LEGISLATIVE COUNCIL PANEL ON TRASNPORT

Progress Update on the Intelligent Transport Systems

INTRODUCTION

This paper reports on the progress of the development and implementation of Intelligent Transport Systems in Hong Kong.

BACKGROUND

2. A paper on the "Application of IT to Transport Management" was presented to the LegCo Panel on Transport on 16 March 2001, outlining the findings of the Intelligent Transport Systems (ITS) Strategy Review Study conducted by Transport Department. It recommended the establishment of a centralised Transport Information System, and the adoption of a more comprehensive Traffic Management Framework. It also suggested that the private sector should be encouraged to make use of the information from these systems to provide tailor-made services to individual road users.

3. The progress of the implementation of the core projects recommended by the ITS Strategy Review together with the development of ITS services in the private sector, in particular local experience in Global Positioning System applications**,** are reported below for Members' information.

TRANSPORT INFORMATION SYSTEM (TIS)

4. The TIS is a centralised data warehouse for the collection, processing and dissemination of comprehensive transport information. It will provide two main external services, namely, a Public Transport Information Service (PTIS) and an Intelligent Road Network (IRN).

5. The PTIS is intended to be a service on the Internet to assist public transport users and motorists to make pre-trip planning. It will provide the public with various options of travelling on public transport modes based on least distance, least cost or least transfers, and provide motorists with a driving route searching function free of charge. Other than via the internet, the public may also have access to the information through the Government's Integrated Call Centre, customer service centres provided by public transport operators or mobile phones via service providers.

6. The IRN will provide up-to-date information on traffic directions, turning movements at road junctions and stopping restrictions, etc. Value-Added Service Providers (VASPs) in the private sector, including the broadcasting media, telecommunication companies, fleet and freight operators, logistic and IT organisations, can make use of the information for the development of other ITS applications such as car navigation, fleet management systems and personalised information services to the public. Such packages are likely to include both transport and non-transport (e.g. news, finance, entertainment, leisure, cultural, etc.) related information and services to suit the evolving market demand and changing consumer needs. These services could be delivered through TV, radio, mobile phone, customer service centres, the Government's Integrated Call Centre and in-vehicle car navigation unit.

7. The TIS will be linked with selected systems of other Government Departments, such as Lands Department, Fire Services Department, Hong Kong Police Force, Highways Department and Hong Kong Observatory, and transport operators including franchised bus companies, railway corporations and ferry companies, to facilitate the sharing of data of common interests for better planning, management and operational arrangement.

8. Funding approval was secured from the Finance Committee (FC) in June 2001. Tenders for the implementation of the TIS were invited in April 2002 with the tender closing date in July 2002. The contract is scheduled to be awarded in September/October 2002. The TIS is programmed for commissioning in phases starting from mid 2003.

TRAFFIC MANAGEMENT FRAMEWORK

9. The new Traffic Management Framework includes the extension of Area Traffic Control Systems to all new towns, the provision of Traffic Control and Surveillance Facilities on all strategic roads, a Journey Time Indication System, and a Traffic Management and Information Centre.

(I) Area Traffic Control (ATC) System

10. The ATC System is a computerised system that integrates the control and operation of traffic signals within a district. ATC Systems are now in operation in the urban areas and the new towns of Tsuen Wan, Kwai Tsing, Shatin and Ma On Shan. The target is to have ATC Systems covering 90% of all the signalised junctions by 2005 and all major development areas by 2009.

11. Funding for the extension of the ATC Systems to Tai Po and North District was approved by FC in May 2001. Tenders are being evaluated and will be awarded by mid 2002 to enable the systems to start operation in early 2004. The next target is for the installation of ATC Systems in Tuen Mun and Yuen Long in 2005, which we intend to apply to FC for funding approval in late 2002, to be followed by Tseung Kwan O in about 2009.

(II) Traffic Control & Surveillance (TCS) Facilities on Strategic Roads

12. At present, Closed Circuit Television (CCTV) cameras are provided on sections of Tuen Mun Road, Kwai Chung Container Port Road, West Kowloon Highway and North Lantau Highway. Our target is to install comprehensive TCS facilities including CCTV cameras, variable message signs and lane control signals on all major expressways by 2010. For all newly planned strategic roads including Route 9, Route 10, Central Wanchai Bypass and Central Kowloon Route, TCS will be installed as standard facilities. For some existing strategic roads, TCS facilities will be retrofitted together with major reconstruction or widening projects now underway or to be carried out in the near future. The present programme is to retrofit TCS facilities on Tolo Highway in 2003, Island Eastern Corridor in 2003, Fanling Highway in 2006, Yuen Long Highway in 2006 and Tuen Mun Road in 2010.

13. Transport Department (TD) is conducting an in-house study to formulate an implementation plan for the provision of TCS facilities along the remaining strategic road network. The Study will be completed in June 2002. Our aim is to complete the installation of comprehensive TCS facilities along the remaining strategic roads in phases by 2010.

(III) Journey Time Indication System (JTIS)

14. The JTIS is designed to advise motorists of the estimated journey time for travelling to Kowloon via the three cross-harbour tunnels. Digital displays will be installed ahead of critical traffic diversion points on the approach roads leading to the three cross-harbour tunnels so that motorists can make an informed choice on the route to be taken based on the latest traffic situation.

15. Funding approval was secured from the FC in June 2001. Tenders for the implementation of the JTIS were invited in March 2002 and are being evaluated. The contract will be awarded in June 2002 with target commissioning in late 2002.

(IV) Traffic Management and Information Centre (TMIC)

16. The main function of TMIC is to co-ordinate territory-wide traffic and incident management. The TMIC will serve as TD's first contact point for traffic and transport incidents and will co-ordinate with public transport, tunnel and bridge operators and other departments to ensure a swift response to emergencies. The Centre will have direct control of all existing and future ATC systems and TCS facilities on the Strategic Road Network. It will exchange real-time traffic information with TIS and provide information to the media and the public.

17. The Preliminary Project Feasibility Study (PPFS) for the proposed TMIC was completed in August 2001. Application for funding approval will be submitted to FC in late 2002. Subject to FC approval, the TMIC is scheduled to start operation in 2006/07.

GLOBAL POSITIONING SYSTEM (GPS)

18. The GPS constellation consists of satellites that transmit specially coded signals that can be processed by GPS receivers which is a positioning device to compute position, time and velocity. GPS can be deployed for ITS applications when working together with other systems and/or additional devices.

19. These ITS applications are mainly developed and provided by the private sector with the Government acting as facilitator. Some of the more common applications are –

(I) Emergency Notification

20. Together with car-mounted cellular telephone or through other wireless communication network, the system can automatically report its location in case of an accident.

(II) Car Navigation

21. Together with electronic maps and a visual display unit installed inside a vehicle, the system can indicate to the driver the current position of the vehicle on the road network and assist the driver to find the most efficient routing.

(III) Fleet Management

22. With GPS receivers as the locating device, vehicle being tracked will transmit its location and other information on its status back to the fleet control centre at regular intervals through a wireless communication network. The operators can make use of the information collected to adjust the scheduling and routing of individual vehicles accordingly.

LOCAL APPLICATIONS OF GPS

23. Vehicle security service employing GPS has been available in Hong Kong since 1996. With the advancement of technology and reduction in costs, GPS has been employed to track the positioning of vehicles such as trucks, buses and private cars. The services are mainly for anti-theft, fleet management and car navigation purposes. Currently, at least one local company offers navigations systems and three local companies offer fleet management systems for use in Hong Kong.

24. The major franchised bus operators in Hong Kong are undertaking trials to test the applicability and reliability of the GPS and associated technologies in vehicle tracking/positioning, data transmission and dissemination of information on vehicles and at bus stops. The target is to provide accurate real time bus arrival information to passengers at bus stops and to facilitate the operators in fleet management. Subject to the result of the trials, the major franchised bus companies intend to apply GPS by phases in the coming two to three years.

25. Other emerging location-based services offered by the private sector include providing information on carparks, petrol filling stations, railway stations, banks, cinemas, shopping malls, etc. nearest to the user through mobile phones or hand-held computers.

CONCLUSION

26. With the implementation of TIS and the new Traffic Management Framework, more accurate information would be provided to public transport users and motorists to plan their routes in advance according to their own needs, and to transport operators and other service providers to further enhance their services. Better transport management would enhance road and transport capacity and achieve savings in journey time. The Administration will continue to liaise with the private sector in identifying potential opportunities to the development and implementation of ITS applications.

FOR INFORMATION

27. Members are invited to note the progress of the development of ITS in Hong Kong as reported in the paper.

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