

## **For Information**

### **Legislative Council Panel on Transport Subcommittee on Matters Relating to Railways**

### **The Hong Kong Section of the Guangzhou-Shezen-Hong Kong Express Rail Link**

### **Associated transport facilities in support of the West Kowloon Terminus**

## **Introduction**

This paper provides Members with supplementary information on improvement schemes for the road and pedestrian connections at the West Kowloon New Development Area (WKND), in support of the West Kowloon Terminus (WKT) of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL), the West Kowloon Cultural District (WKCD) and other developments in West Kowloon.

## **Planning background**

2. In the “Hong Kong 2030 : Vision and Strategy” published in 2007, Planning Department pointed out that together with the new office buildings built on top of the Kowloon Station, West Kowloon district (including the area where the XRL Terminus will be built) has the potential to develop into a new cluster of high grade offices, thereby help sustain the development of the local financial and commercial service sector. West Kowloon, where the Hong Kong Terminus of the XRL is to be located, is in proximity to most of the commercial, retail, hotel and residential areas, and is well served by existing and planned railway and road networks. From the strategic planning

perspective, locating the XRL Terminus in West Kowloon will facilitate West Kowloon to develop into a new area for premium offices and achieve synergy with the WKCD.

### **Methodology of the Traffic Study for the West Kowloon Development Area**

3. To better accommodate the developments mentioned above, Transport Department conducted a traffic consultancy study (the Study) for the WKNDA in 2008. The purpose of the study is to improve road and pedestrian connections, to tackle congestion at some of the junctions in West Kowloon, and to address the traffic need of the entire WKNDA (including the WKCD and the WKT). The methodology adopted in the Study is as follow: –

- (a) To collect the prevailing (Year 2008) traffic data for developing and calibrating a district transport model for the WKNDA; as well as to identify short-term improvement measures. The district transport model covers all major roads and 41 junctions in West Kowloon, including those on the south of and west of Waterloo Road and Nathan Road.
- (b) To collect trip rates for various types of property developments, performance venues and hotels, etc. for assessing traffic volume generated by future developments in WKNDA. The consultants provide a preliminary estimation of the long-term traffic demand by applying the territorial strategic transport model with the latest planning assumptions. Taking such data as input, the long-term traffic situation (Year 2031) for the study area were estimated using the district transport model, problematic junctions were identified.
- (c) To assess various traffic improvement measures with the aids of the district transport model, and to recommend feasible long-term improvement measures and formulate a comprehensive long-term transport improvement plan.

4. The basic design philosophy of the Study is to segregate inter-district and local traffic by a three-layered road network (one at-grade layer, and two underground layers). Such design connects the local network directly to major roads in the region (e.g. West Kowloon Highway, West Kowloon Corridor, West Harbour Crossing, and the future Central Kowloon Route), ensuring smooth inter-district and local traffic flow. The Study mentioned above has been deposited with the Secretariat of the Subcommittee on Matters Relating to Railways (Railways Subcommittee) for Members' reference.

### **Road Improvements**

5. The Administration has listed out the following major road construction projects and improvement schemes in support of the developments in the WKND in the paper submitted to the Railways Subcommittee on 13 November 2009 (LegCo Paper CB(1)389/09-10(01)) –

- a) construction of an underpass connecting Austin Road West (near Canton Road) and Lin Cheung Road (north of Jordan Road), separating the inter-district traffic from and local traffic, thus providing an unobstructed access to WKCD, WKT and Kowloon Station;
- b) undertaking the improvement works at the Canton Road/Austin Road junction, including exploring the construction of the Canton Road Underpass and extending the existing subway system;
- c) implementation of other network improvement works, linking the WKCD directly to the nearby highways, so as to alleviate the burden on local transport network. These works include:
  - ◇ to modify the Public Transport Interchange at the Kowloon outlet of the Western Harbour Crossing (WHC), to allow vehicles to pass through the elevated pass way of the Jordan

Road for direct connection to the WKND A;

- ◇ to construct a new elevated road link from the elevated Nga Cheung Road (NCR) to WHC (Hong Kong bound);
- ◇ to construct direct connection from NCR to West Kowloon Highway (northbound) passing through Hoi Po Road;
- ◇ to construct direct road link from West Kowloon Highway (southbound) to NCR;
- ◇ to widen sections of Austin Road West, Jordan Road and Lin Cheung Road;
- ◇ to widen and enhance Wui Man Road between WKT and Austin Station, and to extend and connect to Yan Cheung Road and Hoi Wang Road, to provide additional north-south routes; and
- ◇ to implement other improvement measures of a smaller scale, such as road widening.

6. Apart from the schemes mentioned above, the Study recommended a series of junction improvement and traffic management measures along Canton Road and Jordan Road to further improve the capacities of these junctions. Relevant details are listed below–

a) Junction of Lin Cheung Road/ Jordan Road/

Lin Cheung Road southbound will be widened from five to six traffic lanes at the junction approach to provide two left turn lanes and four straight ahead lanes. Jordan Road eastbound will be widened from four traffic lanes to five traffic lanes at the approach to provide one left turn lane, one left-turn and straight ahead share lane, two straight ahead lanes and one right-turn and straight ahead share lane. In addition, the underpass mentioned at paragraph 5(a)

above will segregate through traffic along Lin Cheung Road and other traffic passing through the junction. Together with other measures mentioned above, the reserve capacity of the junction of Lin Cheung Road/Jordan Road will be substantially improved.

b) Junction of Jordan Road/Ferry Street/Canton Road

Jordan Road eastbound will be widened from two to three traffic lanes. All right turn traffic heading towards Ferry Street northbound will be diverted to the Road D1 to be formed under the Express Rail Link project, and passing through Wui Cheung Road eastbound, Canton Road northbound and then to Ferry Street northbound. This will simplify the method of control at the junction (reducing the existing four stages signalling arrangement to three stages) and will increase the capacity of the junction.

c) Junction of Canton Road/Wui Cheung Road

The traffic lanes of the Canton Road southbound will be re-arranged to provide three straight ahead traffic lanes and one right turn traffic lane. The Canton Road northbound approach will be widened to add one traffic lane, i.e. three straight ahead traffic lanes and one left turn traffic lane will be provided.

d) Junction of Austin Road/Canton Road/Austin Road West

Besides the proposed Canton Road underpass, the junction layout and the signalling control of traffic light at the junction will be re-designed to increase the junction capacity, including the widening of existing Austin Road West from two traffic lanes to eight traffic lanes (i.e. five eastbound traffic lanes and three westbound traffic lanes).

e) Junction of Canton Road/Kowloon Park Drive

The signalling control of traffic light at this junction will be enhanced and the Kowloon Park Drive southbound will be widened from one to two lanes.

7. The above junction improvement measures, including the three-layered road network (except the Canton Road Underpass), are scheduled to be completed before the commissioning of the WKT by 2015. The estimated traffic flows in 2031 for concerned road junctions are given at **Annex 1** and **Annex 2**. Taking Jordan Road/Lin Cheung Road junction shown at Annex 1 as an example, vehicles enter this road junction from four directions under different phases of the signal cycle. The Annexes also provide the traffic flows forecast for the go-straight, left-turn and right-turn movements at each of the approaches at morning and evening peaks in 2031. Based on these traffic flows forecasts and the control of the signalised road junction, we can work out the reserve capacity of the junction.

8. Upon the completion of the major roadworks and the above road junction improvement measures, together with the commissioning of the proposed Central Kowloon Route which will divert the traffic flow to and from East Kowloon, the traffic situation in the WKNDA will be substantially improved and the capacity of the road junctions will be adequate to cope with traffic demand up to 2031. The existing and the future reserve capacity in 2031 (upon completion of road improvement) are at **Table 1**, **Annex 3** and **Annex 4**. In general, when the reserve capacity is more than 5%, most vehicles will pass through the road junction without waiting for more than one signal cycle. The larger the reserve capacity, the more traffic flow the road junction will be able to cope with.

**Table 1 – Reserve Capacity of Major Road Junctions**

<b>Road Junction</b>	<b>2008</b>		<b>2031</b>	
	<b>Reserve Capacity</b>		<b>Reserve Capacity</b>	
	<b>a.m.</b>	<b>p.m.</b>	<b>a.m.</b>	<b>p.m.</b>
Jordan Road/Ferry Street/ Canton Road	-6%	-6%	35%	33%
Jordan Road/New road D1	not yet built	not yet built	13%	22%
Jordan Road/Lin Cheung Road	1%	1%	12%	15%
Lin Cheung Road/Austin Road West	0.3 <sup>*</sup>	0.5 <sup>*</sup>	46%	11%
Lin Cheung Road/Wui Cheung Road	-14%	-10%	N.A. <sup>#</sup>	
Canton Road/Wui Cheung Road	4%	15%	18%	18%
Canton Road/Austin Road	8%	7%	34% <sup>^</sup> (12%)	8% <sup>^</sup> (8%)
Canton Road/Kowloon Park Drive	3%	26%	7%	27%
New Road D1/Wui Cheung Road/ Wui Man Road	not yet built	not yet built	14%	30%

\* The existing road junction at Lin Cheung Road/Austin Road West is a roundabout. The smaller the number quoted, the greater is the reserve capacity.

# This road junction will be removed after the completion of the Lin Cheung Road/Austin Road West Underpass.

<sup>^</sup> The figure given is for the situation with Canton Road Underpass constructed. The figure given in bracket is for the situation with the construction of the fallback option, i.e. with further road junction widening to replace the Underpass.

### **Traffic impact during the period of construction**

9. As regards the arrangement of temporary traffic diversion during the construction of the XRL Terminus in West Kowloon, the MTR Corporation Limited (MTRCL) has engaged consultants to assess the traffic and pedestrian impact of the Hong Kong section of the XRL to the

neighbourhood during the construction stage; and to make recommendation on the respective diversion scheme and mitigation measures. According to the assessment, the temporary diversion scheme in West Kowloon can basically be divided into five major phases, of which each will be around 10 to 20 months, so as to help drivers and pedestrian to get familiar with the temporary transport arrangement.

10. The temporary traffic diversion scheme has taken into account the traffic volume arising from the neighbouring development. In gist, traffic condition in the West Kowloon will basically not be affected by the construction of the XRL. Upon commissioning of the construction work, the contractors will liaise with the Transport Department, the Police and the Highways Department on the temporary traffic diversion arrangement in greater detail. District Councils, relevant organisation and the residents will be consulted on any major temporary traffic diversion arrangement, so as to minimise impact to the community.

### **Pedestrian Connection within the West Kowloon New Development Area and with the adjacent district**

11. Upon the completion of the XRL, WKT will develop into a railway hub, with linkage to the Kowloon Station of the Airport Express and the Austin Station of the Kowloon Southern Link through at-grade pedestrian zones, footbridges and subways. We estimate that Kowloon Station will be some eight to ten minutes' walk from the XRL Terminus, while it will take about two to three minutes to walk from the terminus to Austin Station. Travelators, escalators and lifts will be installed for most of these footbridges and subways to provide barrier-free access for the public. In addition, it will take only a minute to walk from the terminus to the bus stop (for various bus lines) located right next to the terminus.

12. As regards the connection with the adjacent district, currently passengers going to Jordan Station from Austin Station can make use of the two pedestrian subways (i.e. the Jordan Road/Ferry Street/Canton Road pedestrian subway or the Austin Road/Canton Road/Austin Road West



pedestrian subway) and route through ground level on the Jordan Road or Austin Road West.

13. To further improve the pedestrian facilities connecting the WKND A with Nathan Road and Jordan Station, we are considering the improvements to the Austin Road/Canton Road/Austin Road West pedestrian subway. We will also consider various alignment options, including a subway beneath Bowring Street linking Austin Station with the existing Austin Road/Canton Road subway (**Annex 5**). Through this proposed passageway, pedestrians will have a comfortable environment going to and from Nathan Road/Jordan Station and WKND A. The scheme is still under a planning stage. Subject to the public views and comments from District Council, we will proceed to study the technical feasibility of the scheme.

#### **Access Time to West Kowloon Terminus**

14. According to the patronage forecast (list at **Table 2**), non-Hong Kong residents and Hong Kong residents travelling on business purposes will account for 30% and 24% of the XRL passengers respectively. Thus, while the connectivity with major residential areas will be important to the WKT, the Terminus' connectivity with commercial, hotel and shopping areas cannot be overlooked.

**Table 2** — Distribution of Types and Trip Purposes for the XRL Passengers

<b>XRL Passenger Type</b>	<b>Trip Purpose</b>	<b>Distribution for XRL passengers in 2016</b>
Hong Kong residents	Business	24%
	Non-business	46%
	<b><i>Total</i></b>	<b><i>70%</i></b>
Non-Hong Kong residents	Business	12%
	Non-business	18%
	<b><i>Total</i></b>	<b><i>30%</i></b>

15. The location of the WKT is convenient to passengers travelling from their places of living as well as places of working. Setting off from West Kowloon, passengers can choose to take the Kowloon Southern Link to reach Tsim Sha Tsui in five minutes, or the Tung Chung Line to Central in 10 minutes, to Tsuen Wan in 20 minutes, to Taikoo Shing in 30 minutes or to Kwun Tong in 35 minutes. Passengers can also reach Kwun Tong or Tsuen Kwan O in 15 to 20 minutes by road transport (after the completion of the Central Kowloon Route) or in 30 minutes to most of the areas in the New Territories (e.g. Shatin, Yuen Long and the Hong Kong International Airport).

### **Mode of Access for West Kowloon Terminus**

16. With reference to the modes of access for other major transport hub in Hong Kong, we estimate that approximately 50% of the passengers of the XRL will use rail access, 33% taxi or private cars, 12% coach or bus, while the remaining 5% will be on foot. **Annex 6** shows the modes of transport used by passengers to gain access to Through Train terminal at Hung Hom, the Airport Express stations, the Hong Kong International Airport and the expected pattern for the XRL.

17. WKT will be connected to and interchange with two domestic rail lines, including the Airport Express to the airport and the Tung Chun line connecting the Hong Kong Island and Lantau, as well as the West Rail connecting the New Territories West and Hung Hom. As such, we expect that there will be more passengers using rail access when compared with the access mode for Through Train passengers in Hung Hom.

18. With reference to the interchange mode for Through Train and Airport Express, a significant proportion of passengers will still use taxi or bus to gain access to the railway stations. For shorter journeys, taxis or private cars provide the desired flexibility and comfort at an affordable price; while more people will opt for coach or bus for longer journeys. As the XRL terminus is located at the urban centre of West Kowloon, we expect more




passengers will use taxi/private car than coach/bus when comparing with the access mode for airport passengers.

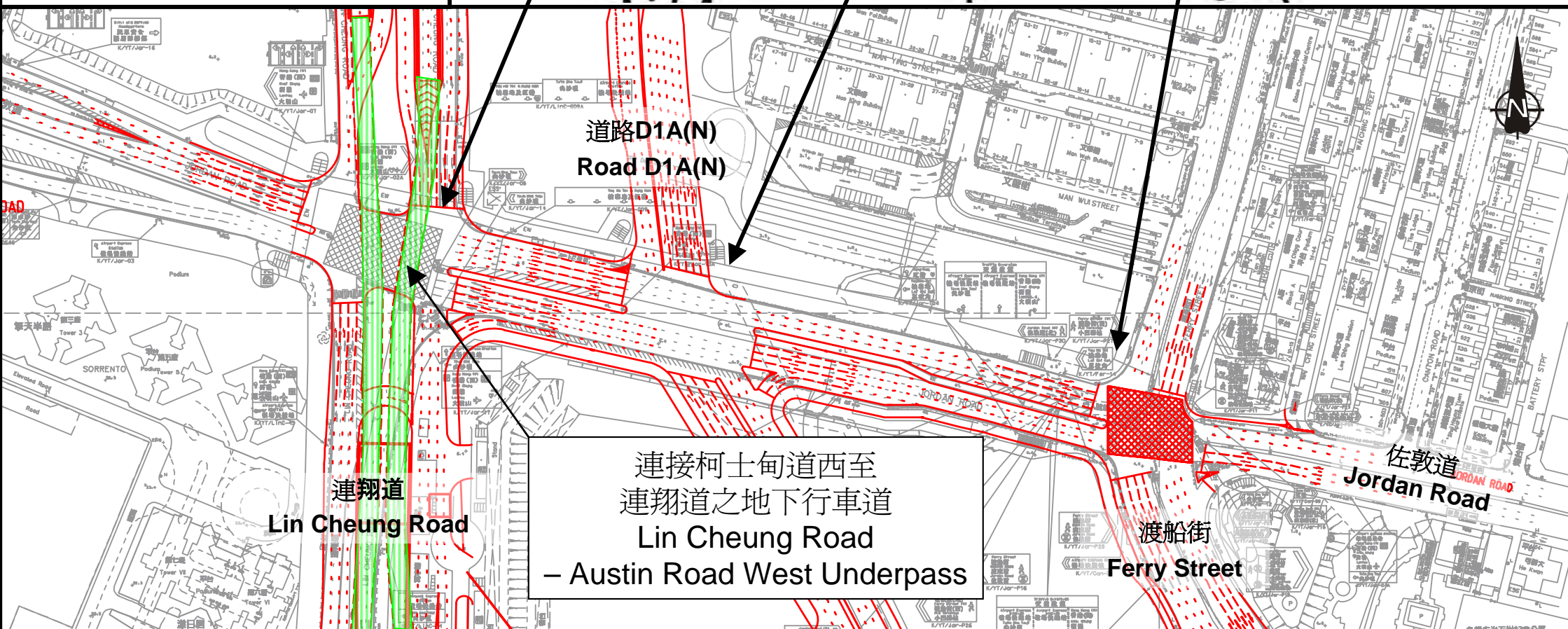
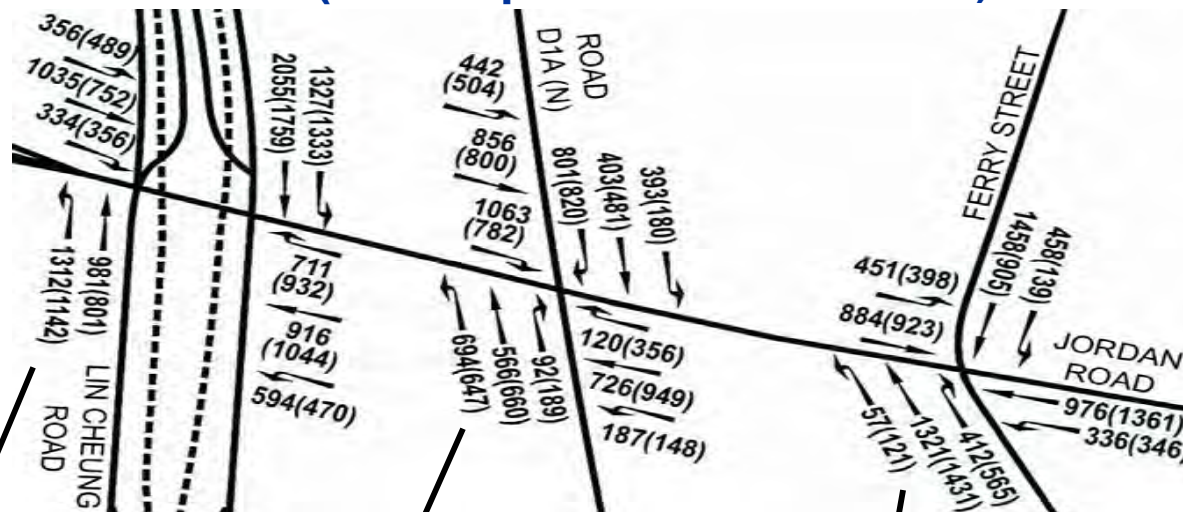
19. In the Study, we have already taken into consideration the access mode for XRL passengers and the demand for road traffic. We will provide suitable associated facilities (e.g. sufficient loading/unloading bay and waiting area will be provided for private cars, taxi and coaches), so as to meet the XRL passengers' demand for using road transport going to and from the WKT. As mentioned in previous paragraphs, upon completion of the roadworks and the road junction improvement measures mentioned above, together with the commissioning of the proposed Central Kowloon Route which will divert the traffic flow to and from East Kowloon, the traffic situation in the WKNDA will be improved.

**Transport and Housing Bureau**  
**November 2009**

# 佐敦道於2031年的預計交通流量 (已完成道路改善後) Traffic forecast along Jordan Road in 2031 (with improvement schemes)

## 圖例 Legend :

-  道路 (地面/天橋)  
Road (at-grade/flyover)
-  道路 (地底)  
Road (underground)
- 761(1103)** 上午(下午)繁忙時間交通流量  
(載客車量單位/每小時)  
am(pm) peak hour traffic  
flow (pcu/hr)
-  隧道  
Underpass

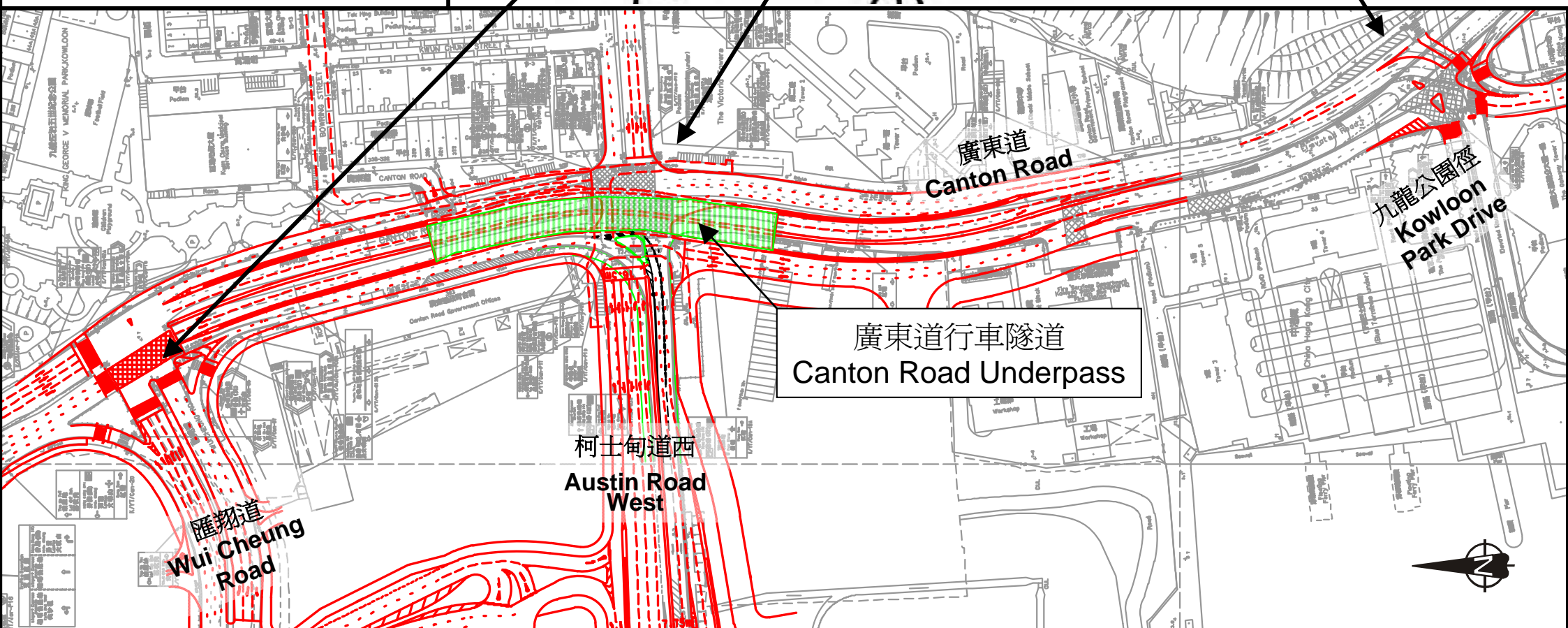
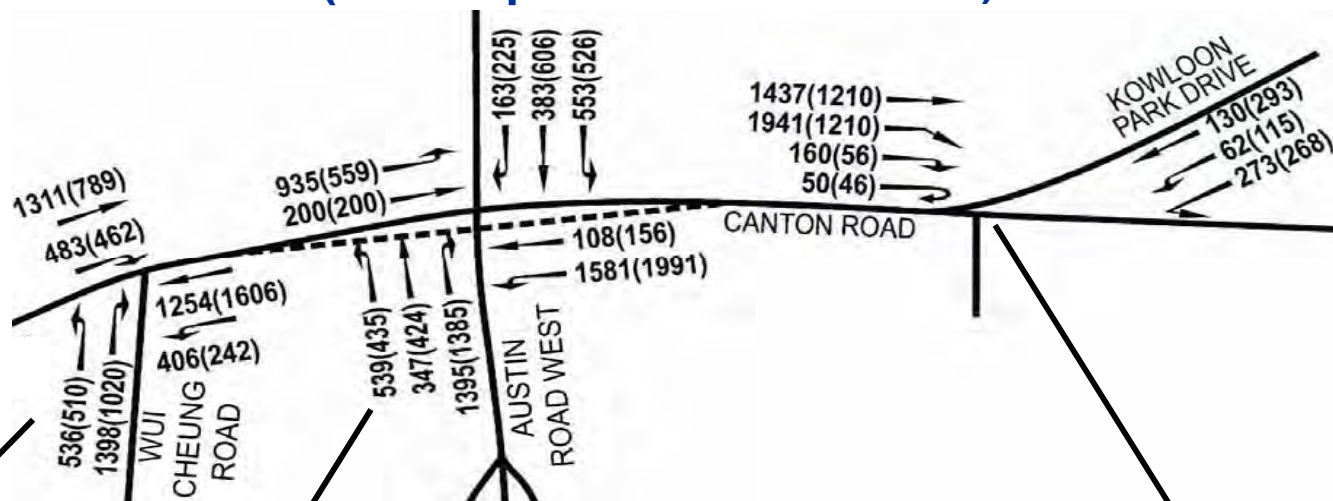




# 廣東道於2031年的預計交通流量 (已完成道路改善後) Traffic forecast along Canton Road in 2031 (with improvement schemes)

## 圖例 Legend :

- 道路 (地面/天橋)  
Road (at-grade/flyover)
- - - 道路 (地底)  
Road (underground)
- 761(1103) 上午(下午)繁忙時間交通流量  
(載客車量單位/每小時)  
am(pm) peak hour traffic  
flow (pcu/hr)
- 隧道  
Underpass







# 現時路口容量 Existing Road Junction Capacity


## 圖例 Legend :

核心範圍  
Focus Area

剩餘容量 Reserve Capacity

 < 5%

  $\geq 5\%$  & < 15%

  $\geq 15\%$

13% / 22%

上午 / 下午  
am / pm



連翔道 / 佐敦道  
Lin Cheung Road / Jordan Road  
1% / 1%

連翔道 / 匯翔道  
Lin Cheung Road / Wui Cheung Road  
-14% / -10%

連翔道 / 柯士甸道西  
Lin Cheung Road / Austin Road West  
0.3 / 0.5 (迴旋處 roundabout)

廣東道 / 柯士甸道  
Canton Road / Austin Road  
8% / 7%

廣東道 / 九龍公園徑  
Canton Road / Kowloon Park Drive  
3% / 26%

廣東道 / 佐敦道  
Canton Road / Jordan Road  
-6% / -6%

廣東道 / 匯翔道  
Canton Road / Wui Cheung Road  
4% / 15%

柯士甸道  
Austin Road

西九文化區  
West Kowloon Cultural District

西區海底隧道  
Western Harbour Crossing

西九龍總站  
West Kowloon Terminus

柯士甸道西  
Austin Road West

匯翔道  
Wui Cheung Road

佐敦道  
Jordan Road

渡船街  
Ferry Street

九龍公園徑  
Kowloon Park Drive

廣東道  
Canton Road

連翔道  
Lin Cheung Road




# 於2031年的路口容量 (已完成道路改善後)


## Future Junction Capacity in 2031(with improved Road Network)


### 圖例 Legend :

核心範圍  
Focus Area

剩餘容量 Reserve Capacity

 < 5%

 ≥ 5% & < 15%

 ≥ 15%

13% / 22% 上午 / 下午  
am / pm



道路 D1 / 佐敦道  
Road D1 / Jordan Road  
13% / 22%

連翔道 / 佐敦道  
Lin Cheung Road / Jordan Road  
12% / 15%

連翔道 / 柯士甸道西  
Lin Cheung Road / Austin Road West  
46% / 11%

連翔道  
Lin Cheung Road

佐敦道  
Jordan Road

匯翔道  
Wui Cheung Road

渡船街  
Ferry Street

道路 D1 / 匯翔道  
Road D1 / Wui Cheung Road  
14% / 30%

廣東道 / 佐敦道  
Canton Road / Jordan Road  
35% / 33%

廣東道 / 匯翔道  
Canton Road / Wui Cheung Road  
18% / 18%

廣東道  
Canton Road

柯士甸道  
Austin Road

廣東道 / 柯士甸道  
Canton Road / Austin Road  
34% / 8%

廣東道 / 九龍公園徑  
Canton Road / Kowloon Park Drive  
7% / 27%

九龍公園徑  
Kowloon Park Drive

西九文化區  
West Kowloon Cultural District

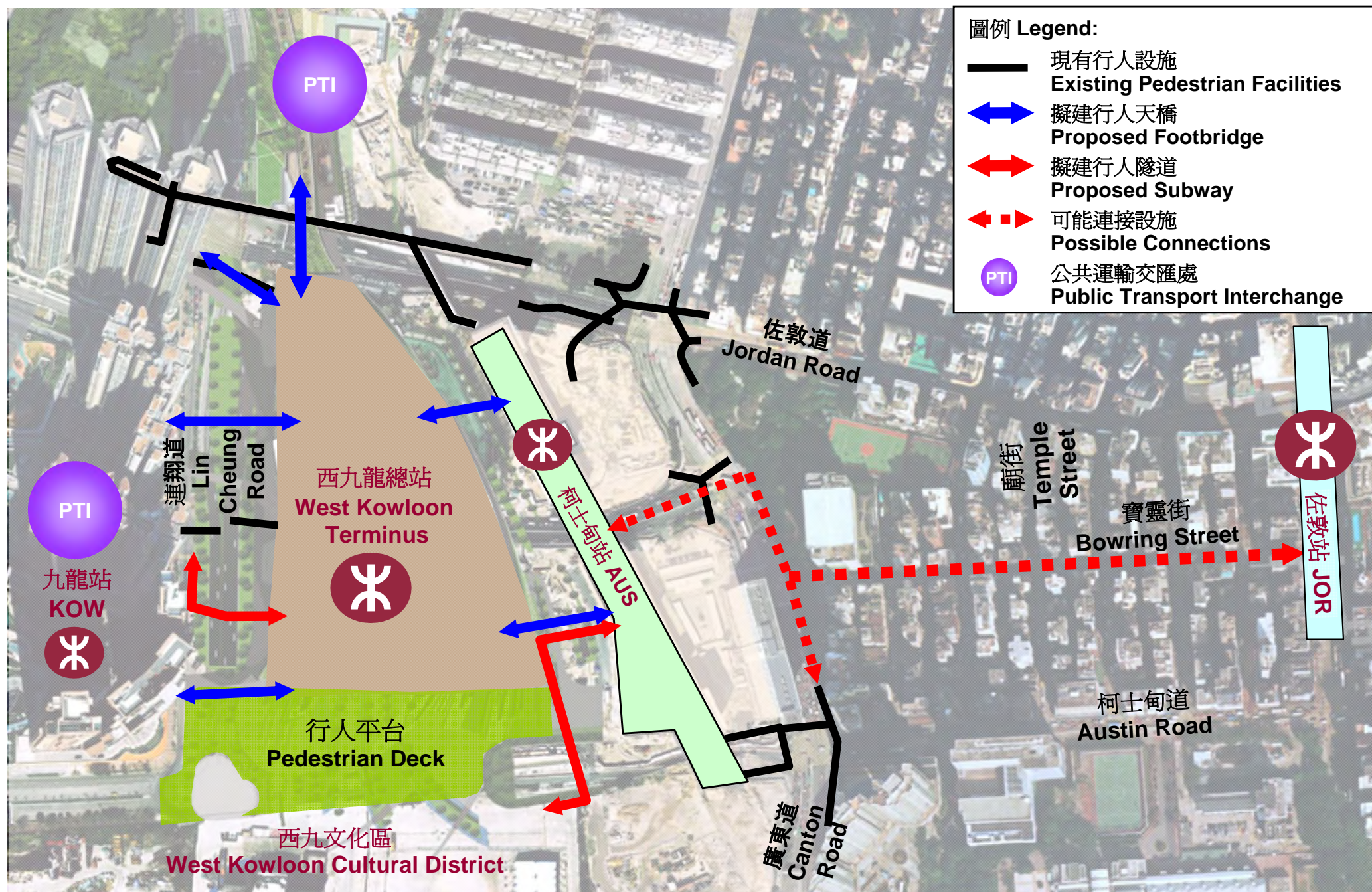
西區海底隧道  
Western Harbour Crossing

西九龍總站  
West Kowloon Terminus



# 西九龍總站與佐敦站的行人接駁

## Pedestrian Connection between West Kowloon Terminus and Jordan Station





香港主要運輸樞紐的轉乘客量分布  
Modes of Transport Used by Passengers to Gain  
Access to the Major Transport Hubs in Hong Kong

