

For discussion
on 27 April 2018

Legislative Council Panel on Transport

Installation of Additional Traffic Detectors, Speed Map Panel and Journey Time Indication Systems

PURPOSE

This paper seeks Members' views on the following proposals:

- (i) installation of some 520 sets of traffic detectors on strategic routes¹ and major roads to enhance the efficiency of traffic and incident management; and
- (ii) provision of 11 sets of Journey Time Indication Systems (JTISs) and enhancement of an existing Speed Map Panel (SMP) ahead of critical divergent points of strategic routes and major roads, to facilitate members of the public to plan their journeys and select suitable routes or transport modes.

BACKGROUND

2. Traffic detectors detect passing vehicles through different technologies (such as video analytics) to generate traffic data such as vehicular movement and speed. After consolidation and computation of traffic data, real-time traffic information of the relevant road sections (such as average vehicular speed and traffic volume) will be available. At present, some traffic detectors are

¹ Strategic routes include most trunk roads and expressways and are assigned route numbers: Route 1 (Aberdeen to Sha Tin), Route 2 (Quarry Bay to Ma Liu Shui), Route 3 (Sai Ying Pun to Yuen Long), Route 4 (Chai Wan to Kennedy Town), Route 5 (Ngau Tau Kok to Tsuen Wan), Route 6 (Tseung Kwan O to West Kowloon), Route 7 (Tseung Kwan O to Kwai Chung), Route 8 (Sha Tin to Chek Lap Kok), Route 9 (New Territories Circular Route), Route 10 (Shenzhen Port Area to Lam Tei)

installed in Traffic Control and Surveillance Systems (“TCSS”)². TCSS help monitor and manage traffic in order to improve road safety and efficiency. Currently, not all strategic routes in Hong Kong are equipped with TCSS. TCSS are usually installed at the same time as part of the road projects when new strategic routes are built or existing routes are reconstructed³.

3. In addition to TCSS, some traffic detectors are installed along parts of strategic routes equipped with JTISs and SMPs. At present, all the installed traffic detectors cover about 45% of the strategic routes in Hong Kong.

4. One of the “smart mobility” initiatives in the “Hong Kong Smart City Blueprint” promulgated in December 2017 is to install traffic detectors on all strategic routes to provide real-time traffic information. This initiative will be implemented in two phases. The design and construction costs of the first phase of installation of about 550 traffic detectors on parts of the strategic routes were approved by the Legislative Council (“LegCo”) in mid-2016; and the relevant design work was completed in October 2017. It is anticipated that the installation contract for the first phase will be awarded in mid-2018 and the works will be completed by end-2020. This proposed project belongs to the second phase of installation.

5. In addition, JTISs are installed at critical divergent points to provide the estimated journey time from specific divergent points to the exit portals of various cross-harbour tunnels, and assist motorists to make an informed route choice. SMPs are schematic electronic maps installed at critical divergent points of strategic routes, using different colours to indicate real-time traffic conditions on the roads ahead and the estimated journey times. Pictures of an

² TCSS comprise CCTV cameras, traffic detectors, variable speed limit signs, lane control signals and variable message signs installed on highways with central computer facilities to help monitor and control traffic flows.

³ TCSS have been installed in the following locations: Aberdeen Tunnel, Cross Harbour Tunnel, Eastern Harbour Crossing, Kai Tak Tunnel, Lion Rock Tunnel, Shing Mun Tunnels, Tai Lam Tunnel, Tate’s Cairn Tunnel, Tseung Kwan O Tunnel, Western Harbour Crossing, Shenzhen Western Corridor, Tolo Highway between Sha Tin and Tai Po near Hong Lok Yuen, Tsing Ma Control Area and Tsing Sha Control Area. TCSS will also be installed at Central–Wanchai Bypass, Hong Kong Boundary Crossing Facilities of Hong Kong–Zhuhai–Macao Bridge, Hong Kong Link Road and Tuen Mun–Chek Lap Kok Link, connecting road linking up the Liantang/Heung Yuen Wai Boundary Control Point and the existing Fanling Highway, Tolo Highway between Tai Po near Hong Lok Yuen and Fanling, Tseung Kwan O–Lam Tin Tunnel, Tseung Kwan O Cross Bay Link, Tai Po Road (Sha Tin Section) between Fo Tan Road and Sha Tin Rural Committee Road, Central Kowloon Route and Trunk Road T2.

existing JTIS and an existing SMP are shown at **Annex 1**. There are currently 10 sets of JTISs and 5 SMPs⁴ in Hong Kong. Information shown on JTISs and SMPs is simultaneously disseminated through Transport Department (“TD”)’s website, mobile applications and the Government’s website “data.gov.hk” for reference to facilitate the public to better plan their journeys and select routes or transport modes.

PROPOSAL

6. To enable TD to have a complete picture of the traffic conditions of all strategic routes and major roads of Hong Kong, enhance the efficiency of handling traffic incidents and traffic management, and provide traffic data for the proposed JTISs and SMP mentioned in paragraph 8 below, we propose to install some additional 520 traffic detectors. The proposed locations for installing the additional traffic detectors are shown at **Annex 2**. We will install three types of traffic detectors, including:

- (i) video detectors – collect data on traffic speed and volume and automatically detect traffic incidents on roads through video analytics;
- (ii) automatic licence plate recognition detectors – collect traffic volume of different vehicle classes on roads through matching of licence plate numbers captured by the detectors and TD’s vehicle licensing system; and
- (iii) bluetooth detectors – generate data on average vehicular speed and journey time by detecting bluetooth devices in vehicles.

⁴ 10 sets of JTISs are installed in the following locations: Gloucester Road eastbound near Revenue Tower, Canal Road Flyover northbound near exit of Aberdeen Tunnel, Island Eastern Corridor westbound near City Garden, Island Eastern Corridor westbound near Lei King Wan, Ferry Street southbound near Charming Garden, Gascoigne Road eastbound near the Hong Kong Polytechnic University, Waterloo Road southbound near Kowloon Hospital, Princess Margaret Road southbound near Oi Man Estate, Chatham Road North southbound near Fat Kwong Street Playground and Kai Fuk Road northbound near the petrol stations.

5 SMPs are installed in the following locations: San Tin Highway near Fairview Park, Tolo Highway near the Science Park, Tuen Mun Road near Tseng Choi Street, Tai Po Road near Sha Tin Racecourse and Tate’s Cairn Highway near Shek Mun.

7. After removing personal data, traffic data collected by traffic detectors will be disseminated through TD's websites, mobile applications and the Government's website "data.gov.hk". TD has been handling all personal data collected strictly in accordance with the Personal Data (Privacy) Ordinance.

8. In addition, to facilitate the public to better plan their journeys ahead and select suitable routes or transport modes, we propose to provide an additional 11 sets of JTISs (proposed locations are detailed in **Annex 3**). We also propose to enhance an existing SMP at San Tin Highway near Fairview Park so that traffic conditions of roads leading to the Airport can be shown (as illustrated in **Annex 4**). Information shown on JTISs and SMPs will similarly be disseminated through TD's websites, mobile applications and the Government's website "data.gov.hk".

PROJECT SCOPE

9. The scope of the proposed project comprises the following:

- (i) Installation of traffic detectors on strategic routes and major roads for collection of real-time traffic data for automatic detection of traffic incidents, traffic management and dissemination of real-time traffic information to the public;
- (ii) Provision of JTISs and enhancement of an existing SMP, and the associated installation of traffic detectors and data processing equipment for dissemination of real-time traffic conditions to the public;
- (iii) Provision of data communication equipment for transmission of data collected by traffic detectors and for dissemination of information to the JTISs and SMP; and
- (iv) Associated civil, electrical and mechanical works, including installation of overhead gantries, mounting poles, roadside cabinets and cable ducts.

JUSTIFICATIONS

10. After completion of the proposed project, all strategic routes and major roads will be equipped with traffic detectors, so that TD can comprehensively monitor their traffic conditions, strengthening TD's capability in handling traffic incidents as well as traffic management. In addition, relevant traffic incident information will be disseminated to other stakeholders (including public transport operators, Hong Kong Police Force and Fire Services Department) for coordination in handling traffic incidents, thereby enhancing traffic incident management.

11. TD has been disseminating real-time traffic information through various electronic platforms, such as websites and mobile applications; and uploading the datasets of real-time traffic information to the Government public information portal "data.gov.hk". The expanded coverage of traffic detectors, JTISs and SMPs under this project will enable more real-time traffic data and information to be provided for public use, assisting them to better plan their journeys and selecting suitable transport modes.

FINANCIAL IMPLICATIONS

12. We estimate that the cost of the project will be about \$238.6 million in money-of-the-day prices.

IMPLEMENTATION PROGRAMME

13. Subject to funding approval by the LegCo's Finance Committee, the project will be implemented according to the following programme:

<u>Activity</u>	<u>Target Completion Date</u>
(i) Invitation of tender for the installation works	Second half of 2018
(ii) Commencement of installation contract	Q1 2019

<u>Activity</u>	<u>Target Completion Date</u>
(iii) Systems commissioning	End 2020

PUBLIC CONSULTATION

14. TD has submitted an information paper on this project to the 18 District Councils in early April 2018 and has not received any objection so far.

ADVICE SOUGHT

15. Members are invited to comment on the proposed project.

Transport and Housing Bureau
Transport Department
April 2018

Journey Time Indication System and Speed Map Panel 行車時間顯示系統 與 行車速度屏



Journey Time Indication System
行車時間顯示系統



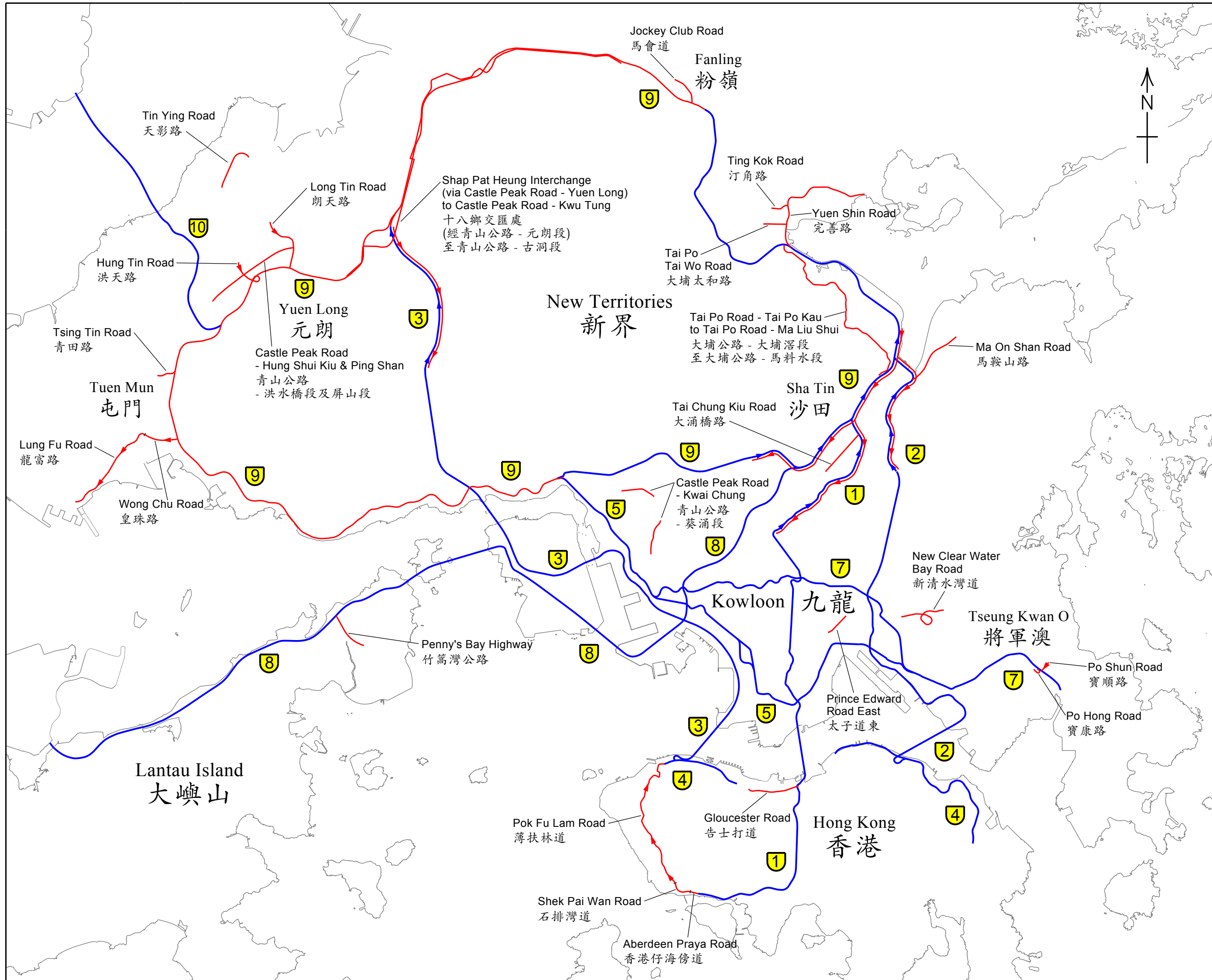
Speed Map Panel
行車速度屏

Locations of the Proposed Traffic Detectors (see attached map)

擬議安裝交通探測器的地點（見附圖）

<p>Hong Kong Island 香港島</p>	<p>Gloucester Road 告士打道 Shek Pai Wan Road 石排灣道</p>	<p>Aberdeen Praya Road 香港仔海傍道 Pok Fu Lam Road 薄扶林道</p>
<p>Kowloon 九龍</p>	<p>Prince Edward Road East 太子道東</p>	
<p>New Territories East 新界東</p>	<p>Route 1 一號幹線 Route 2 二號幹線 Route 9 九號幹線 New Clear Water Bay Road 新清水灣道 Tai Po Tai Wo Road 大埔太和路 Ting Kok Road 汀角路 Yuen Shin Road 完善路</p>	<p>Tai Po Road – Tai Po Kau to Tai Po Road – Ma Liu Shui 大埔公路-大埔滘段至大埔公路-馬料水段 Tai Chung Kiu Road 大涌橋路 Ma On Shan Road 馬鞍山道 Po Shun Road 寶順路 Po Hong Road 寶康路 Jockey Club Road 馬會道</p>

<p>New Territories West 新界西</p>	<p>Route 3 三號幹線 Route 9 九號幹線 Wong Chu Road 皇珠路 Lung Fu Road 龍富路 Tsing Tin Road 青田路 Hung Tin Road 洪天路</p>	<p>Castle Peak Road – Hung Shui Kiu & Ping Shan 青山公路-洪水橋段及屏山段 Long Tin Road 朗天路 Tin Ying Road 天影路 Castle Peak Road – Kwai Chung 青山公路-葵涌段 Shap Pat Heung Interchange (via Castle Peak Road – Yuen Long) to Castle Peak Road – Kwu Tung 十八鄉交匯處(經青山公路-元朗段)至青山公路-古洞段</p>
<p>Islands 離島</p>	<p>Penny's Bay Highway 竹篙灣公路</p>	



LEGEND :
圖例 :

9 Strategic Route Number
主要幹線編號

— Roads with existing traffic detectors or traffic detectors to be installed in Phase 1. Those with arrow (→) indicate carriageways installed or to be installed with traffic detectors in that direction only.
已裝置有交通探測器或將會在第一期工程安裝交通探測器的道路。有箭咀者 (→) 表示祇有在該行車道方向裝有或將裝有交通探測器。

— Roads with traffic detectors to be installed in this Project. Those with arrow (→) indicate carriageways to be installed with traffic detectors in that direction only.
將在本工程項目安裝交通探測器的道路。有箭咀者 (→) 表示祇有在該行車道方向將裝有交通探測器。

INSTALLATION OF ADDITIONAL TRAFFIC DETECTORS, SPEED MAP PANEL AND JOURNEY TIME INDICATION SYSTEMS
安裝新增的交通探測器、行車速度屏和行車時間顯示系統

drawing title
LOCATION PLAN FOR TRAFFIC DETECTORS
交通探測器位置圖

drawing no. 6029TC/SK/001	scale 1 : 120 000
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office
TRAFFIC AND TRANSPORT SURVEY DIVISION



Proposed Locations of Journey Time Indication System
擬議的行車時間顯示系統的地點

1. Wong Nai Chung Road (near junction with Queen's Road East)
黃泥涌道 (近皇后大道東交界)
2. Ap Lei Chau Bridge
鴨脷洲大橋
3. West Kowloon Highway (near MTR Nam Cheong Station)
西九龍公路 (近港鐵南昌站)
4. Long Tin Road (near Parkside Villa)
(To be commissioned after opening of Tuen Mun – Chek Lap Kok Link)
朗天路(近柏麗豪園) (將在屯門至赤鱗角連接路通車後投入使用)
5. Hong Tin Road (near junction with Hung Chi Road)
(To be commissioned after opening of Tuen Mun – Chek Lap Kok Link)
洪天路 (近洪志路交界) (將在屯門至赤鱗角連接路通車後投入使用)
6. Yuen Long Highway (near Shap Pat Heung Interchange)
元朗公路 (近十八鄉交匯處)
7. Fanling Highway (near Kwu Tung)
粉嶺公路 (近古洞)
8. Tai Po Road (near Kwong Fuk Estate)
大埔公路 (近廣福邨)
9. Po Shun Road (near Chung Ming Court)
寶順路 (近頌明苑)
10. Wan Po Road (near Hong Kong Velodrome)
環保大道 (近香港單車館)
11. Po Hong Road (near KMB Tseung Kwan O Depot)
寶康路 (近九巴將軍澳車廠)

1

Wong Nai Chung Road (near junction with Queen's Road East) 黃泥涌道 (近皇后大道東交界)



Existing Directional Signs 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



2

Ap Lei Chau Bridge 鴨脷洲大橋



Existing Directional Sign 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



3

West Kowloon Highway (near MTR Nam Cheong Station) 西九龍公路 (近港鐵南昌站)



Existing Directional Sign 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



4 Long Tin Road (near Parkside Villa) 朗天路(近柏麗豪園)



Existing Directional Sign 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



5

Hong Tin Road (near junction with Hung Chi Road) 洪天路 (近洪志路交界)

Existing Directional Sign 現時的路線指示標誌:



Directional Sign after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



6

Yuen Long Highway (near Shap Pat Heung Interchange) 元朗公路 (近十八鄉交匯處)



Existing Directional Signs 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



7 Fanling Highway (near Kwu Tung) 粉嶺公路 (近古洞)



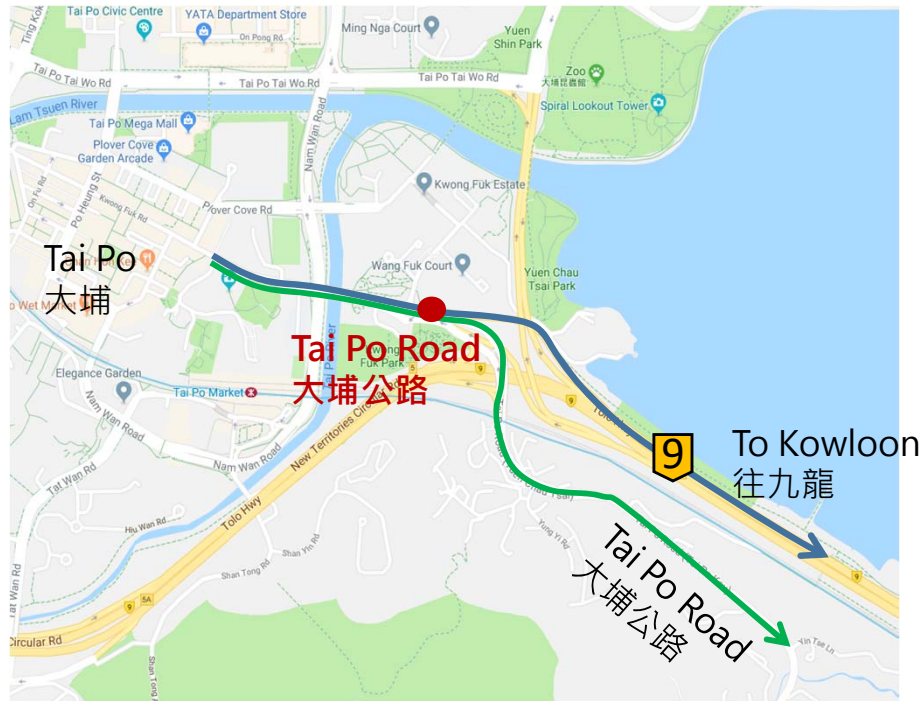
Existing Directional Signs 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



8 Tai Po Road (near Kwong Fuk Estate) 大埔公路 (近廣福邨)



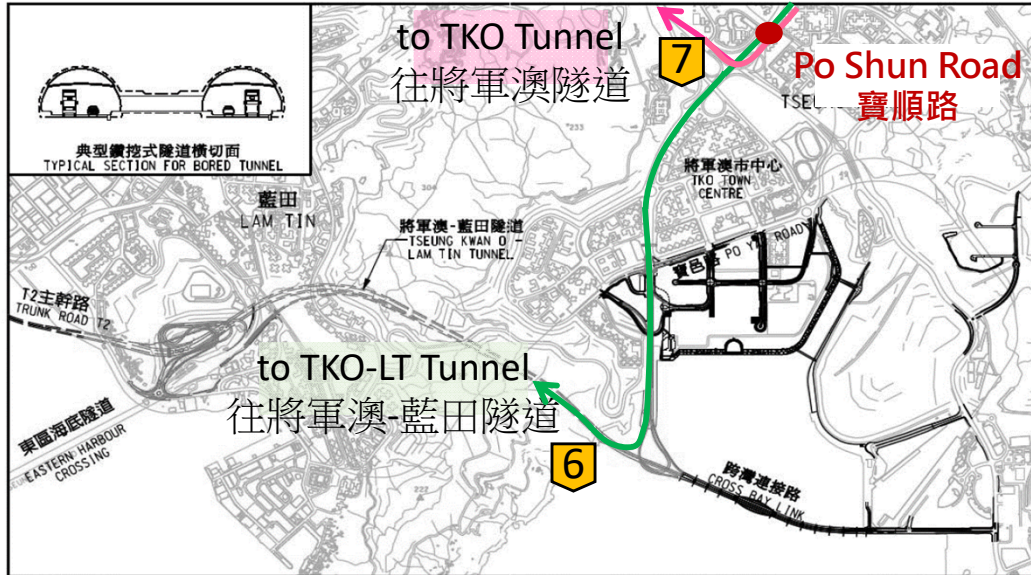
Existing Directional Sign 現時的路線指示標誌:



Directional Sign after Addition of Proposed Journey Time Indication System:
加設擬議行車時間顯示系統後的交通標誌:



9 Po Shun Road (near Chun Ming Court) 寶順路 (近頌明苑)



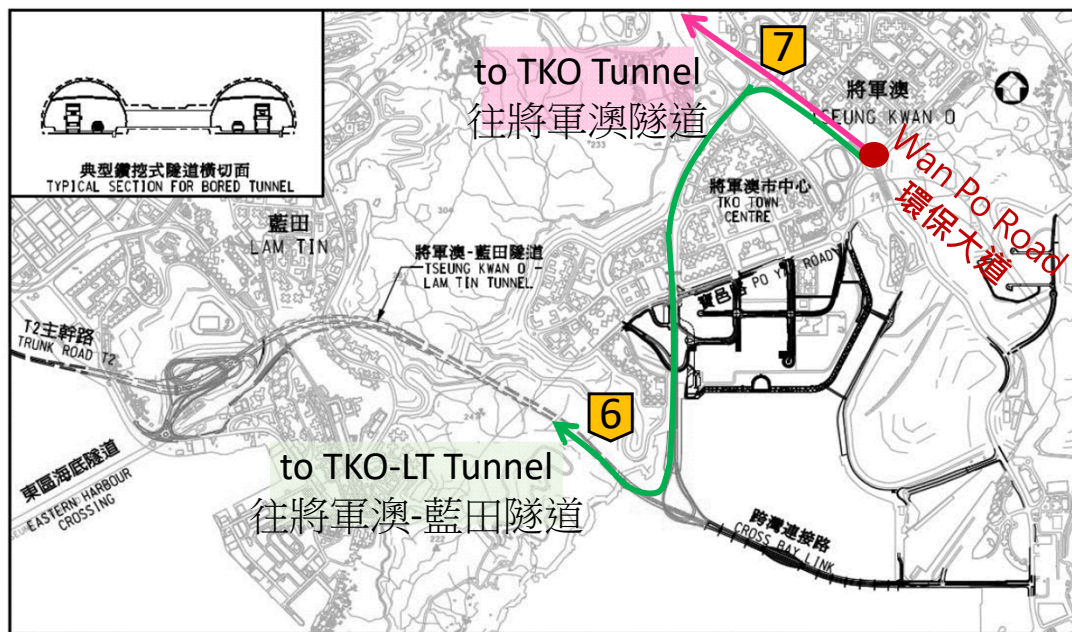
Existing Directional Sign 現時的路線指示標誌:



Directional Sign after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



10 Wan Po Road (near Hong Kong Velodrome) 環保大道 (近香港單車館)



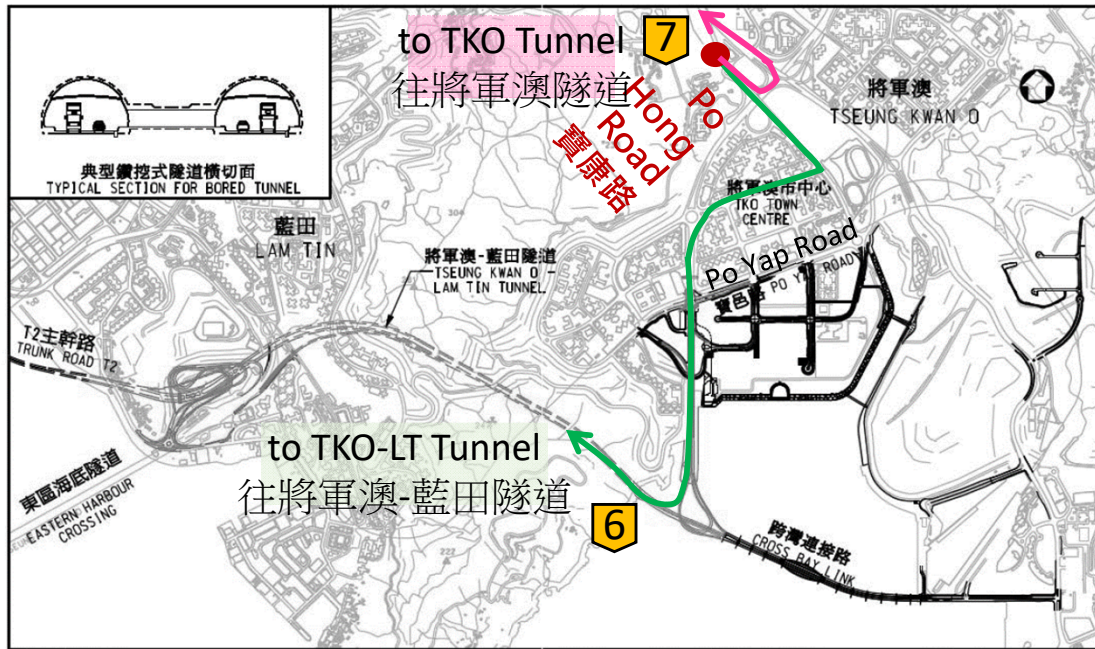
Existing Directional Signs 現時的路線指示標誌:



Directional Signs after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



11 Po Hong Road (near KMB Tseung Kwan O Depot) 寶康路 (近九巴將軍澳車廠)



Existing Directional Sign 現時的路線指示標誌:



Directional Sign after Addition of Proposed Journey Time Indication System 加設擬議行車時間顯示系統後的交通標誌:



Proposed Enhancement of a Speed Map Panel

擬議改善的行車速度屏

1. San Tin Highway (near Fairview Park)

新田公路（近錦綉花園）

1 San Tin Highway (near Fairview Park) 新田公路 (近錦綉花園)



Existing Speed Map Panel 現時的行車速度屏:



Proposed Speed Map Panel 擬議的行車速度屏:

