## 立法會 Legislative Council

LC Paper No. CB(4)951/17-18(08)

Ref.: CB4/PL/TP

#### **Panel on Transport**

#### Meeting on 27 April 2018

Background brief on installation of traffic detectors, Speed Map Panels and Journey Time Indication Systems

#### **Purpose**

This paper provides background information on a proposal to install traffic detectors, Speed Map Panels ("SMPs") and Journey Time Indication Systems ("JTISs"). It also summarizes the major views and concerns expressed by Legislative Council ("LegCo") Members in previous discussions on the above and related subjects.

#### **Background**

#### Journey Time Indication Systems

2. JTISs were commissioned on Hong Kong Island in 2003 <sup>1</sup> and expanded to Kowloon in 2010 <sup>2</sup>. JTISs provide the estimated journey time to exits of respective tunnels from Hong Kong Island to Kowloon and vice versa (see **Appendix I**), and assist motorists to make an informed route choice to cross the harbour before arriving at the critical diversion points. At present, there are 10 sets of JTISs installed and their locations are set out in **Appendix II**.

On 1 June 2001, the Finance Committee approved a new commitment of \$20 million for the provision of a JTIS.

On 12 January 2007, the Finance Committee approved the upgrading of part of 23TC as 24TC, entitled "Expansion of Journey Time Indication System to Kowloon", at an estimated cost of \$54 million in money-of-the-day prices ("MOP").

#### Speed Map Panels

3. Since January 2013, SMPs have been installed in the New Territories at critical diversion points of strategic routes to Kowloon,<sup>3</sup> to provide motorists with real-time traffic information and estimated journey time to choose the most appropriate routes (see Appendix I). Each set of SMP consists of journey time indicators and a series of speed map display which shows a schematic map of the major routes ahead. On different road sections, different colours represent different traffic speeds. Three sets of SMPs are now installed at New Territories East whereas two sets are installed at New Territories West. Their locations are detailed in Appendix II.

#### Traffic detectors

- 4. Traffic detectors are installed as part of a Traffic Control and Surveillance System ("TCSS") (see Appendix I).<sup>4</sup> TCSS helps monitor and manage traffic to improve road safety and efficiency. Currently, not all the strategic routes in Hong Kong are equipped with TCSS. TCSSs are usually installed as part of the road projects when new strategic routes are built, or existing routes are reconstructed (see Appendix II).
- 5. In addition to TCSS, traffic detectors are installed along the parts of strategic routes covered by JTISs and SMPs. As of February 2016, these traffic detectors, together with those for TCSS, covered only about 45% (230 kilometres out of 500 kilometres road sections<sup>5</sup>) of the strategic routes in Hong Kong. The Financial Secretary announced in the 2016-2017 Budget that \$200 million would be allocated to install additional traffic detectors along some strategic routes to provide the public with more real-time traffic information and enhance transport efficiency

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On 3 July 2009, the Finance Committee approved the upgrading of 28TC to Category A at an estimated cost of \$70.9 million in MOP for the construction of SMPs in the New Territories.

<sup>&</sup>lt;sup>4</sup> TCSS comprises CCTV cameras, vehicle detectors, variable speed limit signs, lane control signals and variable message signs installed on highways and bridges with central computer facilities to help monitor and control traffic flows.

<sup>&</sup>lt;sup>5</sup> The total length of strategic routes in Hong Kong is about 250 kilometres. There are two traffic bounds on strategic routes. Since traffic detectors are required for both bounds, the total length of road sections requiring traffic detectors to be installed is 500 kilometres.

("the Project").<sup>6</sup> The locations of proposed installation of 400 sets of traffic detectors are shown in **Appendix III**.

6. After installation of additional traffic detectors, the coverage of traffic detectors along strategic routes in Hong Kong will be increased to about 80%, resulting in more efficient response to traffic incidents on strategic routes, provision of more real-time traffic information to the public, and building up Big Data for transport in Hong Kong. It is expected that traffic detectors installed during the first phase will come into operation in end-2019, while the rest will come into operation in end-2020.

#### <u>Proposed installation of traffic detectors, Speed Map Panels and Journey</u> Time Indication Systems

According 7. information [LC to its paper Paper PWSCI(2017-18)5] provided to the Public Works Subcommittee in December 2017, the Administration proposed to install additional traffic detectors, SMPs and JTISs for the collection and dissemination of real-time traffic conditions. The proposed scope of the Administration's proposal comprised installation of traffic detectors along the remaining strategic routes without traffic detectors and on some selected major roads; provision of additional SMPs and JTISs together with data processing equipment; and provision of data communication equipment for transmission of data. The construction was tentatively scheduled to commence in the fourth quarter of 2018 for completion in the fourth quarter of 2020.

#### Major concerns raised by Legislative Council Members

8. The major views and concerns of LegCo Members on traffic detectors, SMPs and JTISs are summarized in the ensuing paragraphs.

#### **Traffic detectors**

Proposed locations for installing traffic detectors

9. During the deliberation on the installation of traffic detectors at the Panel on Transport ("TP") meeting on 23 May 2016, some members asked

Out of the \$200 million set aside for installation of traffic detectors as announced in the Budget, \$194 million would be for the capital expenditure and the remaining \$6 million would be for one-off non-recurrent expenditure. The former was approved by the Finance Committee on 17 June 2016 whereas the latter was included in the provision in the 2016-2017 Estimates.

why the traffic detectors were to be installed along some, instead of all, strategic routes at the current stage; and whether the Administration would allocate extra resources in the coming financial year to make all local strategic routes to be fully covered by traffic detectors.

- 10. The Administration responded that in the first phase, it planned to install about 400 sets of traffic detectors along strategic routes which had relatively high traffic volumes but not covered by existing TCSS, JTIS and SMPs. After completion of the Project, the Administration would review and consider installing traffic detectors at other major roads.
- 11. At the same TP meeting, some members suggested that, to avoid further aggravating traffic congestion caused by motorists lingering on roads in search of parking spaces, traffic detectors be installed in the vicinity of car parks in busy districts so that motorists could obtain real-time traffic information nearby. There was also a view that the proposed locations for installing traffic detectors should cover Route 9 which was a strategic truck road in the New Territories.
- 12. In this regard, the Administration advised that the first phase of installation would not cover certain strategic routes (e.g. Tuen Mun Road), as they were currently covered by TCSS, JTISs or SMPs. Commuters were already able to obtain real-time information on traffic conditions of these strategic routes through the abovesaid systems to make informed route choices.

Collection and dissemination of real-time traffic information to the public

- 13. Some TP members suggested that, to further enhance transport efficiency, the Administration should collaborate with the private sector, such as mobile network service providers and large international Internet service providers, to collect real-time traffic data.
- 14. The Administration responded that it had approached private service providers who collected data on positions of mobile phones using their mobile network or positions of smartphones with their application software installed, in order to collaborate with them to utilize their positioning data for calculating real-time traffic information, but none of the service providers expressed willingness to collaborate.
- 15. During the discussion of Smart City Blueprint for Hong Kong, under which Smart Mobility was one of the key initiatives of the smart development plans, at its meeting on 8 January 2018, the Panel on Information Technology and Broadcasting noted that the Administration

proposed to complete the installation of about 1 200 traffic detectors on all strategic roads to provide real-time traffic information by 2020. Given that there were other cheaper alternatives (such as capturing data through smart phones) in gathering real-time road traffic information, some members had asked about the justifications for installing traffic detectors. In reply, the Administration advised that some data items (such as the types of vehicles on the road) could not be captured by smart phones and had to be collected using dedicated detectors with specific functions.

- 16. When examining the Estimates of Expenditure 2016-2017 at the Finance Committee meeting on 7 April 2016, some members raised questions, asking what measures the Administration would take to strengthen publicity with a view to enabling the public to get hold of and use the traffic information collected under the Project.
- In response, the Administration replied that the Transport 17. Department ("TD") had been disseminating real-time traffic information through electronic platforms, such as websites and mobile applications of the "Hong Kong eRouting" and "Hong Kong eTransport", to the public. After the installation of traffic detectors under the Project had been completed, the traffic information collected would also be disseminated through these electronic platforms to the public. The additional expenditure for enhancing these existing platforms was about \$50,000. The Administration would publicize the arrangement through press release, announcements on TD's website and notifications through mobile The Administration would also inform the public that applications. datasets containing such information were also available on the Administration's "Data.Gov.Hk" website, so that interested parties might use the datasets to develop mobile applications for wider use.

#### Concern about protection of personal data

- 18. During the discussion on matters in relation to advanced traffic detection technologies at the TP meeting on 9 March 2012, some members expressed concern about the measures to be taken to prevent leakage of personal data collected, such as licence plate numbers of relevant parties. They considered it important to ensure protection of data privacy in adopting traffic detection technologies.
- 19. The Administration responded that to ensure compliance with the Data Protection Principles set out in the Personal Data (Privacy) Ordinance (Cap. 486), all raw data collected by using the above technologies would be encrypted before further processing to make them not recognizable outside the system, and the encrypted raw data would be deleted immediately after

processing. Furthermore, the relevant data would not be stored permanently in the computer system.

#### **Speed Map Panels and Journey Time Indication Systems**

#### Effectiveness of the systems

20. During the examination of the Estimates of Expenditure 2016-2017 at the Finance Committee meeting on 7 April 2016, a member enquired whether the Administration had assessed the effects on road uses respectively due to the additional JTISs and SMPs. According to the Administration's reply, opinion surveys had been conducted after the first launch of JTISs in 2003 and after the commissioning of SMPs in 2013. It was found that most road users welcomed JTISs and SMPs and they agreed that the systems could facilitate them in selecting routes to avoid congested roads/areas and in estimating the arrival time.

#### *Further expansion of the systems*

- 21. At the Finance Committee meeting mentioned above, a member raised a question, asking about the criteria for the installation of additional SMPs and JTISs. In this regard, the Administration explained that the criteria for choosing locations for installation of additional SMPs included: along strategic routes with high traffic flow; at divergent points so that motorists could make informed route choices based on the real-time traffic information provided; and with adequate space for the erection of display panels. Besides, the criteria for choosing locations for installation of additional JTISs included: along the routes which were approaching a road harbour crossing with high traffic flow; at divergent points so that motorists could make informed route choices based on the real-time traffic information provided; and with adequate space for the installation of indicators and associated detector equipment.
- 22. At the Council meeting of 8 July 2015, a Member raised a question on SMPs and JTISs, asking whether the Administration had any plan to expand the said systems to other roads, such as installing SMPs along the trunk roads not leading to road harbour crossings. Further, given that the traffic flow on Kwun Tong Bypass and Lung Cheung Road during rush hours was similar to that on the trunk roads leading to the Cross Harbour Tunnel, he enquired whether the Administration would reconsider installing JTIS in East Kowloon to alleviate the traffic congestion.

23. The Administration replied that five sets of SMPs were installed at diversion points of strategic routes towards Kowloon in the New Territories. TD was considering whether to further install SMPs at diversion points of other strategic routes. Besides, JTISs had already been installed at all diversion points of the strategic cross harbour routes on Hong Kong Island Motorists in East Kowloon could obtain the information and in Kowloon. on estimated journey time to Hong Kong Island via Eastern Harbour Crossing and Cross Harbour Tunnel through the journey time indicator installed at Kai Fuk Road (Kai Tak Tunnel-bound). Thus, TD had no plan to install more journey time indicators in East Kowloon. In addition, the JTIS information was being disseminated through mobile phone TD at that time had no plan to extend JTIS to other cross applications. harbour routes.

#### **Latest developments**

24. The Administration plans to consult members on the proposal to install additional traffic detectors, SMPs and JTISs, as mentioned in paragraph 7 above, at the TP meeting to be held on 27 April 2018.

#### **Relevant papers**

25. A list of relevant papers is in **Appendix IV**.

Council Business Division 4
<u>Legislative Council Secretariat</u>
20 April 2018

**Examples of Journey Time indication System, Speed Map Panel and traffic detector as part of a Traffic Control and Surveillance System in use** 



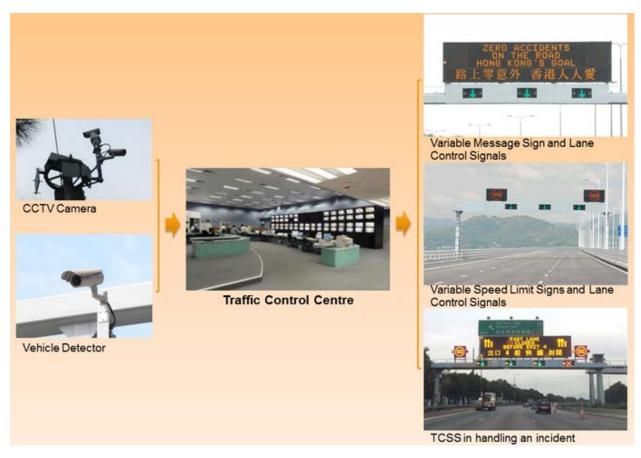
Journey Time Indication System at Waterloo Road southbound near Kowloon Hospital<sup>1</sup>



Speed Map Panel at San Tin Highway southbound near Fairview Park<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> The displayed digits on the journey time indicators are shown in three colours for different traffic conditions: red represents congested traffic, amber represents slow traffic and green represents smooth traffic.

<sup>&</sup>lt;sup>2</sup> Each Speed Map Panel shows a schematic map of the major routes ahead. On different road sections, different colours represent different traffic speeds: red for congested traffic with very slow speed, amber for slow traffic and green for smooth traffic with normal speed.



Traffic Control and Surveillance System

## Locations of Journey Time Indication Systems, Speed Map Panels and traffic detectors

#### **Locations of Journey Time Indication Systems**

- Gloucester Road eastbound near Revenue Tower
- 2. Canal Road Flyover northbound near exit of Aberdeen Tunnel
- 3. Island Eastern Corridor westbound near City Garden
- 4. Island Eastern Corridor westbound near Lei King Wan
- 5. Ferry Street southbound near Charming Garden
- 6. Gascoigne Road eastbound near the Hong Kong Polytechnic University
- 7. Waterloo Road southbound near Kowloon Hospital
- 8. Princess Margaret Road southbound near Oi Man Estate
- 9. Chatham Road North southbound near Fat Kwong Street Playground
- 10. Kai Fuk Road northbound near the petrol stations

#### **Locations of Speed Map Panels**

#### **New Territories East**

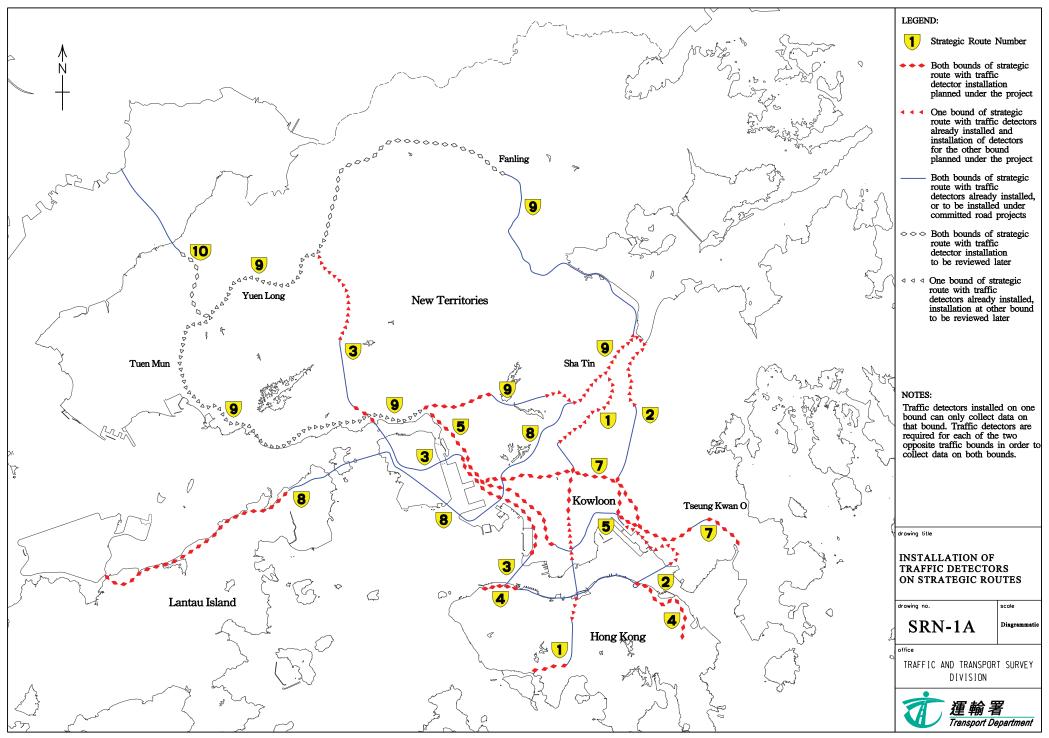
- 1. Tolo Highway southbound near the Science Park
- 2. Tai Po Road southbound near Sha Tin Racecourse
- 3. Tate's Cairn Highway southbound near Shek Mun

#### New Territories West

- 1. San Tin Highway southbound near Fairview Park
- 2. Tuen Mun Road southbound near Tuen Mun San Hui

#### **Locations of traffic detectors**

- 1. Aberdeen Tunnel
- 2. Cross Harbour Tunnel
- 3. Eastern Harbour Crossing
- 4. Kai Tak Tunnel
- 5. Lion Rock Tunnel
- 6. Shing Mun Tunnels
- 7. Tai Lam Tunnel
- 8. Tate's Cairn Tunnel
- 9. Tseung Kwan O Tunnel
- 10. Western Harbour Crossing
- 11. Shenzhen Western Corridor
- 12. Tolo Highway between Sha Tin and Tai Po near Hong Lok Yuen
- 13. Tsing Ma Control Area and the Tsing Sha Control Area
- 14. Central Wanchai Bypass (to be installed)
- 15. Tolo Highway between Tai Po near Hong Lok Yuen and Fanling (to be installed)



Source: Enclosure to LC Paper No. CB(4)997/15-16(05)

# Installation of additional traffic detectors, speed map panels and journey time indication systems

### List of relevant papers

| Date of meeting | Panel/<br>Committee   | Minutes/Paper  | LC Paper No.   |
|-----------------|-----------------------|--|--|
| 18.5.2001       | Panel on<br>Transport | Administration's paper<br>on Transport Information<br>System and Journey<br>Time Indication System | CB(1)1067/00-01<br>https://www.legco.gov.h<br>k/yr00-01/english/panels/<br>tp/papers/a1067e.pdf        |
|                 |                       | Administration's follow-up paper   | CB(1)1315/00-01<br>https://www.legco.gov.h<br>k/yr00-01/english/panels/<br>tp/papers/a1315e01.pdf      |
|                 |                       | Minutes of meeting   | CB(1)2193/00-01<br>https://www.legco.gov.h<br>k/yr00-01/english/panels/<br>tp/minutes/tp180501.pdf     |
| 1.6.2001        | Finance<br>Committee  | Administration's paper<br>on Transport Information<br>System and Journey<br>Time Indication System | FCR(2001-02)7<br>https://www.legco.gov.h<br>k/yr00-01/english/fc/fc/p<br>apers/f01-07e.pdf             |
|                 |                       | Minutes of meeting   | FC149/00-01<br>http://www.legco.gov.hk<br>/yr00-01/english/fc/fc/mi<br>nutes/fc010601.pdf              |
| 24.3.2006       | Panel on<br>Transport | Administration's paper on expansion of Journey Time Indication System to Kowloon                   | CB(1)1111/05-06(02) https://www.legco.gov.h k/yr05-06/english/panels/ tp/papers/tp0324cb1-111 1-2e.pdf |

| Date of meeting | Panel/<br>Committee          | Minutes/Paper   | LC Paper No.   |
|-----------------|------------------------------|---|--|
|                 |                              | Minutes of meeting  | CB(1)1558/05-06<br>https://www.legco.gov.h<br>k/yr05-06/english/panels/<br>tp/minutes/tp060324.pdf                         |
| 19.12.2006      | Public Works<br>Subcommittee | Administration's paper on provision of facilities for traffic incident management and traffic information dissemination in the urban areas and their vicinities | PWSC(2006-07)49 <a href="http://www.legco.gov.hk">http://www.legco.gov.hk</a> /yr06-07/english/fc/pwsc /papers/p06-49e.pdf |
|                 |                              | Minutes of meeting  | PWSC33/06-07 https://www.legco.gov.h k/yr06-07/english/fc/pws c/minutes/pw061219.pdf                                       |
| 12.1.2007       | Finance<br>Committee         | Recommendations of the<br>Public Works<br>Subcommittee made on<br>19 December 2006  | FCR(2006-07)30<br>https://www.legco.gov.h<br>k/yr06-07/english/fc/fc/p<br>apers/f06-30e.pdf                                |
|                 |                              | Minutes of meeting  | FC54/06-07 https://www.legco.gov.h k/yr06-07/english/fc/fc/ minutes/fc070112.pdf   |
| 20.3.2009       | Panel on<br>Transport        | Administration's paper on proposed Speed Map Panels in the New Territories and progress update on the Intelligent Transport Systems                             | CB(1)1049/08-09(05) https://www.legco.gov.h k/yr08-09/english/panels/ tp/papers/tp0320cb1-104 9-5-e.pdf                    |

| Date of meeting | Panel/<br>Committee          | Minutes/Paper  | LC Paper No.  |
|-----------------|------------------------------|--|---|
|                 |                              | Minutes of meeting   | CB(1)1611/08-09 https://www.legco.gov.h k/yr08-09/english/panels/ tp/minutes/tp20090320.p df  |
| 10.6.2009       | Public Works<br>Subcommittee | Administration's paper on speed map panels in the New Territories  | PWSC(2009-10)48 <a href="https://www.legco.gov.h">https://www.legco.gov.h</a> <a href="https://www.legco.gov.h">k/yr08-09/english/fc/pws</a> <a href="https://www.legco.gov.h">c/papers/p09-48e.pdf</a> |
|                 |                              | Minutes of meeting   | PWSC134/08-09<br>http://www.legco.gov.hk<br>/yr08-09/english/fc/pwsc<br>/minutes/pwsc20090610.<br>pdf   |
| 3.7.2009        | Finance<br>Committee         | Recommendations of the Public Works Subcommittee made on 10 and 15 June 2009                               | FCR(2009-10)31<br>http://www.legco.gov.hk<br>/yr08-09/english/fc/fc/pa<br>pers/f09-31e.pdf  |
|                 |                              | Minutes of meeting   | FC8/09-10<br>http://www.legco.gov.hk<br>/yr08-09/english/fc/fc/mi<br>nutes/fc20090703.pdf   |
| 3.3.2010        | Council<br>meeting           | Dr Hon LAM Tai-fai<br>raised a question on<br>traffic congestion on the<br>three road harbour<br>crossings | http://www.info.gov.hk/g<br>ia/general/201003/03/P2<br>01003030140.htm  |
| 9.3.2012        | Panel on<br>Transport        | Administration's paper on trial of advanced traffic detection technologies                                 | CB(1)1157/11-12(03)<br>http://www.legco.gov.hk<br>/yr11-12/english/panels/t<br>p/papers/tp0309cb1-1157<br>-3-e.pdf  |

| Date of meeting | Panel/<br>Committee                          | Minutes/Paper   | LC Paper No.  |
|-----------------|--|---|---|
|                 |  | Minutes of meeting  | CB(1)2490/11-12<br>http://www.legco.gov.hk<br>/yr11-12/english/panels/t<br>p/minutes/tp20120309.p<br>df   |
| 8.7.2015        | Council<br>meeting                           | Hon WU Chi-wai raised<br>a question on providing<br>motorists with traffic<br>information   | http://www.info.gov.hk/g<br>ia/general/201507/08/P2<br>01507070788.htm                                    |
| 29.2.2016       | Panel on<br>Transport                        | Administration's paper on upgrading of the Transport Information System Project of the Transport Department   | CB(4)629/15-16(03) https://www.legco.gov.hk /yr15-16/english/panels/t p/papers/tp20160229cb4- 629-3-e.pdf |
|                 |  | Minutes of meeting  | CB(4)1280/15-16 https://www.legco.gov.hk /yr15-16/english/panels/t p/minutes/tp20160229.p df              |
| 7.4.2016        | Finance<br>Committee<br>(Special<br>meeting) | Replies to initial written questions raised by Finance Committee members in examining the Estimates of Expenditure 2016-2017 (Session No.: 14) (Question Serial Nos. 0467, 1414, 1441, 3458, 4721, 4930 and 6664) | yr15-16/english/fc/fc/w_  |
| 23.5.2016       | Panel on<br>Transport                        | Administration's paper on installation of traffic detectors   | CB(4)997/15-16(05) https://www.legco.gov.hk /yr15-16/english/panels/t p/papers/tp20160523cb4- 997-5-e.pdf |

| Date of meeting | Panel/<br>Committee                              | Minutes/Paper  | LC Paper No.  |
|-----------------|--|--|---|
|                 |  | Administration's follow-up paper   | CB(4)1110/15-16(01)<br>https://www.legco.gov.hk<br>/yr15-16/english/panels/t<br>p/papers/tp20160523cb4-<br>1110-1-e.pdf |
|                 |  | Minutes of meeting   | CB(4)1319/15-16 https://www.legco.gov.hk /yr15-16/english/panels/t p/minutes/tp20160523.p df                            |
| 17.6.2016       | Finance<br>Committee                             | Administration's paper on installation of traffic detectors  | FCR(2016-17)47<br>https://www.legco.gov.hk<br>/yr15-16/english/fc/fc/pa<br>pers/f16-47e.pdf                             |
|                 |  | Minutes of meeting   | FC322/15-16<br>https://www.legco.gov.hk<br>/yr15-16/english/fc/fc/mi<br>nutes/fc20160617b.pdf                           |
| 5.4.2017        | Finance<br>Committee<br>(Special<br>meeting)     | Replies to initial written questions raised by Finance Committee members in examining the Estimates of Expenditure 2017-2018 (Session No.: 13) (Question Serial Nos. 1971, 3005, 3466, 3684, 4481) | https://www.legco.gov.hk<br>/yr16-17/english/fc/fc/w<br>q/thb-t-e.pdf   |
| 8.1.2018        | Panel on Information Technology and Broadcasting | Administration's paper on the Smart City Blueprint for Hong Kong   | CB(4)429/17-18(03)<br>https://www.legco.gov.hk<br>/yr17-18/english/panels/i<br>tb/papers/itb20180108cb<br>4-429-3-e.pdf |

| Date of meeting | Panel/<br>Committee | Minutes/Paper      | LC Paper No.  |
|-----------------|---------------------|--------------------|---|
|                 |                     | Minutes of meeting | CB(4)699/17-18 https://www.legco.gov.hk /yr17-18/english/panels/i tb/minutes/itb20180108. pdf |

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