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

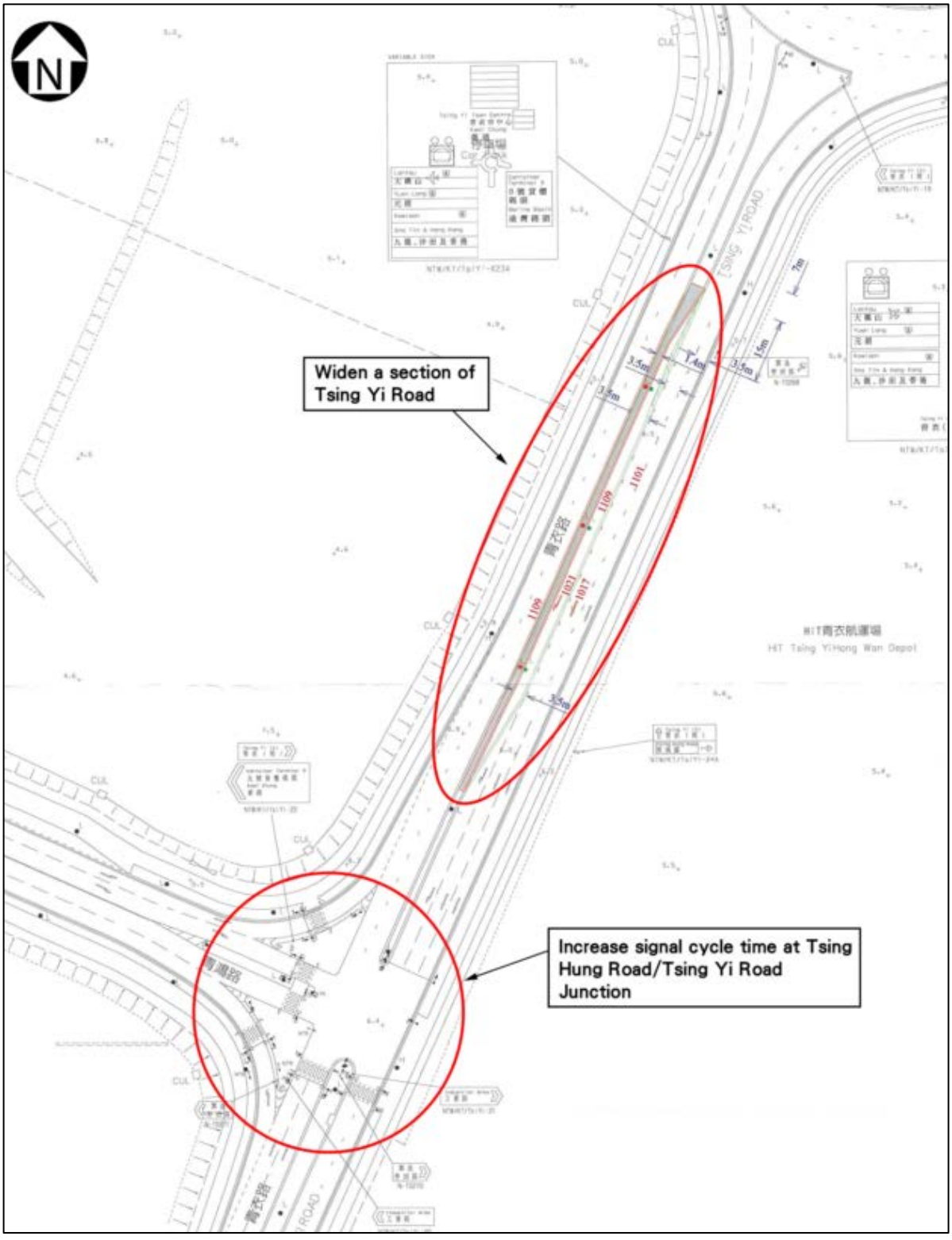
Table 1 Junction Operation Performance without Improvement Scheme (Year 2024)

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.

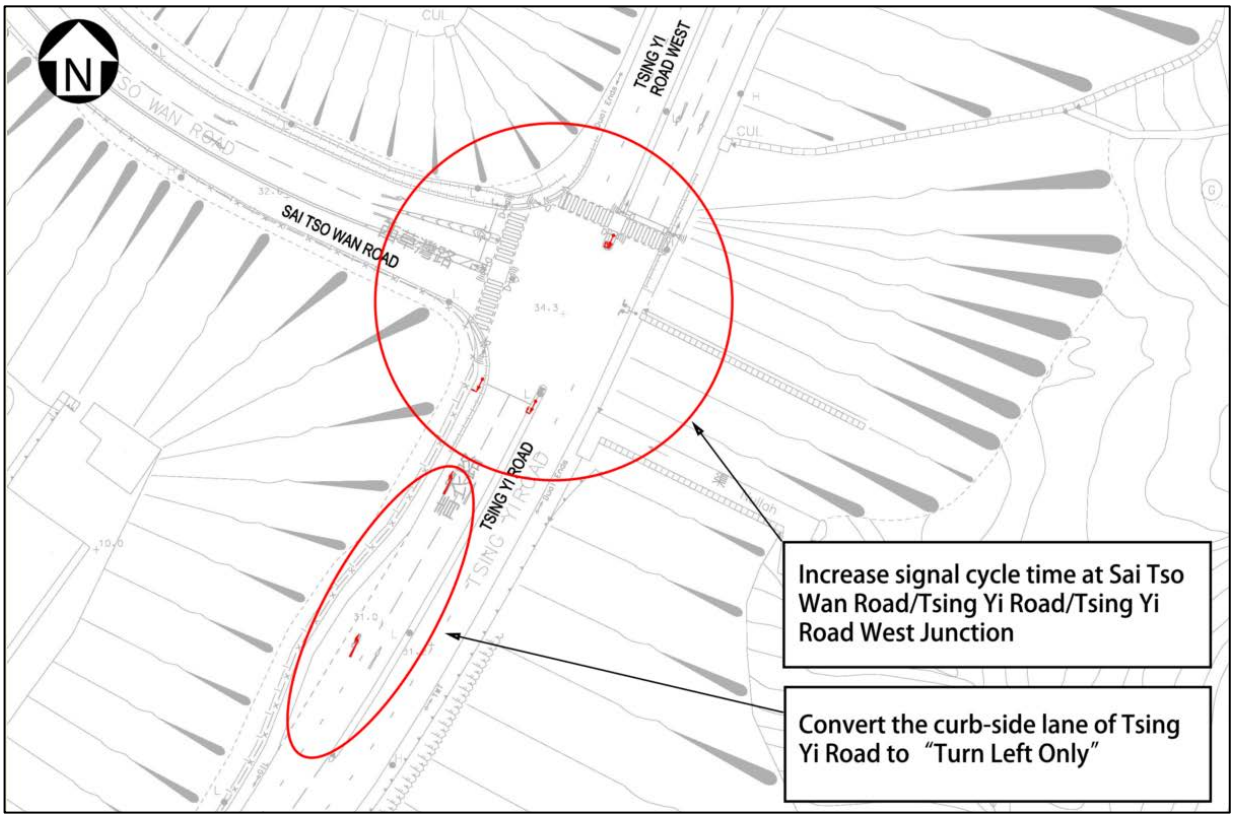
Figure 2 Proposed Improvement Measures at J2



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**.

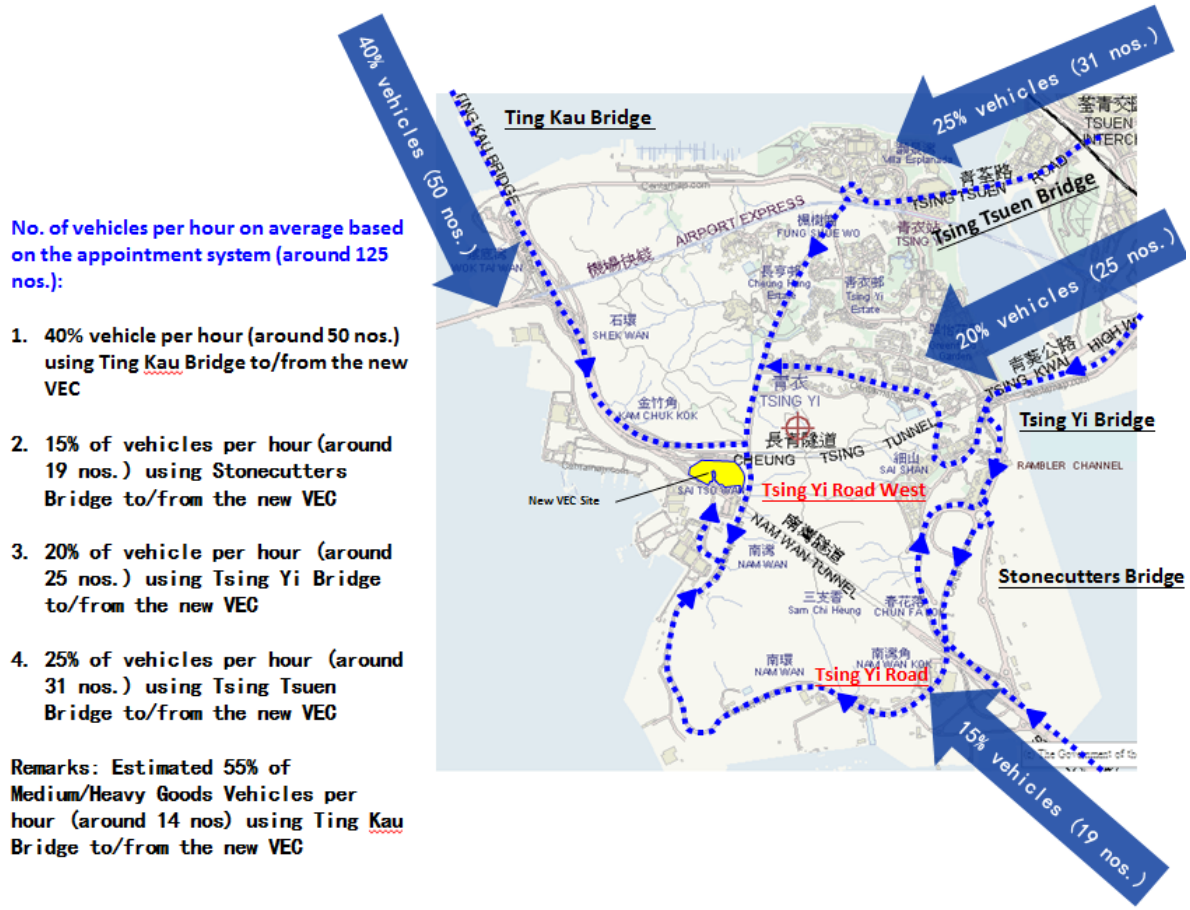
Table 2 Junction Operation Performance with Improvement Scheme (Year 2024)

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**.

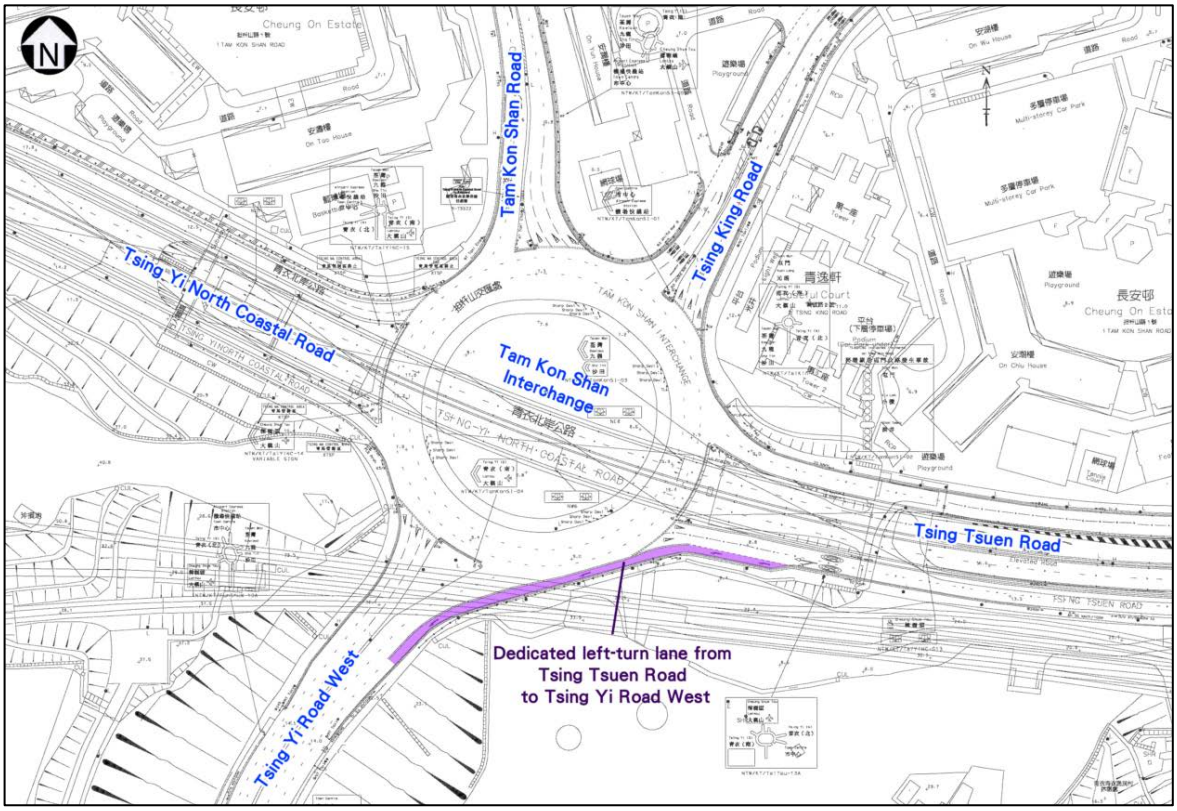
15. For Tsing Yi Interchange (RA1), the VEC related traffic is small (around 25 vehicles per hour coming from Tsing Yi Bridge to the interchange) when compared with the background traffic (around 1,600 vehicles per hour). For the roundabout at Tsing Yi Road/Tsing Yi Hong Wan Road (RA2), TD already has 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.

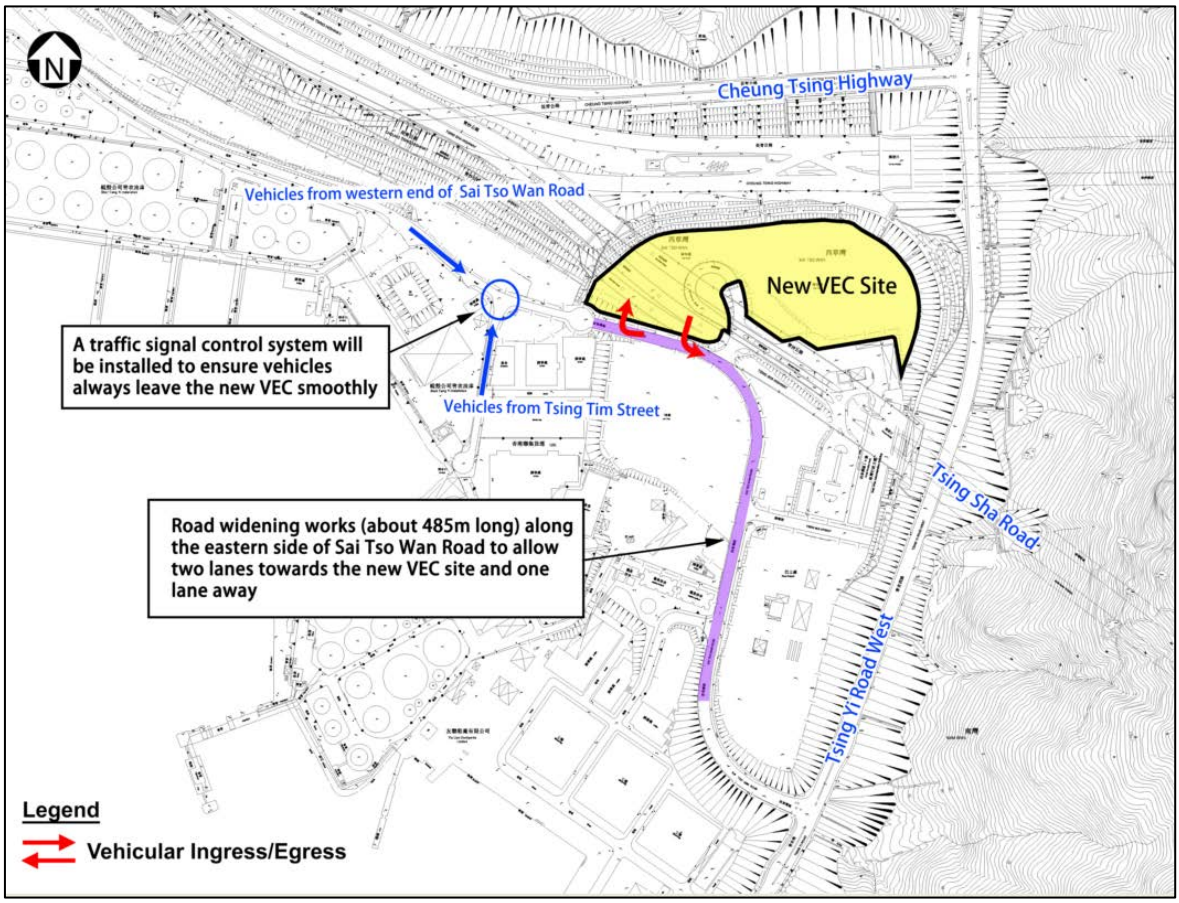
19. The results indicate that the performance of Sai Tso Wan Road both westbound and eastbound is satisfactory, with adequate capacity to accommodate the additional traffic generated by the VEC in 2024.

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