sound level and/or the hours of operation of the ATS. Currently, about 390 signalised junctions installed with ATS are located at sensitive areas, accounting for about 40% of the 954 signalised junctions installed with ATS. These ATS are programmed to operate from 7 am to 11 pm only. However, it remains the preference of the relevant organisations for the visually impaired for the provision of 24-hour ATS at all signalised pedestrian crossings across the territory.

5. The e-ATS, which has become available in recent years and being used in many places overseas (including Australia, Singapore and Europe), are equipped to adjust its output sound level automatically in response to the ambient noise level. After testing a number of e-ATS products from different suppliers, three of them are

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<sup>1</sup> Organisations representing the visually impaired include the Blind Union, the Hong Kong Society for the Blind, Rehabilitation Alliance Hong Kong and the Hong Kong Council of Social Service.

found to be suitable for application in Hong Kong. These units have been tried out initially at four junctions, namely To Kwa Wan Road/Mok Cheong Street, Tat Chee Avenue/Dianthus Road, Nathan Road/Man Ming Lane and Chuk Yuen Road/Fu Mei Street since March 2000. The trial has been extended to another 30 road junctions over the territory since December 2001. So far, the Government, residents nearby and the organisations representing the visually impaired find the results of the trial satisfactory. The experience acquired in the trial enables us to develop and further refine the technical specifications of the e-ATS.

6. The estimated useful life of the current electro-mechanical type of ATS is about eight to ten years. About 4 500 ATS (i.e. 75% of the total number of 6 000 existing ATS) have been in use for over eight years and are approaching the end of their useful life. There is a need to replace these old ATS. Having regard to the satisfactory trial results, we propose to replace all existing electro-mechanical ATS with e-ATS, which with the ambient noise responsive feature, should have the added benefits of addressing the concerns of both the visually impaired and local residents. We further propose to install the e-ATS at existing junctions without audible devices starting from early 2003. The installation is expected to be completed by mid-2004.

### **Benefits of e-ATS**

7. As mentioned above, the e-ATS has the capability to adjust automatically their output sound level in response to changes in ambient noise level. For instance, at night time when the environment is quiet, the e-ATS output will be reduced automatically<sup>2</sup>. The e-ATS are hence able to address the concerns of the visually impaired and the local residents. A vibrating unit will also be included where necessary as an option of the e-ATS, which is capable of indicating whether a crossing is on “red” or “green” lights. This is particularly useful at those junctions with a number of closely-spaced signalised pedestrian crossings.

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<sup>2</sup> The e-ATS has an output sound level set at one of the available settings which correspond to output levels from 3 dB to 12 dB above ambient noise level to ensure that it can be heard by the visually impaired at a distance of one metre away from the device. The e-ATS is capable of adjusting this output level automatically with respect to ambient noise level within an output range between 55dB and 90 dB. However, this output level will be limited to ensure that the nearest noise sensitive receiver, i.e. local residents in the vicinity, will be subject to a noise level of 70dB or below.

8. The e-ATS will enhance the safety of the visually impaired when using the pedestrian crossing facility provided at signalised junctions. It will reduce the nuisance caused by the existing electro-mechanical device to nearby residents. It may also serve as an additional audible device to assist the general pedestrians when using the crossing facility.

## FINANCIAL IMPLICATIONS

### Non-recurrent Expenditure

9. The estimated non-recurrent cost of the e-ATS project is \$52,668,000, made up as follows -

	2002-03	2003-04	2004-05	Total
	\$'000	\$'000	\$'000	\$'000
(a) Procurement and installation of e-ATS units	13,470	23,440	10,970	47,880
(b) Contingencies	1,347	2,344	1,097	4,788
<b>Total</b>	<b>14,817</b>	<b>25,784</b>	<b>12,067</b>	<b>52,668</b>

10. As regards paragraph 9(a), the cost of \$47,880,000 is for the procurement and installation of 11 400 units of e-ATS estimated at about \$4,200 per unit for all existing signalised junctions with pedestrian crossing facility. This includes replacement of the existing electro-mechanical ATS with e-ATS and installation of e-ATS at other signalised junctions which are not currently provided with audible devices. With proper maintenance, e-ATS have a life span of about eight to ten years, similar to that of the existing ATS.

11. As regards paragraph 9(b), the provision of \$4,788,000 represents a 10% contingency on the cost item set out in paragraph 9(a).

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### Recurrent Expenditure

12. The estimated annual recurrent expenditure for the operation and maintenance of e-ATS is as follows -

	<b>2003-04</b>	<b>2004-05 onwards</b>
	\$'000	\$'000
(a) Electricity and power	800	1,300
(b) Maintenance	-	4,788
<b>Total</b>	<b>800</b>	<b>6,088</b>

13. As regards paragraph 12(a), the expenditure of \$1,300,000 is for the annual electricity consumption of e-ATS installed at signalised pedestrian junctions.

14. As regards paragraph 12(b), the expenditure of \$4,788,000 is for the maintenance of the e-ATS equipment. The maintenance cost is estimated to be 10% of the equipment cost.

15. The existing recurrent expenditure for the operation and maintenance of ATS will cover part of the recurrent expenditure mentioned in paragraphs 12(a) and (b). The Transport Department (TD) and the Highways Department will absorb the additional recurrent expenditure arising from the project within their existing resources.

16. There will be no additional recurrent TD staff cost for the e-ATS project as it will be met by redeployment of existing resources in TD.

**/IMPLEMENTATION .....**

**IMPLEMENTATION PLAN**

17. We plan to implement the proposed e-ATS project as follows -

	<b>Activity</b>	<b>Target completion date</b>
(a)	Pre-qualification of tenderers	September 2002
(b)	Tendering for the supply and installation of e-ATS	November 2002
(c)	Commencement of installation on site	February 2003
(d)	Completion of installation on site	July 2004

**BACKGROUND INFORMATION**

18. Since January 1994, ATS have been provided as a standard facility at all new signalised junctions with pedestrian crossings. At present, 66% (or 954) of the 1 445 signalised junctions with pedestrian crossings are installed with some 6 000 units of ATS to facilitate the visually impaired in crossing the roads. The plan is to replace or install a total of 11 400 units of e-ATS at all such junctions in phases in accordance with a priority list agreed with organisations representing the visually impaired.

19. In line with our policy objective of ensuring safety of road users, the present practice is that ATS should operate round the clock. However, the operation of ATS has given risen to conflicts among the visually impaired and the public. On the one hand, the visually impaired have strongly pressed for 24-hour operation of ATS at all signalised pedestrian crossings, on the other hand, residents close to the ATS have complained about the nuisance caused by the ATS sound particularly at night time when the environment is relatively quiet.

20. We have consulted the relevant organisations representing the visually impaired on the provision of e-ATS and they indicate strong support for the proposal.

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21. We consulted the Legislative Council Panel on Transport on 26 April 2002. Members generally supported the proposal and some urged the Administration to expedite the installation of e-ATS. Some Members were concerned that the output sound level of e-ATS might still affect local residents. We would take on board Members' views and try to compress the prequalification and tender programmes with a view to expediting the installation works as far as possible. We would also limit the output level of the e-ATS to ensure that the nearest noise sensitive receiver, i.e. local residents in the vicinity, would be subject to a noise level of 70dB or below.

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Transport Bureau  
May 2002