

Legislative Council Panel on Transport Electronic Audible Traffic Signal

PURPOSE

This paper briefs members on the proposal to replace the existing electro-mechanical type of audible traffic signals (ATS) installed at some signalised pedestrian crossings with a new type of electronic ATS (e-ATS) and to install such e-ATS at all other signalised pedestrian crossings currently without audible devices.

BACKGROUND

2. 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 install or retrofit 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 impaired¹.

3. In line with our policy objective of ensuring the safety of road users, the present practice is that ATS should operate round the clock. However, the provision of ATS has been a conflicting concern of both the visually impaired and the public. While the visually impaired have strongly pressed for 24-hour operation of ATS at all signalised pedestrian crossings, others residing close to the ATS have complained about the nuisance caused by the ATS sound particularly at night time when the environment is relatively quiet.

PROPOSAL

4. The e-ATS, available in recent years and being used in many countries 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 found suitable for application in Hong Kong. A small number of these units have been tried out 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 results so far have been satisfactory to both the

¹ 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.

Government, residents nearby and the organisations representing the visually impaired. The experience acquired in the trial will enable us to develop and refine the technical specifications of the e-ATS.

5. The ambient noise responsive feature of the e-ATS should address the concerns of both the visually impaired and local residents. Having regard to the satisfactory trial results, we propose to install e-ATS at existing junctions without audible devices and replace all existing mechanical audible signals with e-ATS by mid 2004.

JUSTIFICATION

Current Problem

6. The current ATS are of the electro-mechanical type, which generate “tic-tac” sound at a fixed output level. The sound level emitted 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 have been consulted and agreed to adopt this sound level. Although this sound level has been found to be generally acceptable, the nearby residents may find the sound level on the high side when the environment is relatively quiet, i.e. at night.

7. 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 ATS located at sensitive areas (about 40% of the 954 installed 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.

Benefits of e-ATS

8. The e-ATS are expected to be able to address the concerns of the visually impaired and the local residents. The e-ATS has the advantage of adjusting automatically its 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 automatically². A vibrating unit may be included as an

² 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. This output level is then adjusted automatically with respect to ambient noise level within an output range between 55 to 90dB.

option of the e-ATS, which is capable of indicating whether a crossing is on “red” or “green” phasing. This is particularly useful at those signal junctions with a number of closely-spaced pedestrian crossings.

9. The e-ATS will enhance the safety of the visually impaired in using the pedestrian crossing facility provided at signalised junctions. It will also 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.

10. The estimated useful life of the current electro-mechanical type of ATS is on average about eight to ten years. Many of them have been in use for over eight years and are nearing the end of their useful life. They need to be replaced by new ones, which will also meet the new requirement of adjusting output sound level automatically in response to the ambient noise level.

FINANCIAL IMPLICATIONS

Non-recurrent Expenditure

11. The total non-recurrent cost for implementing the e-ATS project in which 11,400 units of e-ATS will be acquired is estimated to be \$52,668,000. The breakdown of the costs and cash-flow is as follows -

	2002-03	2003-04	2004-05	Total
	\$'000	\$'000	\$'000	\$'000
Non-recurrent expenditure				
(a) Procure and install e-ATS units	13,500	23,500	11,000	47,880
(b) Contingencies	1,350	2,350	1,100	4,788
Total	14,850	25,850	12,100	52,668

12. As regards paragraph 11(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 a piece at all existing signalised junctions with pedestrian crossing facility. This includes replacement of the existing electro-mechanical ATS with e-ATS and retrofitting other signalised junctions which are not currently provided with ATS facility. Under proper maintenance, e-ATS will have a life span of eight to ten years, similar to that of the existing ATS.

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

Recurrent Expenditure

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

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

15. As regards paragraph 14(a), the expenditure of \$1,300,000 is for the annual electricity consumption of e-ATS installed at junctions.

16. As regards paragraph 14(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.

17. It is anticipated that the existing recurrent expenditure for the operation and maintenance of ATS will cover part of the recurrent expenditure as mentioned in paragraphs 14(a) and (b). The relevant departments will absorb any additional recurrent expenditure arising from the project within their existing resources.

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

IMPLEMENTATION PLAN

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

Activity	Target completion date
(a) Prequalification of tenderers	September 2002
(a) Tendering for the supply and installation of e-ATS	November 2002
(b) Start installation on site	February 2003
(c) Complete installation on site	July 2004

THE WAY FORWARD

20. The relevant organisations representing the visually impaired have been consulted on the e-ATS and they indicate strong support for our proposal. We will seek the approval of the Finance Committee on 10 May 2002 on funding for implementation of the project.

ADVICE SOUGHT

21. Members are invited to comment on the proposed e-ATS project.

Transport Bureau
April 2002