

For discussion
on 16 December 2016

Legislative Council Panel on Development

3185GK – Re-provisioning of Transport Department's Vehicle Examination Centres at Tsing Yi

PURPOSE

This paper seeks Members' support to upgrade **3185GK** to Category A, at an estimated cost of \$2,862.7 million in money-of-the-day (MOD) prices to relocate the existing Kowloon Bay (KB), New Kowloon Bay (NKB) and To Kwa Wan (TKW) Vehicle Examination Centres (VECs) of the Transport Department (TD) to Tsing Yi.

PROJECT SCOPE AND NATURE

2. The scope of **3185GK** comprises -

- (a) construction of a new 4-storey VEC at Sai Tso Wan, Tsing Yi for reprovisioning of the three existing VECs, namely KB VEC, NKB VEC and TKW VEC;
- (b) road widening works of approximately 485 metres (m) in length along the eastern side of Sai Tso Wan Road; and
- (c) decontamination and demolition of the three existing VECs.

A site and location plan of the proposed new VEC site is at **Enclosure 1**.

3. The new VEC site occupies an area of about 34 050 square metres (m²) at Sai Tso Wan, Tsing Yi. It will be developed into a 4-storey building for the reprovision of the three existing VECs. The new VEC will provide the following facilities:

- (a) 30 inspection lanes for different kinds of vehicles;
- (b) 10 chassis dynamometers for commercial vehicles;
- (c) ancillary facilities for vehicle examination, such as tilting stability test platform, a track lane and test ramps for brake testing, a swept circle testing area and axle weigh bridges;

- (d) vehicle queuing and waiting areas; and
- (e) office accommodation, ancillary plant rooms and parking spaces, etc.

Details of the facilities and operation of the new VEC are set out in **Enclosure 2**.

4. Subject to funding approval of the Finance Committee (FC), we plan to commence the construction works in the second quarter of 2017 for completion in the fourth quarter of 2019, with the new VEC anticipated to commence operation around the second quarter of 2020. The subsequent decontamination works and demolition works for the three existing VECs are scheduled for completion in the fourth quarter of 2020 and the first quarter of 2022 respectively.

JUSTIFICATION

5. The Energizing Kowloon East (EKE) initiative was first announced in the 2011-12 Policy Address with an objective to transform Kowloon East (KE) (including Kai Tak Development Area, Kowloon Bay Business Area and Kwun Tong Business Area) into an attractive core business district (CBD) to sustain Hong Kong's economic development. The Government pledged in the subsequent Policy Addresses to facilitate the provision of new commercial/office land to realise the potential of KE. One of the measures is through relocating or rationalising the existing government facilities in the Kowloon Bay and Kwun Tong Action Areas in KE.

6. The existing KB VEC and NKB VEC are located within the Kowloon Bay Action Area (KBAA) as shown in **Enclosure 3**. Under the Conceptual Master Plan (CMP) for EKE, KBAA is planned to be developed into a commercial/office hub which could provide about 480,000 m² of commercial floor space. Relocating these two VECs would release the development potential and facilitate comprehensive development of KBAA.

7. The relocation of the existing TKW VEC (**Enclosure 4**) is to make way for the planned development at Kai Tak, including a continuous waterfront promenade as shown on the approved Kai Tak Outline Zoning Plan (OZP) No. S/K22/4. The provision of the waterfront promenade echoes with the EKE policy objective to provide quality open space for public enjoyment.

8. The new VEC at Sai Tso Wan, Tsing Yi will provide better facilities for carrying out vehicle examination services by TD, enhance operational efficiency and flexibility, and conducive to providing better services to the public in vehicle examination.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$2,862.7 million in MOD prices, broken down as follows:-

	\$ million
Site development	219.6
Building & building services works	1,654.2
Others ¹	433.8
Sub-total	2,307.6 (in September 2016 prices)
Provision for price adjustment	555.1
Total	2,862.7 (in MOD prices)

¹ It comprises items including additional conservation, green and recycled features, furniture and equipment, consultants' fee, remuneration of resident site staff, decontamination and demolition works of the existing VECs and contingency.

PUBLIC CONSULTATION

Kwai Tsing District Council

10. The Traffic and Transport Committee (T&TC) of the Kwai Tsing District Council (K&TDC) was consulted on 16 April 2015 on the proposed relocation of the three existing VECs to Tsing Yi. The T&TC did not object to the project but some members raised questions on the traffic impact on Tsing Yi after commissioning, reprovisioning of the existing temporary parking spaces at the project site, and some detailed arrangements at the implementation and operational stages of the new VEC. We provided supplementary information to the T&TC on 20 May 2015 and suitably addressed their comments in formulating the traffic mitigation measures. No further adverse comment was received.

11. An information paper on this project was submitted to the T&TC of K&TDC on 1 April 2016 to update the latest progress of the project. A site visit with interested K&TDC members was also conducted on 8 April 2016. No adverse comment was received.

Trades

12. We also consulted the relevant trades² in April 2015 on the proposed relocation of the three existing VECs to Tsing Yi. Further trade engagement meetings were conducted in April 2016. While the trades generally raised no objection to the proposal, some of the trade members raised concerns on the traffic impact of the new VEC on the nearby roads, and reprovisioning of the existing temporary parking spaces on the project site. We explained the proposed traffic mitigation measures and the reprovisioning arrangement of the existing temporary parking spaces to them. After the clarifications, they had no objection to the proposal in general.

Panel on Development

13. We submitted an information paper on the project to the Panel on Development on 23 June 2015. Panel Members did not raise any comment.

14. We consulted the Panel on 24 May 2016. Some Members raised concerns mainly on the traffic impact of the new VEC on Tsing Yi and requested for an extract of the Traffic Impact Assessment (TIA) in respect of the proposed project and supplementary information on the proposed road widening works along Sai Tso Wan Road. The project was not supported by the Panel at that meeting. The supplementary information at **Enclosure 5** was submitted to the Secretariat on 14 July 2016 and circulated to Members.

ENVIRONMENTAL IMPLICATIONS

15. This project involves (a) construction of a new VEC at Sai Tso Wan, Tsing Yi; (b) widening works along the eastern side of Sai Tso Wan Road which is a local road; and (c) demolition of the three existing VECs in Kowloon Bay and To Kwa Wan. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We completed a Preliminary Environmental Review (PER) in March 2016. The PER concluded that the project would not cause long-term adverse environmental impacts. We have included in the project estimates the cost to implement suitable mitigation measures recommended in the PER to control short-term environmental impacts at the construction and demolition stages.

16. At the planning and design stages, we have considered measures to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we will require the contractor to reuse inert construction waste (e.g. use of excavated materials for filling within the site) on site or in other

² Relevant trades include maintenance trade for trailer and goods vehicles, non-franchised buses, light buses, and taxis.

suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities³. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

17. At the start of the construction and demolition stages, we will require the contractor to submit for approval a waste management plan (WMP) setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction and demolition (C&D) waste. We will ensure that the day-to-day operations on site comply with the approved WMP. We will require the contractor to separate the inert portion from non-inert C&D waste on site for disposal. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

18. During construction and demolition works, we will control noise, dust and site run-off nuisances to levels within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. These measures include use of noise barriers, silencers, mufflers, acoustic lining or shields for noisy activities to reduce noise impact, frequent cleaning and watering of the sites, and provision of wheel-washing facilities. We will carry out site inspections to ensure that these recommended mitigation measures and good site practices are properly implemented.

19. We estimate that the project will generate in total 91 270 tonnes of C&D waste which comprises 79 650 tonnes and 11 620 tonnes of inert and non-inert C&D waste respectively. For the inert C&D waste, we will reuse 34 850 tonnes (38.2% of the total C&D waste) on site and deliver the remaining 44 800 tonnes (49.1% of the total C&D waste) to public fill reception facilities for subsequent reuse. We will dispose of all the 11 620 tonnes (12.7% of the total C&D waste) of non-inert C&D waste at landfills. The total cost for accommodating C&D waste at public fill reception facilities and landfill sites is estimated to be \$5.5 million for this project (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

TRAFFIC IMPLICATIONS

20. We completed a TIA (please refer to the summary at **Enclosure 5**) for the new VEC and carried out a study on the reprovision of the existing temporary

³ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

parking spaces on the project site in 2014 and 2015 respectively. Having regard to the concerns raised by some Panel Members on 24 May 2016 and to ensure that the assessment findings could reflect the latest situation, a Supplementary Traffic Study was conducted from September to November 2016 to update the latest traffic condition, planned developments, and the latest utilisation of temporary vehicle parking sites on Tsing Yi. The traffic assessment covers all major roundabouts and key road junctions on Tsing Yi. Similar to the findings of the previous TIA, the Supplementary Traffic Study confirms that the new VEC will have manageable impact on the adjacent road network and the proposed reprovisioning of temporary parking spaces can cater for the existing demand associated with the temporary parking spaces on the project site. With the proposed traffic measures set out in paragraphs 21 and 22 below, the new VEC would not cause any significant traffic impact to the surrounding areas. All major roundabouts and key road junctions would operate with satisfactory performance. A summary of the Supplementary Traffic Study is provided at **Enclosure 6**.

Proposed traffic measures to ensure no adverse traffic impact

21. While there would be adequate traffic capacity on Sai Tso Wan Road (both westbound and eastbound) to accommodate the additional traffic generated by the new VEC, some vehicles may arrive earlier than their appointments and on certain occasions may queue up to wait for vehicle examination. To address such situation, a new traffic lane of about 485m long towards the entrance of the new VEC is proposed. This traffic lane will provide an exclusive right turn for vehicles going into the new VEC without blocking other westbound traffic. Moreover, a traffic signal control system will be installed near the ingress/egress of the new VEC to regulate the eastbound traffic coming from the western end of Sai Tso Wan Road and Tsing Tim Road to ensure smooth integration with the traffic coming out from the VEC. These proposed measures are shown in **Enclosure 6-4**.

22. Two signalised junctions at Tsing Yi Road/Tsing Yi Road West/Sai Tso Wan Road and at Tsing Hung Road/Tsing Yi Road are proposed to be improved. The proposed improvement measures include increasing signal cycle time, localised road widening works, and changing the northbound kerbside lane of Tsing Yi Road to permit left turn only onto Sai Tso Wan Road (**Enclosure 6-3**).

23. Directional signs will also be installed at the roundabouts RA1 and RA2 to direct traffic coming from Kwai Tsing Bridge to the new VEC along Tsing Yi Road without passing through the Tsing Yi town centre area.

Proposed arrangements at new VEC to ensure smooth operation

24. The new VEC is targeted to commence operation around the second quarter of 2020. A temporary vehicle queuing area adjoining the new VEC site (**Enclosure 6-6**) will be provided to allow additional queuing space to facilitate a smooth transition in the operation of the new VEC. Arrangement will also be

made to open the entry gate of the new VEC earlier (i.e. about an hour before normal operation hours) to allow vehicles to queue inside the VEC as and when necessary.

25. As experienced in the operation of the three existing VECs, traffic queue may emerge after the lowering of adverse weather warning (e.g. typhoon signal No.8). To address this situation, the TD will implement a system to cancel vehicle examination appointments by time blocks on such days. The drivers will be fully informed of such arrangement when they make their appointments with the TD. The affected vehicles will then be allowed to have re-appointments within 5 working days.

Reprovision of Existing Temporary Parking Spaces on Project Site

26. The project site is currently occupied by a temporary vehicle park under a Short Term Tenancy (STT). A parking utilisation survey of the temporary vehicle parks on Tsing Yi was conducted in September and October 2016 during daytime (10:00-18:00) and nighttime (22:00-02:00). In general, about 250 vehicles parked on the project site during weekend nighttime which was identified as the peak period. Two existing STT sites, namely STT 3778KT opposite to the new VEC site and STT 3818KT located in Tsing Yi South, were found to have about 160 vacant spaces which could help accommodate the demand. A proposed STT site (STT 3878KT) on Sai Tso Wan Road adjoining the project site will soon be tendered for temporary vehicle parking purpose to provide about 160 parking spaces. Moreover, we are reviewing the feasibility to use the temporary queuing area for public vehicle parking purpose (about 40 spaces) during nighttime when the VEC is not in operation.

HERITAGE IMPLICATIONS

27. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

28. The project does not require any land acquisition.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

29. The project will adopt various energy conservation features and renewable energy technologies, in particular:

- (a) water-cooled chillers (evaporative cooling tower using fresh water);
- (b) variable speed drive for chillers;
- (c) automatic demand control of chilled water circulation system;
- (d) solar hot water system; and
- (e) photovoltaic system.

30. For greening features, we will provide greening at the pedestrian zone and on the roof, and vertical greening on building facades as well as landscape features for environmental and amenity benefits.

31. For recycled features, we will adopt a rainwater harvesting system for landscape irrigation.

BACKGROUND

32. We upgraded 3185GK to Category B in September 2014.

33. We engaged consultants to carry out a Quantitative Risk Assessment in late 2013 as the site falls within the consultation zones of the nearby oil depots; and a TIA in early 2014 to address the traffic issues and recommend necessary mitigation measures for the project. The total cost of \$0.68 million was charged to block allocation Subhead 7100CX “New towns and urban area works, studies and investigations for items in Category D of the Public Works Programme”.

34. Between end 2014 and early 2016, we engaged consultants and contractors to carry out site investigation, utility mapping, geotechnical, topographical and tree survey, preliminary environmental assessment, microclimate study. In addition, we engaged Electrical and Mechanical Services Trading Fund in early 2015 to carry out the design of the vehicle examination equipment and the associated electronics and information technology system for the new VEC. We charged the total cost of \$16.6 million to block allocation Subhead 3100GX “Project feasibility studies, minor investigations and consultants’ fees for items in Category D of the Public Works Programme”.

35. We engaged a consultant to undertake a study on the reprovisioning of the existing temporary vehicle parking facilities on the project site to identify possible reprovisioning sites. The study was completed in late 2015 at a cost of \$0.17 million, which was charged to block allocation Head 159 Subhead 000 “Operational Expenses” of the Development Bureau.

36. We engaged a consultant to undertake a Supplementary Traffic Study for the proposed new VEC to review the latest traffic condition and impacts of the

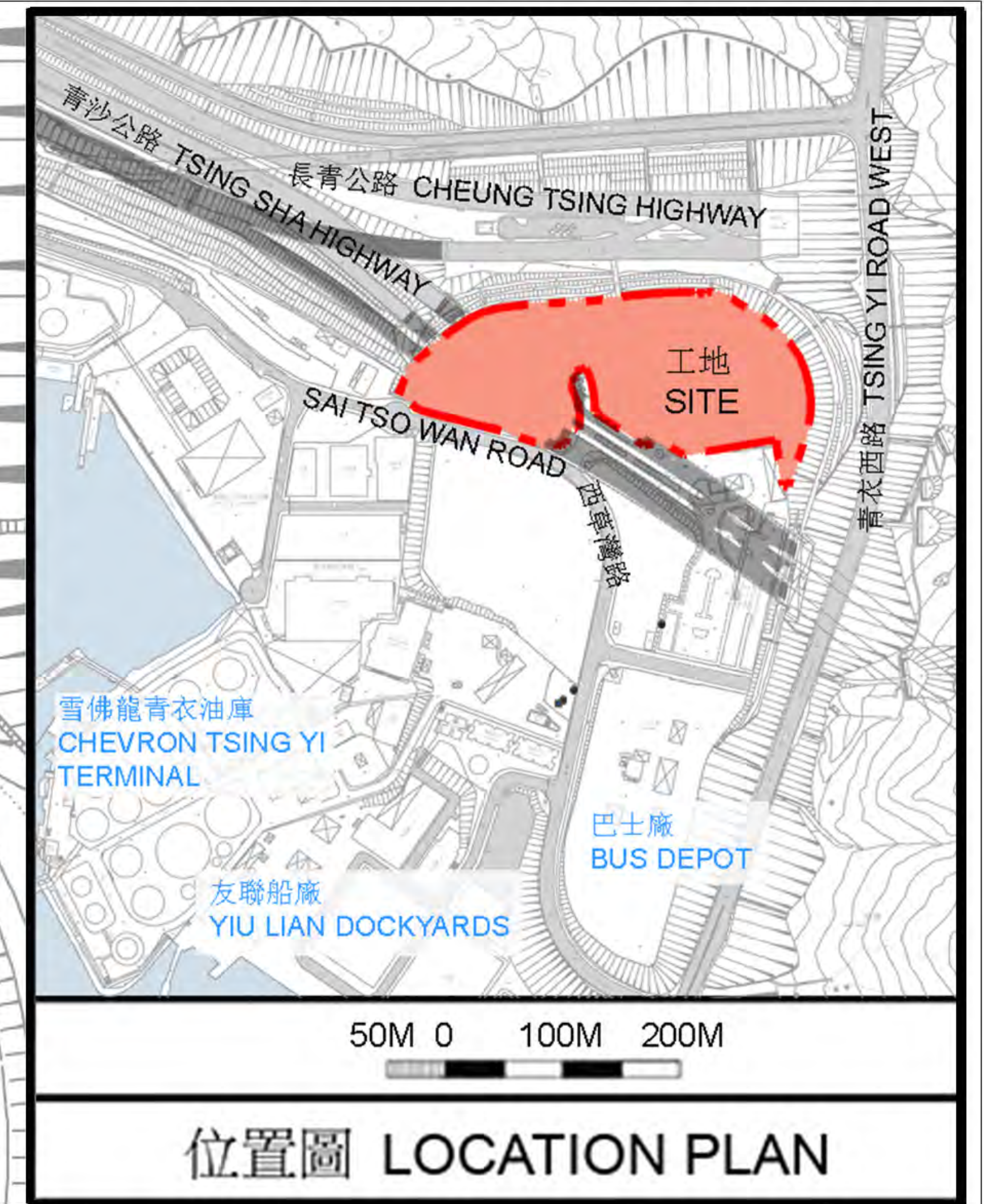
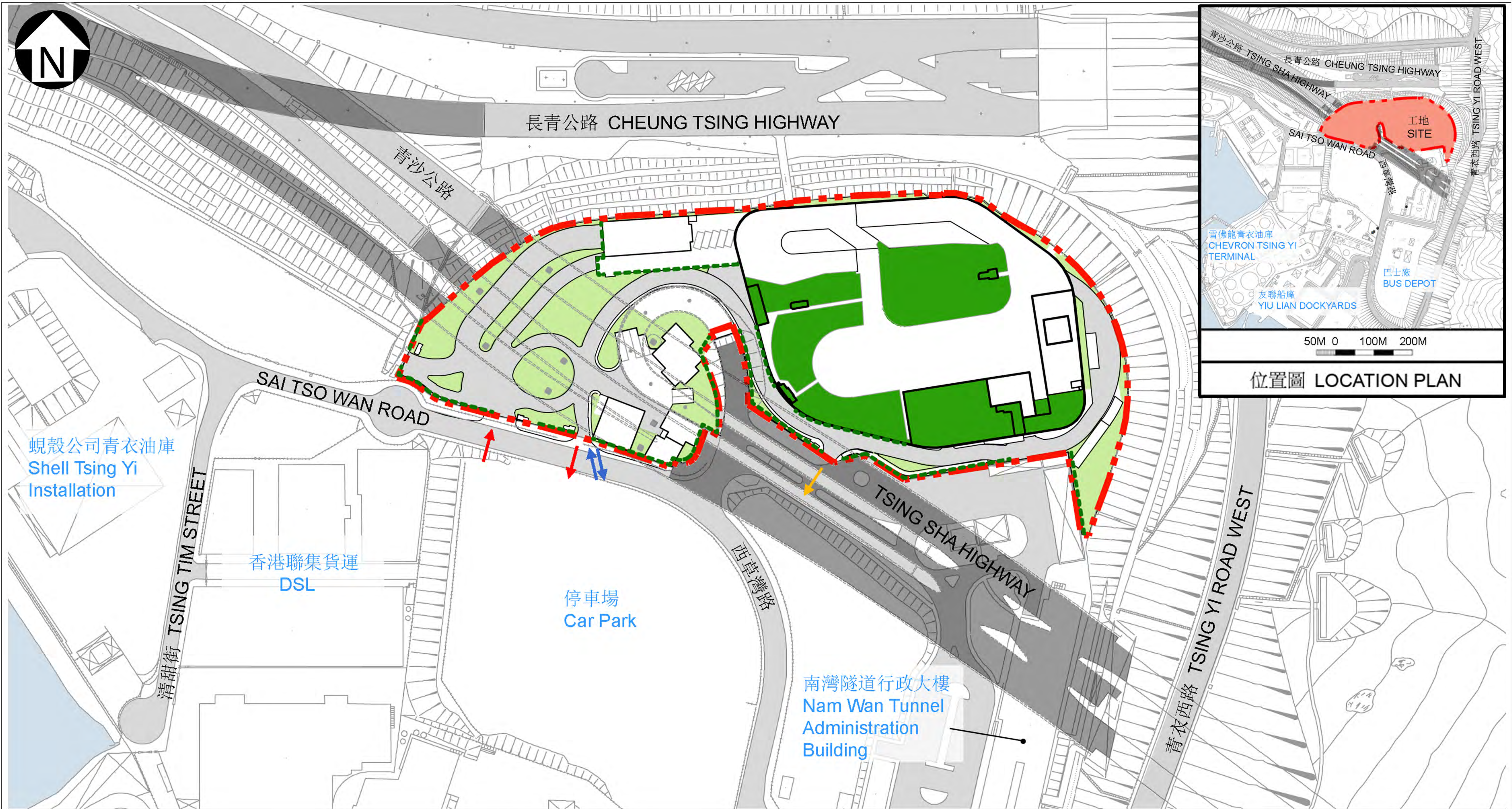
new VEC, and reprovisioning of the temporary vehicle parking facilities on Tsing Yi. The study was completed in November 2016 at a cost of \$0.37 million, which was charged to block allocation Head 159 Subhead 000 “Operational Expenses” of the Development Bureau.

37. The proposed new VEC site basically falls within the “Industrial” zone on the draft Tsing Yi OZP No. S/TY/27. According to the Notes of the OZP, ‘Government Use (not elsewhere specified)’ is always permitted in this zone.

WAY FORWARD

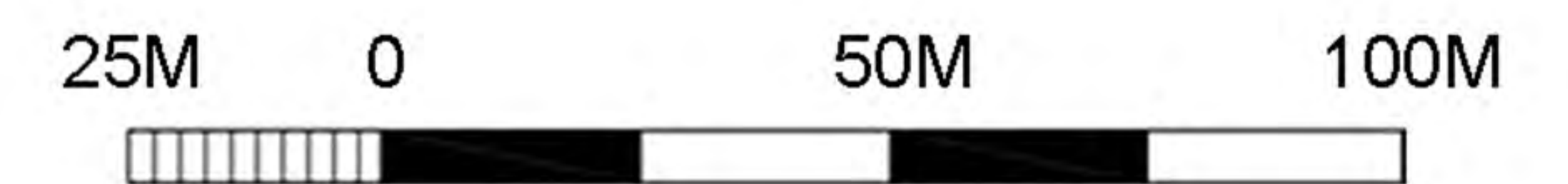
38. Subject to Members’ support, we plan to submit the proposal to the Public Works Sub-committee for consideration and to the Finance Committee for funding approval within the first quarter of 2017.

**Development Bureau
Transport Department
December 2016**



圖例 LEGEND

- | | | | | | | | |
|--|-----------------------------------|--|------------------------------------|--|---------------------------|--|-------------------------|
| | 車輛出入口
VEHICULAR INGRESS/EGRESS | | 緊急車輛出口
EMERGENCY VEHICULAR EXIT | | 垂直綠化
VERTICAL GREENING | | 屋頂綠化
LANDSCAPED ROOF |
| | 行人出入口
PEDESTRIAN ENTRANCE/EXIT | | 工地界線
SITE BOUNDARY | | 地面綠化
AT-GRADE GREENING | | |



參考資料 Reference

日期 Date : 8/12/2016

重置運輸署驗車中心往青衣 Reprovisioning of Transport Department's Vehicle Examination Centres at Tsing Yi

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau

Enclosure 2

Details of the Facilities and Operation of the Proposed New Vehicle Examination Centre in Tsing Yi

1. Services currently provided by the three existing VECs will be reprovisioned in the new VEC in Tsing Yi are as follows:-

- iv) annual vehicle examination for commercial vehicles (including taxis, light buses, non-franchised buses, goods vehicles, trailers, special-purpose vehicles);
- v) pre-registration vehicle examination for parallel-import vehicles and vehicles with non-factory-built bodies; and
- vi) other vehicle examinations such as call-up inspections, type approval inspections (for new vehicle types), vehicle alteration inspections, etc.

Facilities of the proposed new VEC

2. The new VEC will be equipped with the following facilities:

Inspection Lanes

- 30 inspection lanes to serve different classes of vehicles, organised in 10 lanes per floor. Types include goods vehicle inspection lanes, trailer inspection lanes, bus inspection lanes, taxi inspection lanes, parallel-import vehicle inspection lanes, type approval inspection lanes and motorcycle inspection lanes.

Vehicle Testing Facilities

- 10 chassis dynamometers for emission testing of commercial vehicles;
- 1 tilting stability test platform for tilt testing of buses during type-approval examinations;
- brake testing lane and test ramps for different types of vehicles; and
- other ancillary facilities for vehicle examination such as swept-circle test area, axle weigh bridges and four-post hoists.

Others

- Vehicle waiting and queuing spaces;
- office accommodation (including appointment offices);
- plant rooms, parking spaces for visitors, etc.; and
- electronic and information technology systems related to vehicle examination, security and operational surveillance, vehicle circulation management, etc.

Operation of the new VEC

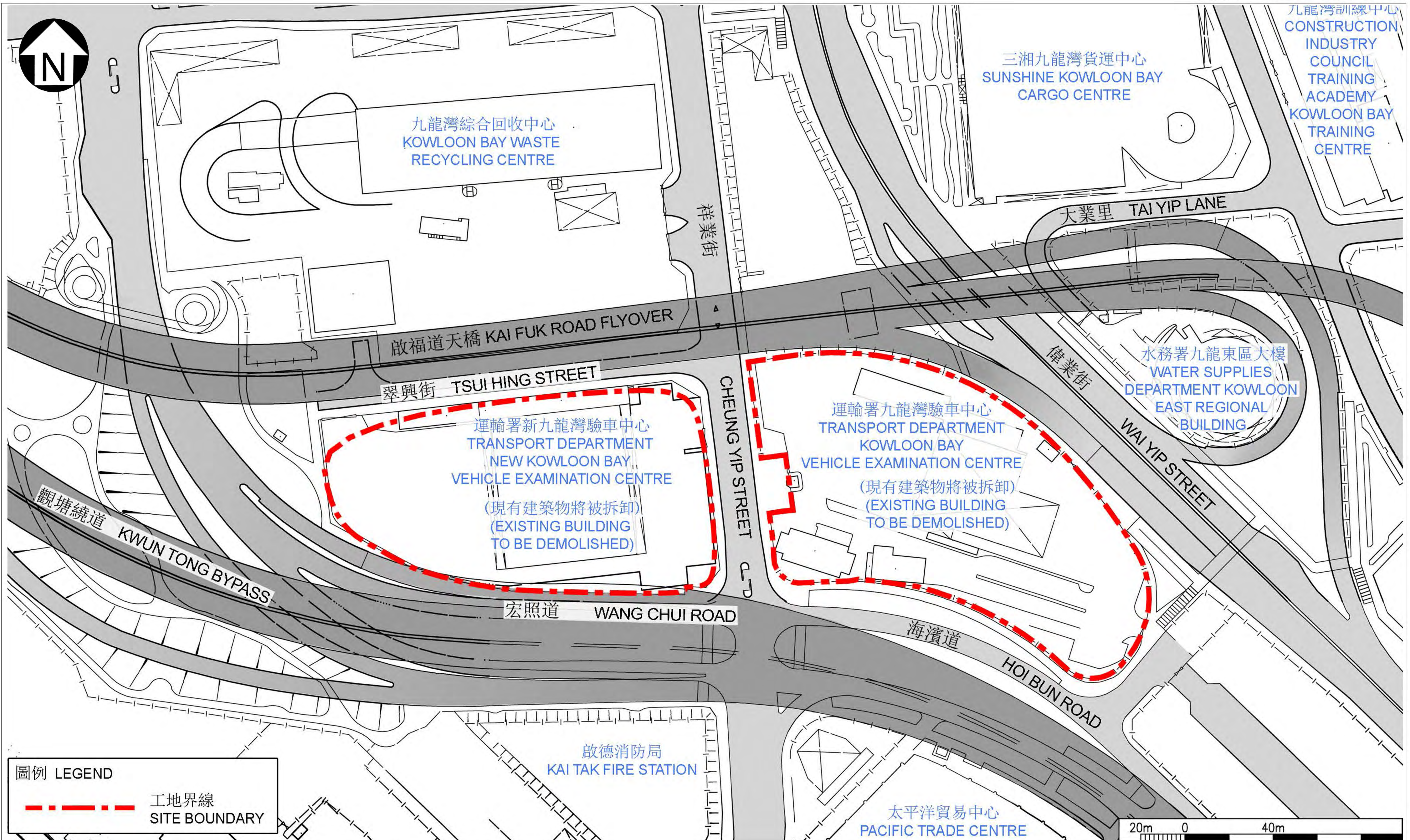
3. The new VEC in Tsing Yi will accommodate 30 vehicle inspection lanes on different floors, together with other necessary vehicle testing facilities (such as chassis dynamometers, tilting stability test platform, etc.), capable of serving all vehicle classes such as taxi, light bus, bus, goods vehicle, trailer, etc. The design maximum handling capacity of the proposed new VEC is 1 000 vehicles per day.

4. A vehicle to undergo examination/inspection is required to make prior appointment. The vehicle owner or his/her agent can make the appointment through internet, or in person at the appointment office of the VEC. Specific date and time will be assigned for the vehicle examination appointment.

5. At the date of appointment, the vehicle will go into the VEC and wait at the available queuing spaces, and then go through different stages of inspection along the inspection lane, including visual check, lamp test, brake test, exhaust emission test, under-carriage inspection and any other inspections as required. Some vehicles will have to undergo certain tests at the vehicle testing facilities.

6. There will be about 200 staff in the new VEC including staff under outsourced services such as security, cleaning, etc. The Transport Department will arrange suitable transport to/from the nearest public transport points for government employees.

7. The normal opening hours of the new VEC is 8:30 to 18:00 on Monday to Friday and 8:30 to 13:00 on Saturday. The new VEC will open the entry gate earlier (i.e. about an hour before normal operation hours) to allow vehicles to queue inside the new VEC site, when necessary.



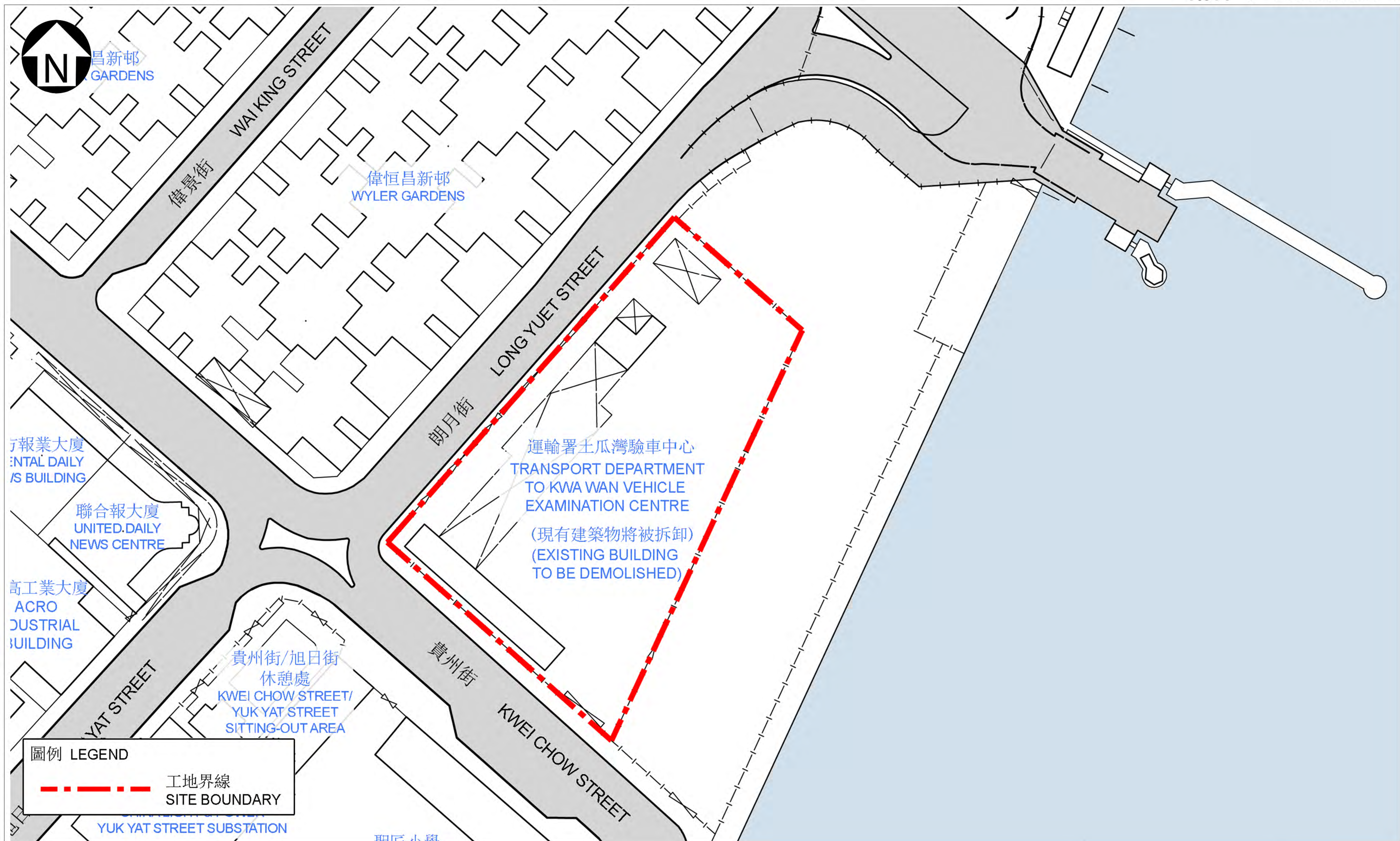
參考資料 Reference

日期 Date : 5/12/2016

重置運輸署驗車中心往青衣 Reprovisioning of Transport Department's Vehicle Examination Centres at Tsing Yi

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau



參考資料 Reference

日期 Date : 5/12/2016

重置運輸署驗車中心往青衣 Reprovisioning of Transport Department's Vehicle Examination Centres at Tsing Yi

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**LEGISLATIVE COUNCIL
PANEL ON DEVELOPMENT**

**PWP Item No. 3185GK – Re-provisioning of Transport Department’s
Vehicle Examination Centre at Tsing Yi**

**Follow-up Actions Arising from the Discussion
at the Meeting on 24 May 2016**

Supplementary information requested by the Panel on Development on 24 May 2016 is provided below.

**(a) Summary of the Traffic Impact Assessment (TIA) in respect of the
Proposed Project**

2. Consultants have been engaged for carrying out TIA for the new Vehicle Examination Centre (VEC) project at Sai Tso Wan, Tsing Yi. The new VEC is for re-provisioning the three VECs in Kowloon Bay and To Kwa Wan, and scheduled to commence operation in 2019. It will provide a total of 30 inspection lanes on three floors and offer different vehicle examination services on an appointment basis. The maximum vehicle examination capacity is 1,000 vehicles per day.

3. According to the TIA, the AM and PM peak hours in Tsing Yi were identified as 8:30am - 9:30am and 4:00pm - 5:00pm respectively. Junction capacity assessment was conducted and improvement measures were recommended, where necessary. With the implementation of the proposed improvement measures as set out in paragraph 5 below, the traffic generated from the operation of the VEC would be accommodated. The findings of the TIA and a related study conducted by the Transport Department are summarised below.

Junction Capacity Assessment

4. Junction capacity assessment has been carried out for Years 2016, 2019, and 2024 for 6 key junctions (J1 to J6) to assess the traffic situation at the time of expected commencement of construction, upon commencement of operation, and 5 years after operation of the VEC respectively. The locations of these junctions are shown in **Figure 1**. The junction operation performance in 2024, which involves more forecast traffic than that in 2016 and 2019, is shown in **Table 1**.

Figure 1 Locations of Key Junctions and Roundabouts



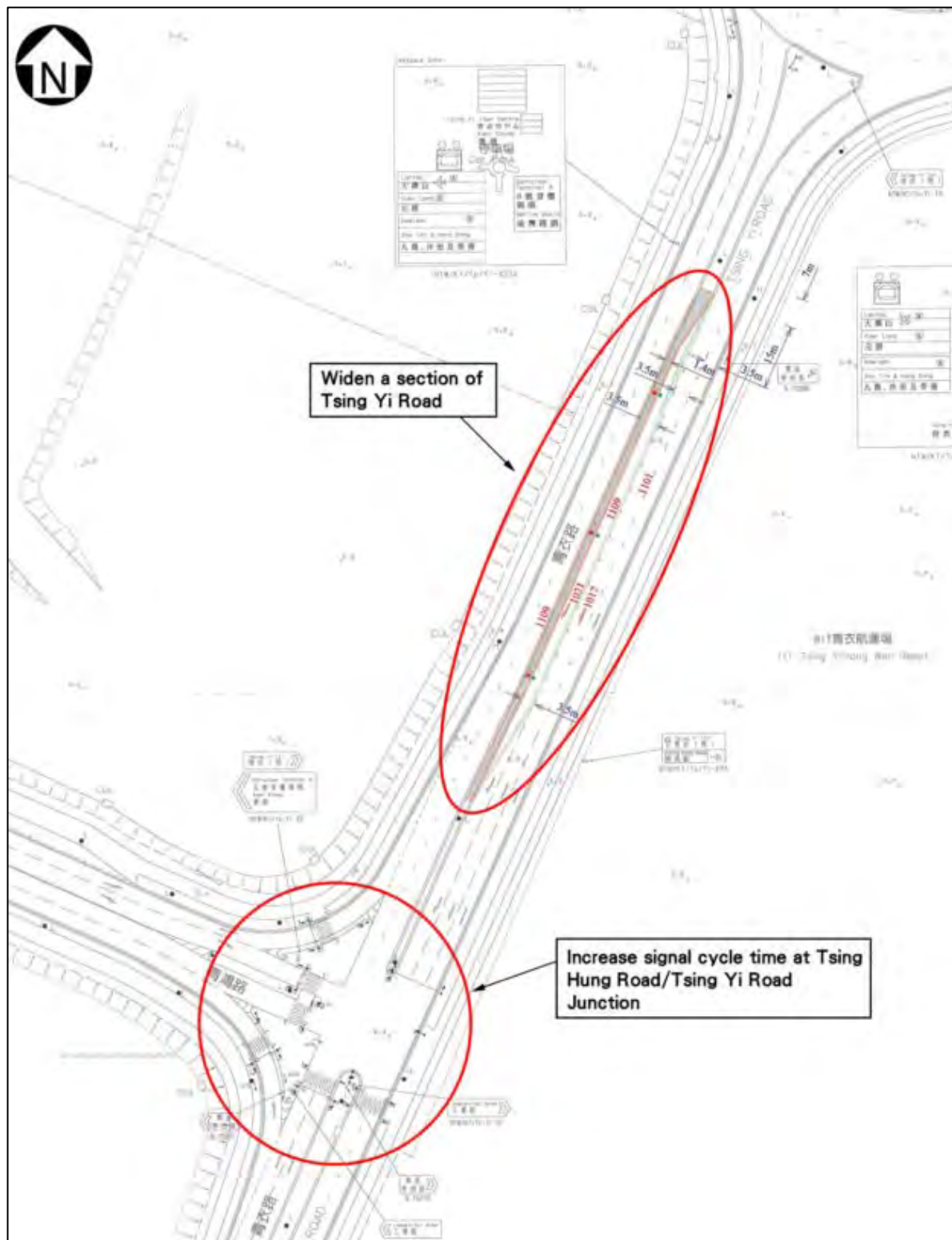
Table 1 Junction Operation Performance without Improvement Scheme (Year 2024)

No.	Junction	Analysis Type	Reserve Capacity (RC) or Design Flow to Capacity (DFC) Ratio	
			AM Peak	PM Peak
J1	Cheung Tsing Highway/Tsing Yi Road	RC	45.5%	52.1%
J2	Tsing Hung Road/Tsing Yi Road	RC	-2.3%	12.0%
J3	Tsing Sheung Road/Tsing Yi Road	DFC Ratio	0.46	0.57
J4	Sai Tso Wan Road/Tsing Yi Road/Tsing Yi Road West	RC	-5.0%	-13.0%
J5	Temporary vehicle park entrance opposite to the VEC site /Sai Tso Wan Road	DFC Ratio	0.32	0.40
J6	Tsing Tim Street/Sai Tso Wan Road	DFC Ratio	0.31	0.23

Note: The performance of a signalised junction is indicated by its reserve capacity (**RC**). A positive RC figure indicates that the junction is operating with spare capacity; and a negative RC figure indicates that the junction is overloaded, hence resulting in traffic queues and longer travelling time. Design Flow to Capacity (**DFC**) ratio reflects the performance of a non-signalised junction. A DFC ratio below 0.85 is satisfactory. A DFC ratio between 0.85 and 1.00 is undesirable; and a DFC ratio greater than 1.00 denotes overcapacity.

5. The results indicate that the performance of signalised junctions J2 and J4 with unsatisfactory reserve capacity of -2.3% (AM Peak) and -5.0%/-13.0% (AM/PM Peak) respectively will need to be improved. The other 4 key junctions (i.e. J1, J3, J5, and J6) are satisfactory with adequate capacity to accommodate the additional traffic generated by the VEC. The proposed improvement measures for J2 and J4 include increasing signal cycle time, localised road widening works, and changing the curb-side lane of Tsing Yi Road to permit left turn only onto Sai Tso Wan Road. These are shown in **Figures 2** and **3** respectively.

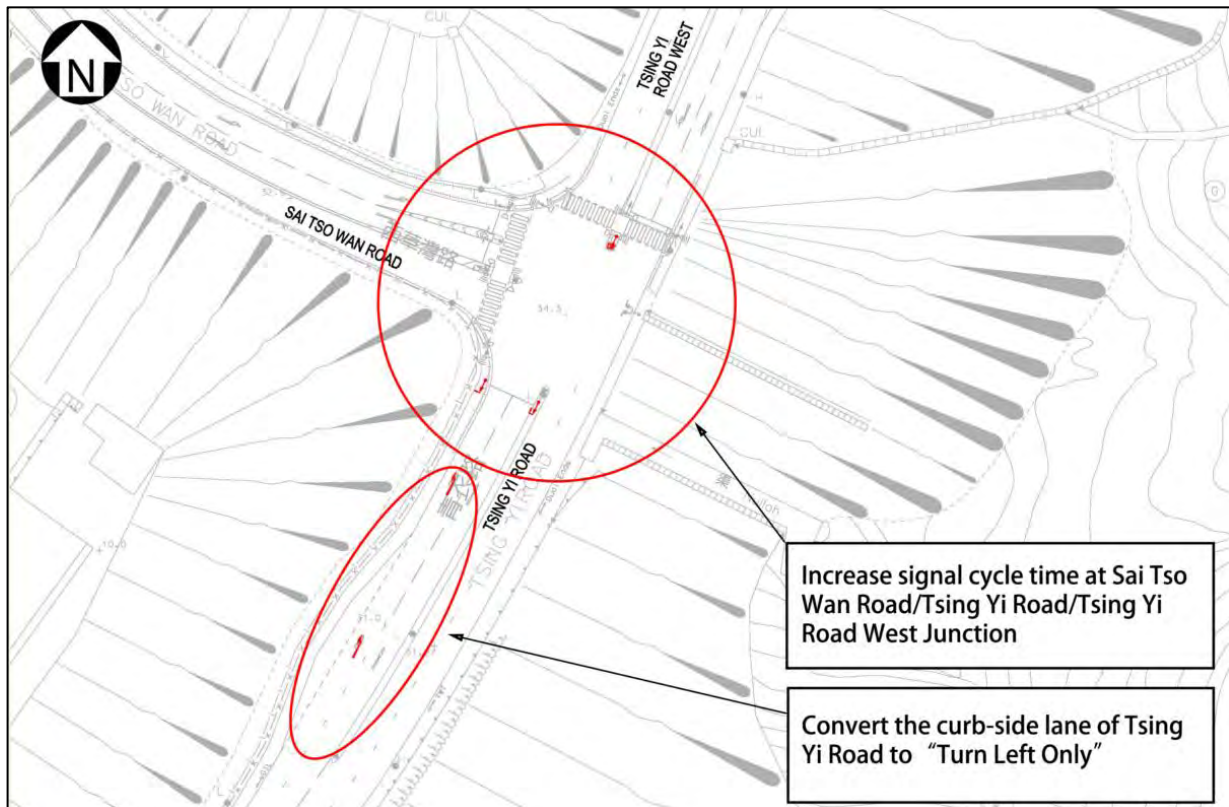
Figure 2 Proposed Improvement Measures at J2



The proposed improvement measures for the signalized junction at Tsing Hung Road/Tsing Yi Road (J2) include:

- increasing the signal cycle time from 100 seconds to 120 seconds; and
- widening a section of Tsing Yi Road of approximately 125 metres long.

Figure 3 Proposed Improvement Measures at J4



The proposed improvement measures for the signalized junction at Sai Tso Wan Road/Tsing Yi Road/Tsing Yi Road West (J4) include:

- increasing the signal cycle time from 100 seconds to 120 seconds; and
- converting the curb-side lane of Tsing Yi Road turning onto to Sai Tso Wan Road from “Go Forward or Turn Left” to “Turn Left Only”.

6. The performance of junctions J2 and J4 after implementation of the proposed improvement measures is found to be satisfactory as shown in **Table 2**.

Table 2 Junction Operation Performance with Improvement Scheme (Year 2024)

No.	Junction Name	Reserve Capacity (RC)	
		AM Peak	PM Peak
J2	Tsing Hung Road/Tsing Yi Road	6.0%	15.2%
J4	Sai Tso Wan Road/Tsing Yi Road/Tsing Yi Road West	4.0%	5.0%

VEC Related Traffic

7. In order to have a better understanding of the VEC related traffic, a field survey was conducted in 2015 at the three existing VECs. The purpose of the survey was to identify the origins of the incoming VEC traffic to postulate the pattern for the new VEC. The findings are shown in **Figure 4**.

Figure 4 Traffic Assessment on the New VEC



Via Ting Kau Bridge

8. The traffic survey indicated that 40% of vehicles per hour (around 50 nos.) would use Ting Kau Bridge to/from the VEC. Vehicles from Ting Kau Bridge can simply make a right turn on Tsing Yi Road West towards the VEC and make a left turn on Tsing Yi Road West towards Ting Kau Bridge after leaving the VEC. Hence, they would unlikely pass through the roads in Tsing Yi district centre. Due to the small number of vehicles, the traffic impact is expected to be insignificant.

9. Moreover, it is estimated that 55% of medium/heavy goods vehicles per hour (around 14 nos.) would use Ting Kau Bridge to/from the VEC daily.

Via Stonecutters Bridge

10. The traffic survey indicated that 15% of vehicles per hour (around 19 nos.) would use Stonecutters Bridge to/from the VEC. Due to the small number of vehicles, the traffic impact is expected to be insignificant.

Via Tsing Yi Bridge

11. The traffic survey indicated that 20% of vehicles per hour (around 25 nos.) would use Tsing Yi Bridge to/from the VEC. Due to the small number of vehicles, the traffic impact is also expected to be insignificant.

Via Tsing Tsuen Bridge

12. The traffic survey indicated that 25% of vehicles per hour (around 31 nos.) would use Tsing Tsuen Bridge and through Tam Kon Shan Interchange to/from the VEC. The traffic direction during the AM peak period is in the opposite direction to the vehicles going to the VEC. Moreover, there is a dedicated left-turn lane to Tsing Yi Road West when vehicles reach Tam Kon Shan Interchange from Tsing Tsuen Bridge. The traffic impact caused by the VEC to this interchange is expected to be insignificant.

13. After leaving Tam Kon Shan Interchange, vehicles will pass through the subsequent 5 junctions, i.e. Tsing Yi Road West/Fung Shue Wo Road, Tsing Yi Road West/Liu To Road, Tsing Yi Road West/Tsing Hong Road, Tsing Yi Road West/Tsing Chin Street, and Tsing Yi Road West/Cheung Tsing Highway. Due to the small number of vehicles, the traffic impact is also expected to be insignificant.

Roundabout Capacity Analysis

14. Apart from the TIAs for the VEC project, we have also separately reviewed the traffic impact on the roundabouts in Tsing Yi with reference to a TIA conducted by the Transport Department (TD). The forecast traffic in 2026 is adopted with addition of the VEC related traffic. The locations of these roundabouts (RA1 to RA6) are shown in **Figure 1**.

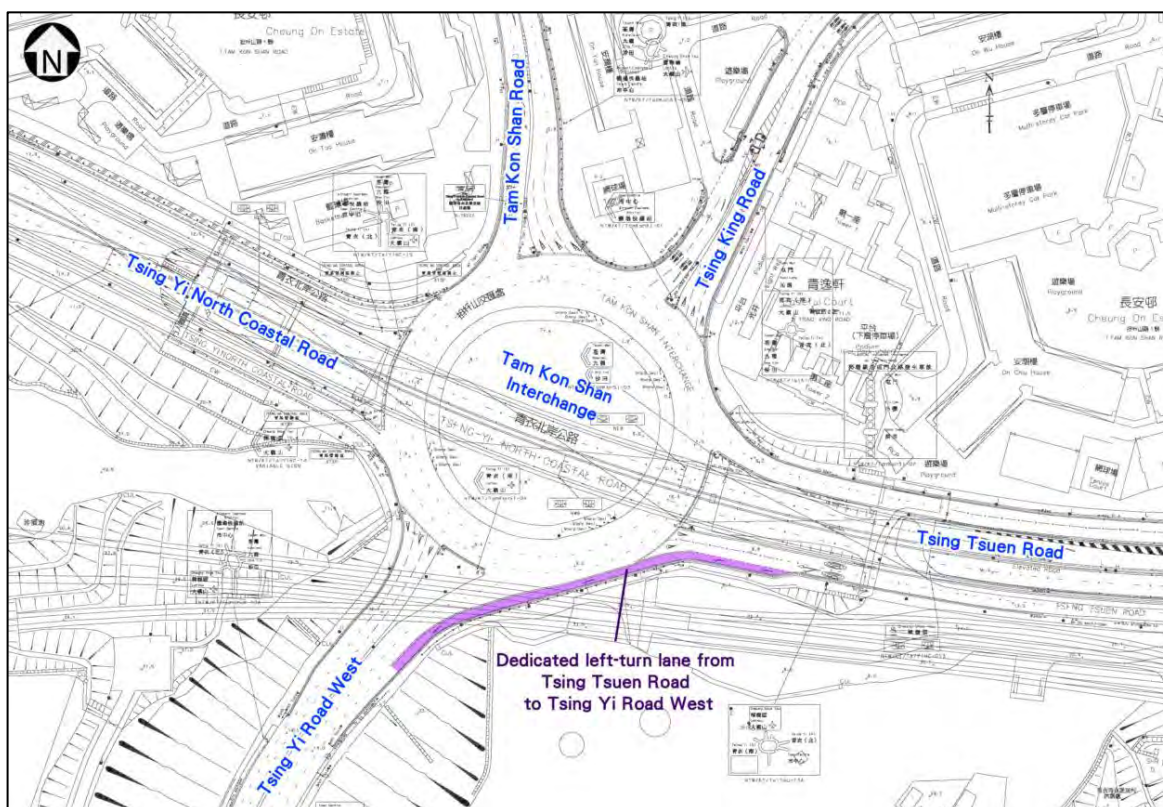
15. For Tsing Yi Interchange (RA1), the VEC related traffic is small (around 25 vehicles per hour coming from Tsing Yi Bridge to the interchange) when compared with the background traffic (around 1,600 vehicles per hour). For the roundabout at Tsing Yi Road/Tsing Yi Hong Wan Road (RA2), TD already has a plan to improve it by 2020. The estimated VEC related traffic added to this roundabout (around 19 additional vehicles per hour from Stonecutters Bridge against the existing around 600 vehicles per hour) is also small. Both RA1 and RA2 have

adequate capacities to accommodate the additional traffic generated by the VEC.

16. For the roundabouts at Tsing Yi Hong Wan Road (RA3), Tsing Yi Hong Wan Road/Tsing Ko Road (RA4), and Tsing Yi Heung Sze Wui Road/Fung Shue Wo Road/Tsing King Road (RA6), the VEC related traffic will unlikely use these three roundabouts and hence will unlikely cause any impact.

17. For the Tam Kon Shan Interchange (RA5), as mentioned in paragraph 12 above, the traffic direction during the AM peak period is in the opposite direction to the vehicles going to the VEC. There is also a dedicated left-turn lane to Tsing Yi Road West when vehicles arriving Tam Kon Shan Interchange from Tsing Tsuen Bridge as shown in **Figure 5**. The traffic impact caused by the VEC on this interchange is therefore insignificant.

Figure 5 Tam Kon Shan Interchange (RA5)



(b) Proposed Road Widening Works at Sai Tso Wan Road

18. A volume/capacity (V/C) ratio assessment for Sai Tso Wan Road in 2024 was also conducted. The results are shown in **Table 3**.

Table 3 Volume/Capacity Ratio Assessment Results at Sai Tso Wan Road (Year 2024)

	V/C Ratio	
	AM Peak	PM Peak
Sai Tso Wan Road (Westbound)	0.75	0.81
Sai Tso Wan Road (Eastbound)	0.69	0.70

Note: The volume/capacity (V/C) ratio reflects the performance of a road. A V/C ratio equals to or less than 1.0 means that the road has sufficient capacity to cope with the volume of vehicular traffic under consideration and the resultant traffic will flow smoothly. A V/C ratio between 1.0 and 1.2 indicates the onset of congestion, and that above 1.2 indicates more serious congestion.

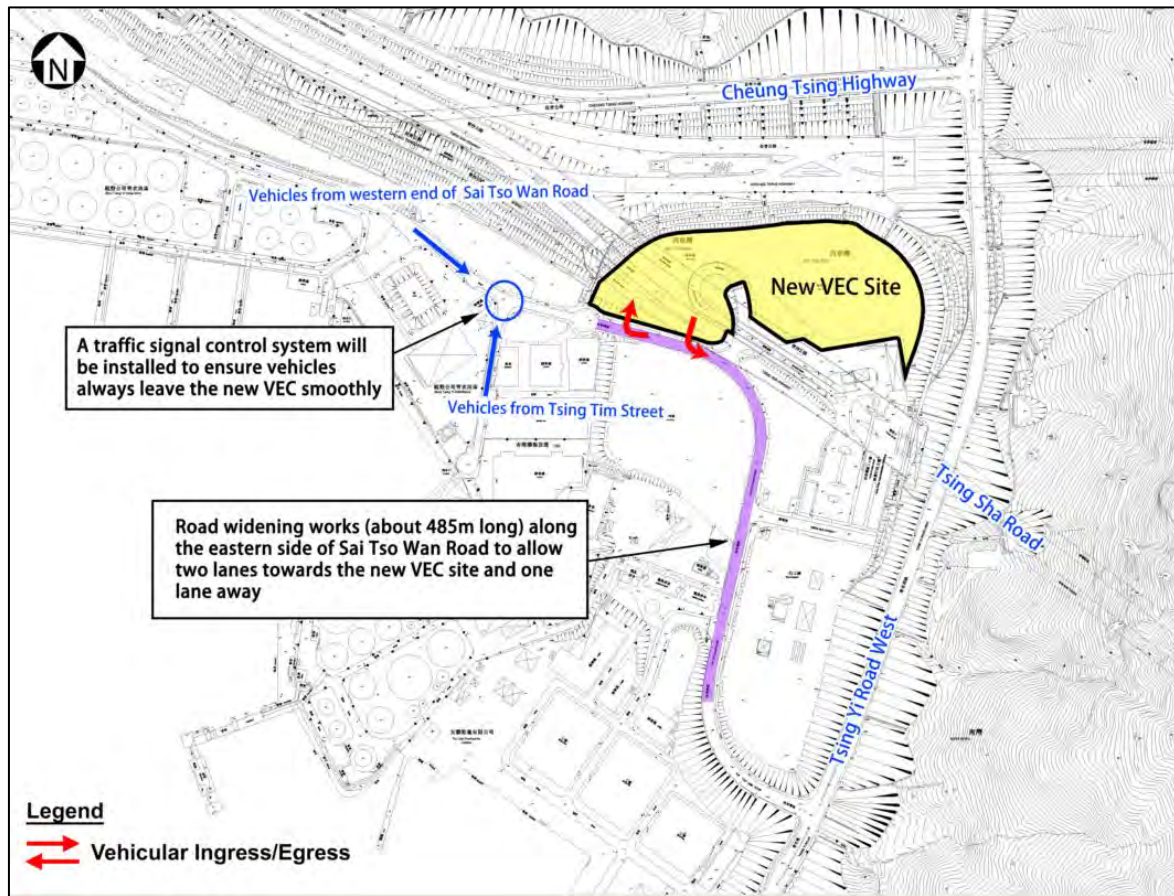
19. The results indicate that the performance of Sai Tso Wan Road both westbound and eastbound is satisfactory, with adequate capacity to accommodate the additional traffic generated by the VEC in 2024.

20. Nevertheless, some incoming vehicles may come earlier than their appointments and on certain occasions queue outside the VEC waiting for vehicle examination. To address this situation, a new traffic lane of about 485m long towards the VEC is proposed. This new traffic lane will provide an exclusive right turn for the VEC related traffic and allow vehicles to get access to the VEC without blocking other westbound traffic. In addition, the TIA recommends that the VEC would be opened one hour earlier, i.e. before 7:30am for morning appointments and 12:45pm for afternoon appointments, to allow vehicles to enter the queuing plaza within the VEC in advance which will minimise the traffic impact on Sai Tso Wan Road. Upon implementation of the recommended measures, the performance of Sai Tso Wan Road will be further enhanced.

21. For vehicles leaving the VEC, since vehicle examination is a step-by-step process along the inspection lanes, the departure of vehicles will also be in regular sequence and evenly distributed. A traffic signal control system will be installed on Sai Tso Wan Road (**Figure 6**) to regulate the eastbound traffic to ensure that the traffic coming out of the VEC will not be blocked by vehicles from the western end of Sai Tso Wan Road and Tsing Tim Street, and can always leave smoothly. Having regard to the evenly distributed traffic and with the signal control system in

place, provision of an extra traffic lane on Sai Tso Wan eastbound is considered not necessary.

Figure 6 Proposed Improvement Measures at Sai Tso Wan Road



22. We will closely monitor the traffic condition on Sai Tso Wan Road to ensure smooth traffic flow after commissioning of the VEC in 2019. The Transport Department will also closely liaise with relevant stakeholders including the trades and associations to review any necessary improvement from the operational point of view.

**Development Bureau
Transport Department
July 2016**

Summary of Supplementary Traffic Study

1.1 Background

- 1.1.1 A new Vehicle Examination Centre (VEC) is proposed to be constructed at Sai Tso Wan, Tsing Yi, in order to relocate the three existing VECs in Kowloon Bay and To Kwa Wan. The proposed VEC accommodates about 30 inspection lanes on different floors, queuing and waiting area and associated equipment for the examination of all vehicles such as taxi, light bus, bus, goods vehicle, trailer, etc. The VEC is designed for a handling capacity of 1,000 vehicles per day.
- 1.1.2 In view of the LegCo Panel on Development's comments on the traffic issues of the VEC project in the consultation process in May 2016, a Supplementary Traffic Study was undertaken to review the arrangement for re-provisioning of existing temporary vehicle parking facility affected by the proposed VEC project and update the Traffic Impact Assessment (TIA) regarding the latest performance of various major road junctions and roundabouts on Tsing Yi.

1.2 Existing Traffic Condition on Tsing Yi

- 1.2.1 **Traffic surveys** were conducted on two normal weekdays (12 and 15 September 2016) during the period of 07:30-09:30(AM) and 16:00-18:00(PM). The locations of the key junctions/roundabouts on Tsing Yi examined are indicated in **Enclosure 6-1**.
- 1.2.2 AM and PM peaks of vehicular traffic flows were identified to be 08:30 – 09:30 (AM) and 16:00-17:00 (PM). It was found that all assessed junctions and roundabouts were operating within capacity in the existing year as shown in Table 1.

Table 1 Performance of Road Junctions and Roundabouts in Existing Year

Index	Junction	Type	R.C. / D.F.C (#)	
			AM	PM
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	>50%	>50%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	25%	27%
J3	Tsing Sheung Road / Tsing Yi Road	Priority	0.73	0.67
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	29%	28%
J5	Car Park Entrance / Sai Tso Wan Road	Priority	0.11	0.12
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.24	0.13
J7	Tsing Yi Road West / Tsing Chin Street(*)	Priority	N/A	N/A
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	44%	>50%
J9	Tsing Yi Road West / Liu To Road	Signalized	>50%	50%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	>50%	>50%
RA1	Tsing Yi Interchange	Roundabout	0.62	0.70
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road /	Roundabout	0.61	0.48

Index	Junction	Type	R.C. / D.F.C (#)	
			AM	PM
	Tsing Sha Highway			
RA3	Hong Wan Road	Roundabout	0.41	0.33
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.23	0.19
RA5	Tam Kon Shan Interchange	Roundabout	0.66	0.63
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.50	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.06	0.07
RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	0.37	0.31
RA9	Tam Kon Shan Road / Tsing Yi North Coastal Road	Roundabout	0.11	0.12
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.13	0.08

(#) Figures shown represent “Reserve Capacity” (RC) for the signal controlled junctions and “Design Flow to Capacity” (DFC) ratio for the priority junctions and roundabouts. An existing signal-controlled junction with a reserve capacity (RC) >15% implies that it is operating satisfactorily while a negative RC% suggests that it is overloaded. For priority junctions and roundabouts, the performance indicator is the DFC (Design Flow to Capacity). For existing junctions, DFC < 0.85 is the acceptance criteria; DFC over 1.00 indicates overloaded conditions.

(*) Only ingress traffic is allowed on Tsing Chin Street. No traffic conflicts or delay is expected in this location. Therefore, no junction assessment is required.

1.3 Traffic Pattern of the Proposed VEC

1.3.1 In accordance with the questionnaire survey conducted in the three existing VECs in Kowloon Bay and To Kwa Wan, the expected traffic routing used by the VEC vehicles is illustrated below and in **Enclosure 6-2**.

- About 40% of vehicles travels via Ting Kau Bridge;
- About 25% of vehicles travels via Tsing Tsuen Bridge;
- About 20% of vehicles travels via Tsing Kwai Highway; and
- About 15% of vehicles travels via Stonecutters Bridge.

The traffic assessment on the road network and the improvement schemes proposed are based on the vehicle generation of the new VEC with 7.5 working hours. The results reveal that the traffic pattern is similar to that found in the previous TIA.

Traffic measures

1.3.2 Junction, Roundabout and Link Assessment was conducted for design years of 2019 and 2024. All the assessed junctions, roundabouts and links on Tsing Yi are anticipated to operate satisfactorily except J2 and J4, as presented in the Table 2 below.

Table 2 Performance of Road Junctions and Roundabouts in Design Years 2019 and 2024

Index	Junction	Type	2019 R.C. / D.F.C		2024 R.C. / D.F.C	
			AM	PM	AM	PM
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	20%	37%	15%	32%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	8%	12%	0%	11%
J3	Tsing Sheung Road / Tsing Yi Road	Priority	0.76	0.71	0.79	0.72
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	-3%	-5%	-5%	-7%
J5	Car Park Entrance / Sai Tso Wan Road	Signalized	>50%	>50%	>50%	>50%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.24	0.13	0.24	0.13
J7	Tsing Yi Road West / Tsing Chin Street	Priority	N/A	N/A	N/A	N/A
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	35%	>50%	25%	>50%
J9	Tsing Yi Road West / Liu To Road	Signalized	>50%	42%	>50%	39%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	>50%	>50%	>50%	>50%
RA1	Tsing Yi Interchange	Roundabout	0.66	0.74	0.74	0.82
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.82	0.66	0.84	0.68
RA3	Tsing Yi Hong Wan Road	Roundabout	0.54	0.43	0.55	0.44
RA4	Tsing Yi Hong Wan Road / Tsing Ko Road	Roundabout	0.33	0.26	0.34	0.27
RA5	Tam Kon Shan Interchange	Roundabout	0.69	0.68	0.84	0.81
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.52	0.48	0.53	0.49
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.07	0.07	0.07	0.07
RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	0.42	0.36	0.48	0.40
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.12	0.12	0.12	0.12
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.13	0.08	0.13	0.08

1.3.3 **Improvement Schemes for J2 and J4** have been proposed as shown in **Enclosure 6-3**. With the proposed improvements, the two junctions would operate satisfactorily, and the results are shown in the Table 3.

Table 3 Junction Performance with Improvement Scheme

Index	Junction	Type	Assessment Year	R.C.	
				AM	PM
J2	Tsing Hung Road / Tsing Yi Road	Signalized	2019	31%	33%
			2024	21%	32%
J4	Sai Tso Wan Road/ Tsing Yi Road / Tsing Yi Road West (*)	Signalized	2019	19%	28%
			2024	16%	24%

(*)Based on the pedestrian count survey conducted at J4, no pedestrian stage was found to be triggered at peak hour (i.e. 08:30-09:30). For a more conservative scenario, it is assumed that the pedestrian stage would be triggered 20% of the time.

- 1.3.4 To facilitate the egress/ingress traffic of VEC, **about 485m Sai Tso Wan Road (L1) is to be widened into a 3-lane carriageway**, of which 2 lanes are to serve the westbound traffic while the remaining lane would be for eastbound traffic (**Enclosure 6-4**). Link Assessment has been conducted for the improvement and the result as shown in Table 4 indicates that Sai Tso Wan Road would operate within capacity.

Table 4 Link Performance of L1 with Improvement Scheme

Table 4: Link Performance of L1 with Improvement Scheme							
Road Links		Direction	Assessment Year	Road Type	No. of Lanes	V/C Ratio	
						AM Peak	PM Peak
L1	Sai Tso Wan Road	WB-Straight ahead	2019	LD	1	0.53	0.43
		WB-Right Turn			1	0.20	0.20
		EB			1	0.63	0.65
		WB-Straight ahead	2024		1	0.54	0.44
		WB-Right Turn			1	0.20	0.20
		EB			1	0.63	0.66

- 1.3.5 A traffic signal control system is further proposed to be installed near the egress/ingress of the new VEC to regulate the eastbound traffic coming from the western end of Sai Tso Wan Road and Tsing Tim Road to ensure smooth integration with the traffic coming out from the VEC. A signalised control junction is proposed at the project site access and Sai Tso Wan Road (J5) as shown in **Enclosure 6-4** to be operated with demand-dependent principle. Junction assessment as shown in Table 5 indicates that the junction would operate satisfactorily.

Table 5 Proposed Signalized Control Junction at J5

Index	Junction	Year	R.C.	
			AM	PM
J5	VEC assess / Sai Tso Wan Road	2019 with VEC Traffic Flow	>50%	>50%
		2024 with VEC Traffic Flow	>50%	>50%

1.4 Vehicle Parking Utilization and Re-provisioning

- 1.4.1 **Vehicle Parking Utilization** surveys were conducted during daytime and midnight in September and October 2016. The existing project site and 11 temporary vehicle parks which are located away from the residential areas on Tsing Yi were surveyed. The surveys revealed that 5 of them are not suitable for goods vehicle parking or for private use only. The locations of the remaining 6 temporary vehicle parks are shown in **Enclosure 6-5**.

1.4.2 The peak utilization rate of the 6 temporary vehicle parks was found to be at weekend midnight, and the occupancy is shown in Table 6.

Table 6 Existing Occupancy of Surveyed Temporary Public Vehicle Parks

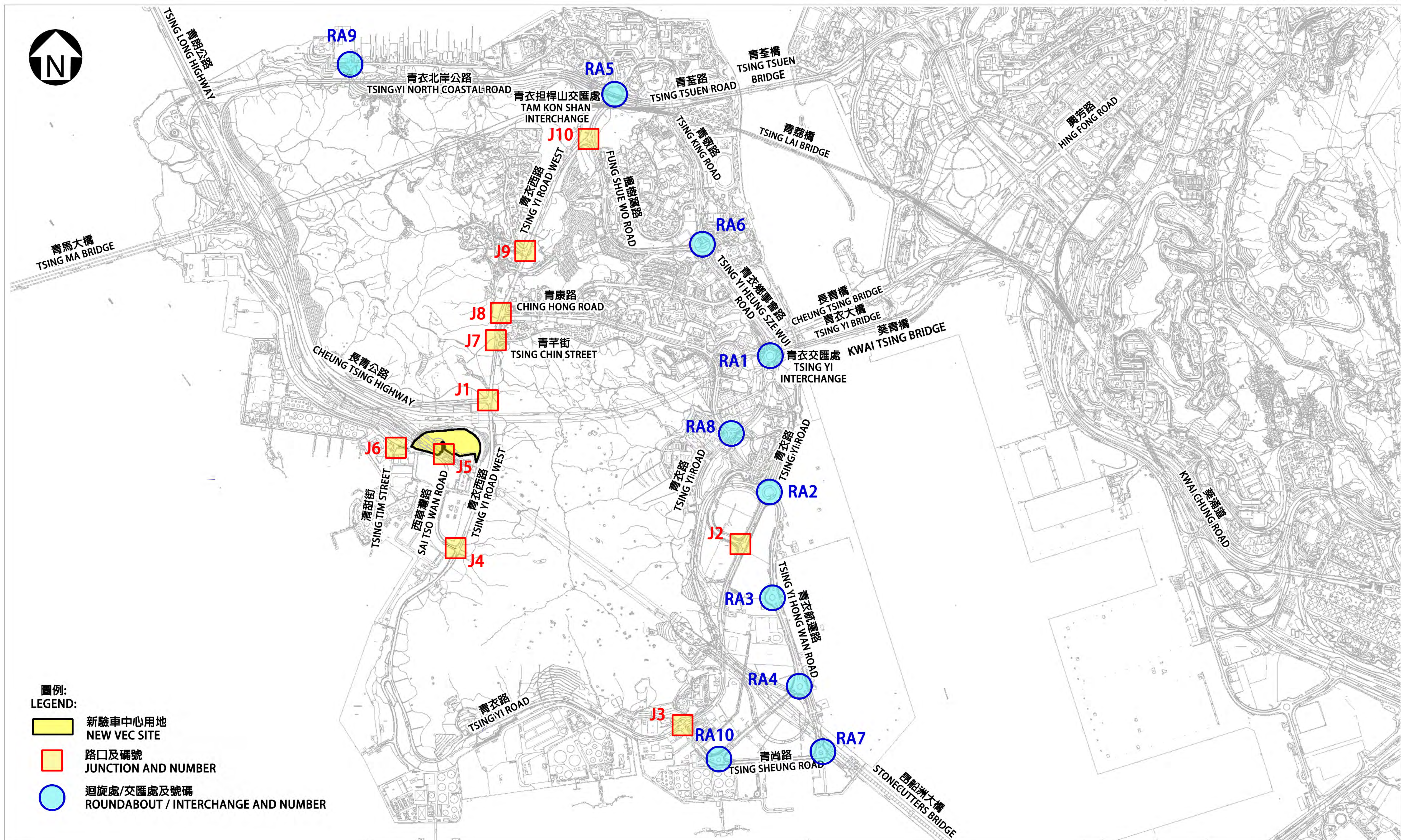
Short Term Tenancy No.	Location	Occupancy (no. of vehicles)			Utilisation %	Surplus vehicle park spaces
		Weekday Midnight	Weekday Daytime	Weekend Midnight		
Project Site (STT 3741)	Sai Tso Wan Road, Tsing Yi	223	205	248	74%	N.A.
STT 3753	Tsing Yi Road, Tsing Yi	17	19	22	85%	4
STT 3775	Tam Kon Shan Road, Area 9, Tsing Yi	10	12	12	92%	1
STT 3715	Tam Kon Shan Road / Tsing Yi North Coastal Road, Tsing Yi	15	16	15	75%	5
STT 3778KT	Sai Tso Wan Road, Area 16, Tsing Yi	123	115	123	78%	70
STT 3818KT	Tsing Yi Hong Wan Road, Tsing Yi	116	116	128	59%	90
STT 3796	Tam Kon Shan Road, Tsing Yi	20	15	16	73%	7

1.4.3 **The existing parking spaces at the proposed VEC site would be re-provisioned** in accordance with the utilization rates and site capacity. The assessment result indicated that the 2 existing STT temporary vehicle parks STT 3818KT and STT 3778KT, together with the proposed STT 3878KT¹ which would soon be tendered for temporary vehicle parking purpose, would be sufficient to re-provide the parking spaces for vehicles using the proposed VEC site. The locations of these 3 sites are shown in **Enclosure 6-6**.

¹ To increase the number of parking spaces on the proposed STT3878KT, a review of the requirement of the Temporary Vehicle Queuing Area (TQA) was conducted. The queuing condition after adverse weather (e.g. typhoon signal no.8) has been assessed as a worst case scenario. With the implementation of a system to cancel vehicle examination appointments by time blocks on such days, the area of the TQA can be reduced. As such, the number of parking spaces provided under STT3878KT can increase from about 110 to **164** in total.

1.5 Conclusion

- 1.5.1 The findings of Supplementary Traffic Study are similar to those in the previous TIA and parking survey, and confirm that the Project would have manageable impact on the Tsing Yi road network with the proposed traffic improvement measures implemented.
- 1.5.2 The existing parking spaces at the proposed VEC site would be sufficiently reprovisioned with the proposed STT site adjoining the project site and the two existing temporary vehicle parking sites with spare capacity.
- 1.5.3 The conclusion is that the Project is acceptable from the traffic point of view.



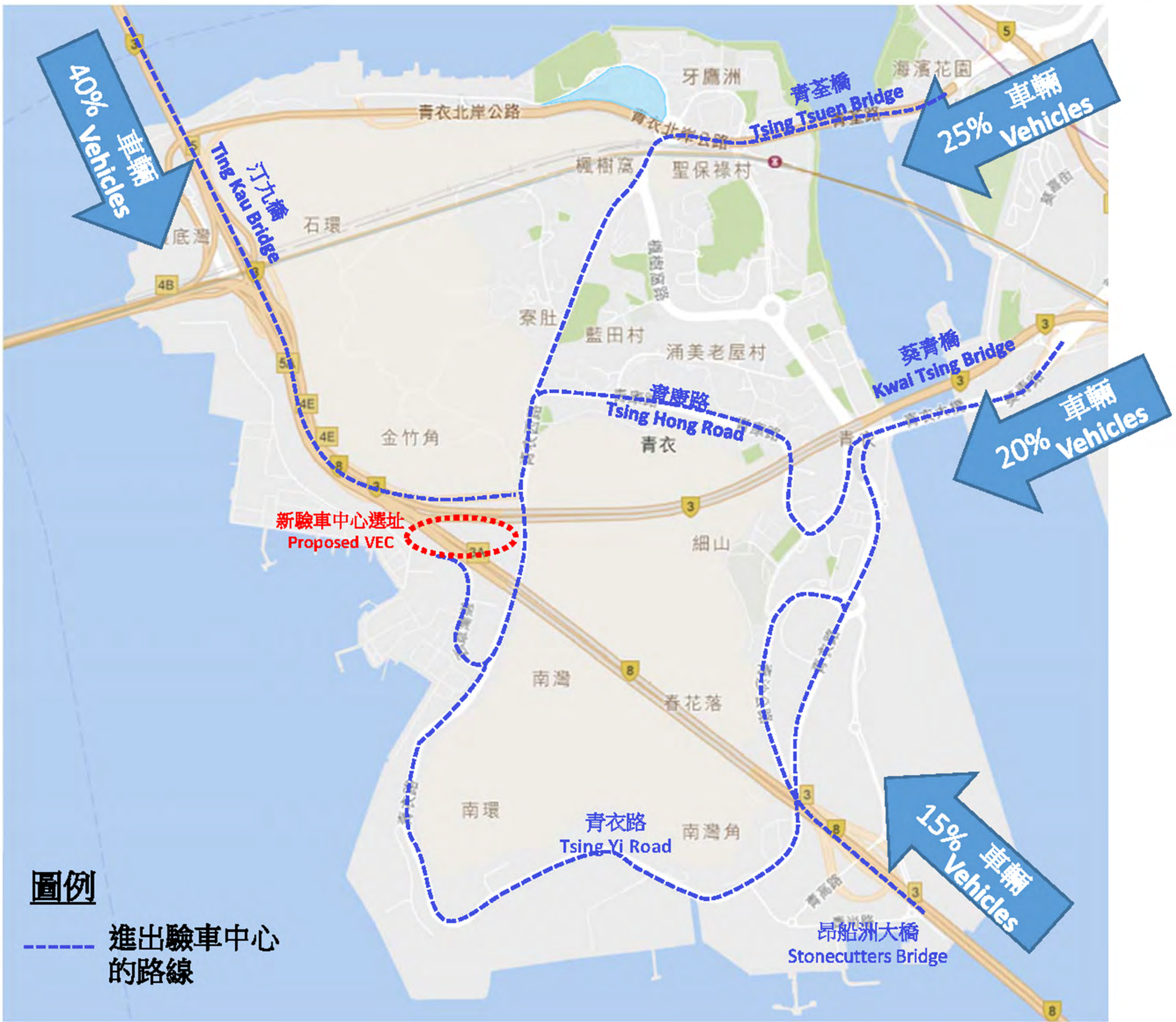
參考資料 Reference

日期 Date : 6/12/2016

路口與迴旋處/交匯處的位置 Location of Junctions and Roundabouts / Interchanges

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau



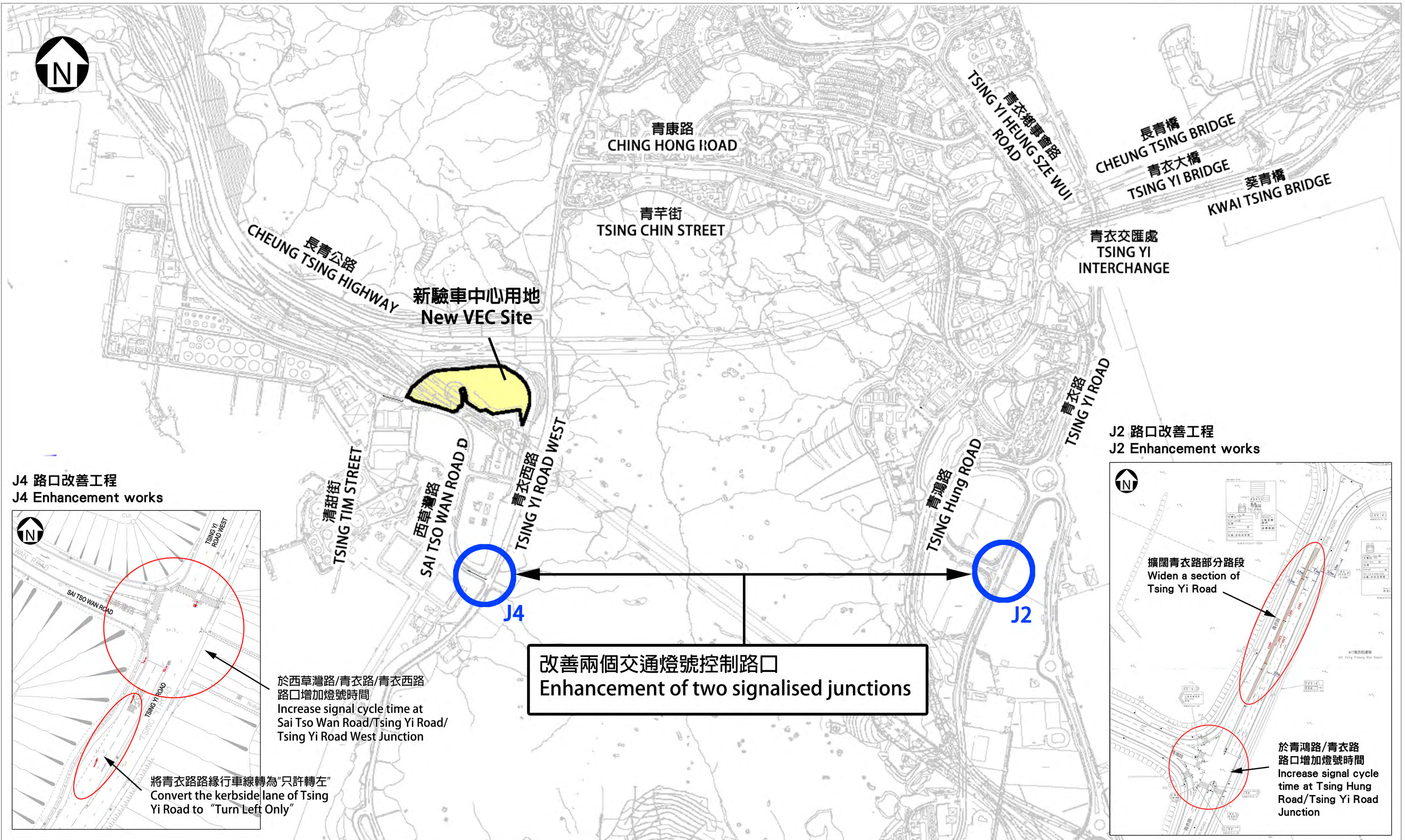
參考資料 Reference

日期 Date : 6/12/2016

驗車中心車輛路線圖
Traffic Routing of VEC Vehicles

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau



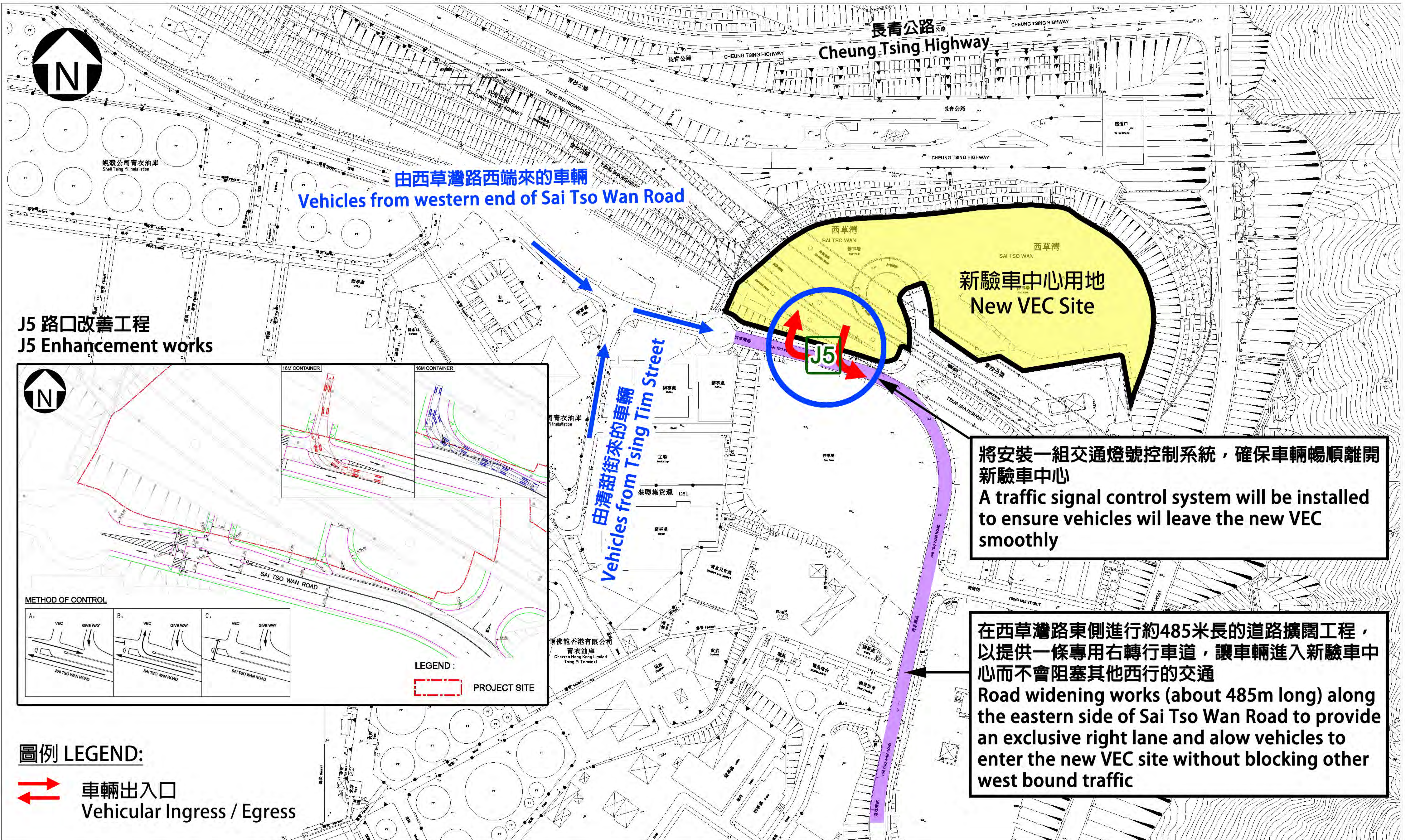
參考資料 Reference

日期 Date : 7/12/2016

新驗車中心的擬議改善工程 Proposed Enhancement Works for the New Vehicle Examination Centre

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau



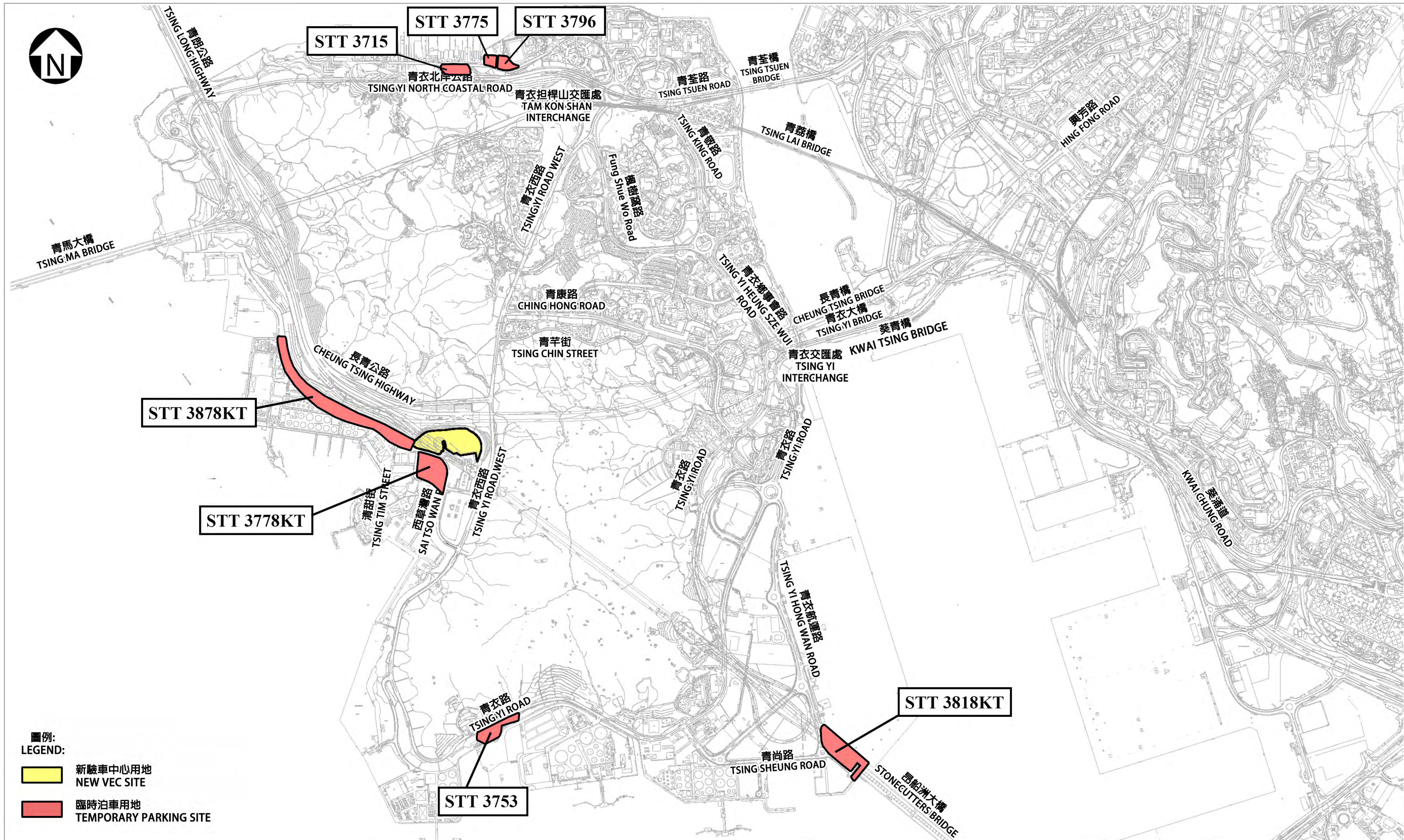
參考資料 Reference

日期 Date : 6/12/2016

新驗車中心的擬議交通改善工程 Proposed Traffic Improvement Works for the New Vehicle Examination Centre

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau



參考資料 Reference

評估的短期租約用地及公共停車場位置
Location of Assessed STT Sites and Public Car Parks

起勁九龍東辦事處
Energizing Kowloon
East Office

Development Bureau

日期 Date : 7/12/2016



青馬大橋
TSING MA BRIDGE

約250輛車停泊在新驗車中心用地
About 250 car parking on the new VEC Site

建議的 Proposed STT 3878KT
將提供約160個泊車位
Will provide about 160 parking spaces

將研究在晚間提供約40個泊車位
Will study to provide about 40 parking spaces at night-time

STT 3778KT
提供約70個剩餘泊車位
Provide about 70 surplus parking spaces

STT 3818KT
提供約90個剩餘泊車位
Provide about 90 surplus parking spaces

- 圖例:
LEGEND:
- 新驗車中心用地
NEW VEC SITE
 - 擬議重置臨時泊車用地
PROPOSED REPROVISIONING OF TEMPORARY PARKING SITE
 - 擬議臨時車輛輪候區
PROPOSED TEMPORARY VEHICLE QUEUING AREA
 - 有剩餘泊車位的臨時泊車用地
TEMPORARY PARKING SITE WITH SPARE PARKING SPACE

參考資料 Reference

日期 Date : 7/12/2016

重置臨時泊車用地的安排 Arrangement for the Reprovisioning of Temporary Vehicle Parking Spaces

起動九龍東辦事處
Energizing Kowloon
East Office

發展局
Development Bureau