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Panel on Transport
Meeting on 20 March 2009

Background brief on development of Intelligent Transport Systems in Hong Kong

Purpose

This paper provides background information on the development and implementation of Intelligent Transport Systems (ITSs) in Hong Kong and summarizes the major concerns expressed by the Panel on Transport (the Panel) on the subject.

Background

2. ITSs refer to the deployment of advanced information and telecommunication technologies to enhance the safety, efficiency, reliability, as well as user and environmental friendliness of the transport system. In Hong Kong, different forms of ITSs, e.g. Area Traffic Control (ATC) System, Traffic Control & Surveillance (TCS) Facilities, Autotoll, Octopus Card and Electronic Parking Meter, have been implemented in the past 20 years or so.

ITSs Strategy Review Study in May 2000

3. The Transport Department (TD) initiated an in-house ITSs Strategy Review Study in May 2000 to develop a long-term ITSs deployment plan. The Study examined the technical, administrative and financial requirements of implementing an ITSs Strategy in Hong Kong to ensure that different systems developed under the Strategy were compatible and coordinated, and that seamless integrated services could be provided to all road users effectively and efficiently. The Study was completed in early 2001. It recommended the establishment of a **Transport Information System** (TIS) and the adoption of a more comprehensive **Traffic Management Framework** to improve the traffic condition. It further suggested that the private sector be encouraged to make use of these systems to provide tailor-made services to individual road users.

Financial proposal of implementing TIS and a Journey Time Indication System (JTIS) in May 2001

4. In order to meet transport demand in a sustainable manner, the Administration considered it necessary to find ways to maximize the capacity and to enhance the performance of existing transport system through the application of information technology. In May 2001, the Administration proposed the implementation of TIS and JTIS in Hong Kong.

TIS

5. TIS is a computerised system which integrates transport and traffic data into a common, structured format to enable information sharing and data analysis in a timely and efficient manner. The system will improve efficiency in TD in providing transport statistics for queries and analysis, and will facilitate transport management. It will also provide accurate, reliable and timely transport and traffic information to the public to enable road users to make better and more informed choice on their transport needs. Furthermore, it will create a conducive environment for private sector to develop value-added transport services in Hong Kong. Under the proposed TIS, all transport and traffic data would be digitised and put into a centralised data warehouse, such that information can be shared among TD offices and that the public can obtain updated transport and traffic information via the Internet or 3G mobile phone.

JTIS

6. Apart from setting up TIS, the Administration also planned to implement JTIS to provide motorists on the move with the means of obtaining up-to-date traffic information. The purpose of JTIS is to convey to motorists real-time traffic conditions of different cross-harbour routes from Hong Kong Island to Kowloon so that they could make more informed choice on their cross harbour routing well ahead of critical diversion points.

7. The Administration consulted the Panel on the above proposal on 18 May 2001. Members in general supported the proposal of implementation of TIS/JTIS. The Finance Committee (FC) approved the funding proposal on 1 June 2001.

Progress updates on ITSs development

TIS

8. In March 2003, the Administration provided to the Panel an update on the progress of ITSs, in which it was stated that TIS would provide two main external services, namely, a Public Transport Information Service (PTIS) and

an Intelligent Road Network (IRN).

9. According to the Administration, PTIS would be a free service on the Internet to facilitate public transport users and motorists to make pre-trip planning. It would provide the public with various options of travelling on public transport modes based on least distance, least cost or least transfers, and provides motorists with a driving route searching function free of charge. IRN would provide up-to-date information on traffic directions, turning movements at road junctions and stopping restrictions, etc.

10. The Administration also informed the Panel that tenders for the implementation of TIS had been received in July 2002. It was anticipated that the tender would be awarded by May 2003. The first phase of PTIS and IRN would be ready for operation in early 2004, while the final phase of PTIS would be completed within six months following the commissioning of the first phase.

11. However, in its progress update submitted to the Panel in August 2005, the Administration reported that after the award of the contract, TD had experienced difficulties with the contractor, which had resulted in serious delay in implementation. The contract was eventually terminated in early February 2005. The new TIS contract was finally awarded in August 2006. In reply to a Legislative Council (LegCo) question raised by Hon SIN Chung-kai at the Council meeting on 21 November 2007, the Administration indicated that IRN and PTIS were expected to be available to the public in phases starting from the latter half of 2008.

Traffic Management Framework

12. Traffic Management Framework includes the ATC systems, TCS facilities on strategic roads, JTIS, and related traffic control centres. An information paper setting out the various initiatives taken by the Administration to establish a more comprehensive Traffic Management Framework was issued vide LC Paper No. CB(1)2213/04-05(01).

Financial proposal of expanding existing JTIS on Hong Kong Island (JTIS Hong Kong) to Kowloon (JTIS Kowloon)

13. In 2003, the Administration implemented the JTIS Hong Kong to inform motorists of the estimated journey time for travelling from Hong Kong Island to Kowloon via the three road-harbour crossings (RHCs). Digital journey time indicators were installed at critical traffic diversion points, viz. Gloucester Road eastbound (near Revenue Tower), Canal Road Flyover northbound (near the exit of Aberdeen Tunnel) and Island Eastern Corridor westbound (near City Garden), to allow motorists to make an informed choice on the route to be taken based on the latest traffic situation.

14. Apart from the digital indicators, a Traffic Speed Map was launched on the Internet for the approach roads to the three RHCs on Hong Kong Island in August 2005, so that commuters could better plan their routes before embarking on the journey. According to the Administration, the Traffic Speed Map is a useful tool for pre-trip planning, especially during major events and incidents with traffic impact.

15. Surveys were conducted before and after implementation of the JTIS Hong Kong in December 2002 and January 2004 respectively. It was found that the average travelling speed had generally increased by 4%. In view of the satisfactory performance of the JTIS Hong Kong, the Administration proposed in March 2006 to expand the system to major approach roads to RHCs on the Kowloon side.

16. The Administration consulted the Panel on 24 March 2006. Members suggested that the Administration should conduct a survey to ascertain the usefulness of JTIS. On 20 November 2006, the Administration informed members of the survey results. Panel members did not raise any further comment on the proposal. The funding proposal was approved by FC on 12 January 2007.

Discussion on ITSs by the Panel

17. During discussion on the proposed ITSs Strategy at the Panel meeting on 16 March 2001, members generally supported the deployment of advanced technologies to enhance the provision of transport information and traffic management. They considered that the implementation programme should be advanced as far as possible. When the Panel discussed the proposal on implementation of TIS/JTIS on 18 May 2001, some members enquired about the experience of the implementation of similar systems overseas and the channels of dissemination of information under TIS.

18. The Administration briefed members on the experience in implementing TIS and associated services in Japan. The Administration pointed out that TIS and JTIS could help avoid traffic congestion and would thus bring overall benefits in terms of reduction in travelling time, indirect savings in vehicle operating costs, improvement in safety, less total vehicle emissions, more efficient use of limited road space and promoting better image of Hong Kong.

19. As regards the channels of dissemination of information under TIS, the Administration pointed out that apart from dissemination of timely and reliable transport information through television and radio, all the transport information would be made available on the Internet. The Administration would include interactive route guidance function and public transport enquiry service on

TD's homepage with up-to-date traffic information. Public transport operators would be encouraged to make use of TIS to provide information relating to their services to passengers at bus stops, public transport interchanges, railway stations, etc. Telecommunication companies had also expressed interest in the provision of transport information as part of their service package whereby road users could enquire about the real-time traffic conditions at specific locations, the public transport services they could take for specific destinations, and other personalized services. The Administration would also work with the Hong Kong Tourism Board, hotels and public transport operators to provie information kiosks at shopping malls, tourist spots and public transport interchanges where the public could access to TIS and enquire about transport information.

20. When the Panel discussed the progress update on ITSs on 21 March 2003, some members enquired about the functionality of PTIS. The Administration explained that PTIS would be a free service on the Internet providing transport information to the public transport users and motorists for pre-trip planning. The public could access to transport information such as service schedules, locations of stops and routing details on buses and railways by clicking their set off points and destinations on a digitized map and search for their optimum routes with the shortest distance, cheapest fare and least interchange.

21. During discussion on the Administration's proposal to expand JTIS Hong Kong to major approach roads to RHCs on the Kowloon side at the Panel meeting on 24 March 2006, some members expressed doubts about the usefulness of JTIS in easing the traffic flow on critical road corridors and major approach roads to RHCs. These members considered that the traffic imbalance amongst the three RHCs, resulting in heavy congestion at the Cross Harbour Tunnel (CHT), was basically caused by the large differentials in the tolls charged by the three RHCs. The Administration explained that JTIS served to inform commuters of the estimated journey time for travelling from Hong Kong to Kowloon under prevailing traffic conditions so that commuters would be able to decide on the most suitable routes to cross the harbour. This would enhance traffic distribution and alleviate congestion on the approach roads especially those to CHT. A survey conducted by the Administration had also shown that with the aid of JTIS, motorists travelling from Hong Kong Island to Kowloon could save on average 1 600 hours per day in journey time.

Latest developments

22. Hon James TO raised a LegCo question on enhancing efficiency in road utilization by application of advanced technologies at the Council meeting on 25 February 2009. The LegCo question and the Administration's written reply are attached in **Appendix I** for members' reference.

23. The Administration has proposed to brief the Panel on the latest progress of ITSs development in Hong Kong and relevant works projects, such as the installation of speed map panels in the New Territories, at the meeting scheduled for 20 March 2009.

Relevant papers

24. A list of relevant papers is in **Appendix II**.

Council Business Division 1
Legislative Council Secretariat
19 March 2009

Press Releases

LCQ20: Advanced technologies in enhancing efficiency in road utilisation

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Following is a question by the Hon James To and a written reply by the Secretary for Transport and Housing, Ms Eva Cheng, at the Legislative Council meeting today (February 25):

Question:

Regarding enhancement of efficiency in utilisation of roads, will the Government inform this Council:

(a) given that in her reply to a question raised by a Member of this Council on November 21, 2007, the Secretary for Transport and Housing advised that the two key services (i.e. the Intelligent Road Network and the Public Transport Information Service), to be provided by the Transport Information System under development by the Transport Department (TD), were expected to be available to the public in phases starting from the latter half of last year, why such services have not yet been launched, and when the services are expected to be launched;

(b) given that TD had advised on January 18, 2007 that the works to install six sets of journey time indicators in advance of the critical traffic divergent points at the approach roads on Kowloon to the road-harbour crossings were expected to be completed in the middle of this year, of the current progress of the works; whether it will make the indicators available for use in phases based on the progress of the works;

(c) given that the Transport and Housing Bureau had advised in April last year that it would conduct a comprehensive traffic study for West Kowloon (including making recommendations on the road network for the district), and the first phase of the study would be completed in December last year, why the results of the study have not yet been announced, and when they are expected to be announced; and

(d) whether it had conducted studies or had drawn up plans in relation to the development of an intelligent transport system last year; if so, of the details?

Reply:

President,

My replies to the four parts of the question are as follows:

(a) Installation of the Transport Information System (TIS) was completed last year. The Transport Department (TD) is now fine-tuning TIS, linking TIS with related systems of other departments for data exchange, as well as conducting internal testing and data update. TIS provides two services, namely the Public Transport Information Service (PTIS) and the Intelligent Road Network (IRN). They are expected to be available to the public and the industry in phases starting from the second and third quarter of 2009 respectively.

Value-added service providers in the private sector, including telecommunication companies, fleet and freight

operators, as well as logistic and IT organisations, can make use of the IRN information to develop applications of the Intelligent Transport Systems (ITS), such as car navigation, fleet management systems and personalised information services for the public. Public transport passengers can make use of the PTIS to search for their optimum routes based on distance, fare and number of interchanges, while motorists can, through the Internet, search for their optimum driving routes on the digitised map based on options such as distance, time and toll.

(b) The project of extending the Journey Time Indication System (JTIS) to Kowloon commenced in October 2008 for completion and operation in early 2010. As the time taken for pre-qualification of tenderers was longer than expected, the extension works cannot be completed in 2009 as scheduled.

JTIS collects vehicle speed data on journeys passing through the three road harbour crossings for analysis by the central computer. The journey time indicators will display the estimated time for passing through individual crossings. Since JTIS as a whole can function effectively only after passing through all the tests, the completed indicators cannot be put into service early to allow operation of JTIS in phases.

(c) The Comprehensive Transport Study for West Kowloon, including on the road works and pedestrian networks that will be constructed to cope with the future developments in the area, and the questions of how these facilities will work out in a co-ordinated manner, is expected to complete in mid 2009. Before implementing the related works projects and associated traffic management measures, the Government will consult the public and the Yau Tsim Mong District Council (YTMDC). TD, in collaboration with the Highways Department and the MTR Corporation Ltd., has scheduled to consult YTMDC on February 26, 2009 on part of the new transport infrastructure.

(d) TD commissioned the Feasibility Study on Deploying Advanced Technologies in Incident Management in 2007 for completion in mid 2009. In the light of the Study's findings, TD will decide on ways to further use advanced technologies to enhance the capacity of incident management. TD will also review the development strategy of ITS in due course to maximise traffic flow, enhance safety and performance of local road networks, as well as facilitate dissemination of traffic and transport information.

In the meantime, TD is planning the following works projects for ITS development:

- Installation of an additional journey time indicator in the Eastern District;

- Study on the installation of speed map panels at five locations in the New Territories to show road traffic condition ahead with graphic images; and

- Gradual extension of the existing Internet Traffic Speed Map, which covers major roads on the Hong Kong Island, Kowloon and the New Territories South, to all strategic roads across the territory.

Ends/Wednesday, February 25, 2009
Issued at HKT 16:01

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Development of
Intelligent Transport Systems in Hong Kong

List of relevant papers

Date of meeting	Committee	Minutes/Paper	LC Paper No.
16.3.2001	Panel on Transport (TP)	Administration's paper on application of IT to transport management	CB(1)814/00-01(04) http://www.legco.gov.hk/yr00-01/english/panels/tp/papers/a814e04.pdf
		Minutes of meeting	CB(1)1261/00-01 http://www.legco.gov.hk/yr00-01/english/panels/tp/minutes/tp160301.pdf
18.5.2001	TP	Administration's paper on transport information System and journey time indication system	CB(1)1067/00-01 http://www.legco.gov.hk/yr00-01/english/panels/tp/papers/a1067e.pdf
		Minutes of meeting	CB(1)2193/00-01 http://www.legco.gov.hk/yr00-01/english/panels/tp/minutes/tp180501.pdf
		Administration's paper on transport information system and journey time indication system	CB(1)1315/00-01(01) http://www.legco.gov.hk/yr00-01/english/panels/tp/papers/a1315e01.pdf
		Minutes of meeting	CB(1)2193/00-01 http://www.legco.gov.hk/yr00-01/english/panels/tp/minutes/tp180501.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
24.5.2002	TP	Administration's paper on progress update on the Intelligent Transport Systems	CB(1)1784/01-02(01) http://www.legco.gov.hk/yr01-02/english/panels/tp/papers/tp0524cb1-1784-1e.pdf
21.3.2003	TP	Administration's paper on progress update on the Intelligent Transport Systems Minutes of meeting	CB(1)1132/02-03(04) http://www.legco.gov.hk/yr02-03/english/panels/tp/papers/tp0321cb1-1132-4e.pdf CB(1)1456/02-03 http://www.legco.gov.hk/yr02-03/english/panels/tp/minutes/tp030321.pdf
4.11.2005	TP	Administration's paper on progress update on the Intelligent Transport Systems	CB(1)2213/04-05(01) http://www.legco.gov.hk/yr04-05/english/panels/tp/papers/tpcb1-2213-1e.pdf
24.3.2006	TP	Administration's paper on expansion of journey time indication system to Kowloon Administration's supplementary paper on expansion of the journey time indication system Minutes of meeting	CB(1)1111/05-06(02) http://www.legco.gov.hk/yr05-06/english/panels/tp/papers/tp0324cb1-1111-2e.pdf CB(1)325/06-07(01) http://www.legco.gov.hk/yr05-06/english/panels/tp/papers/tp0324cb1-325-1-e.pdf CB(1)1558/05-06 http://www.legco.gov.hk/yr05-06/english/panels/tp/minutes/tp060324.pdf