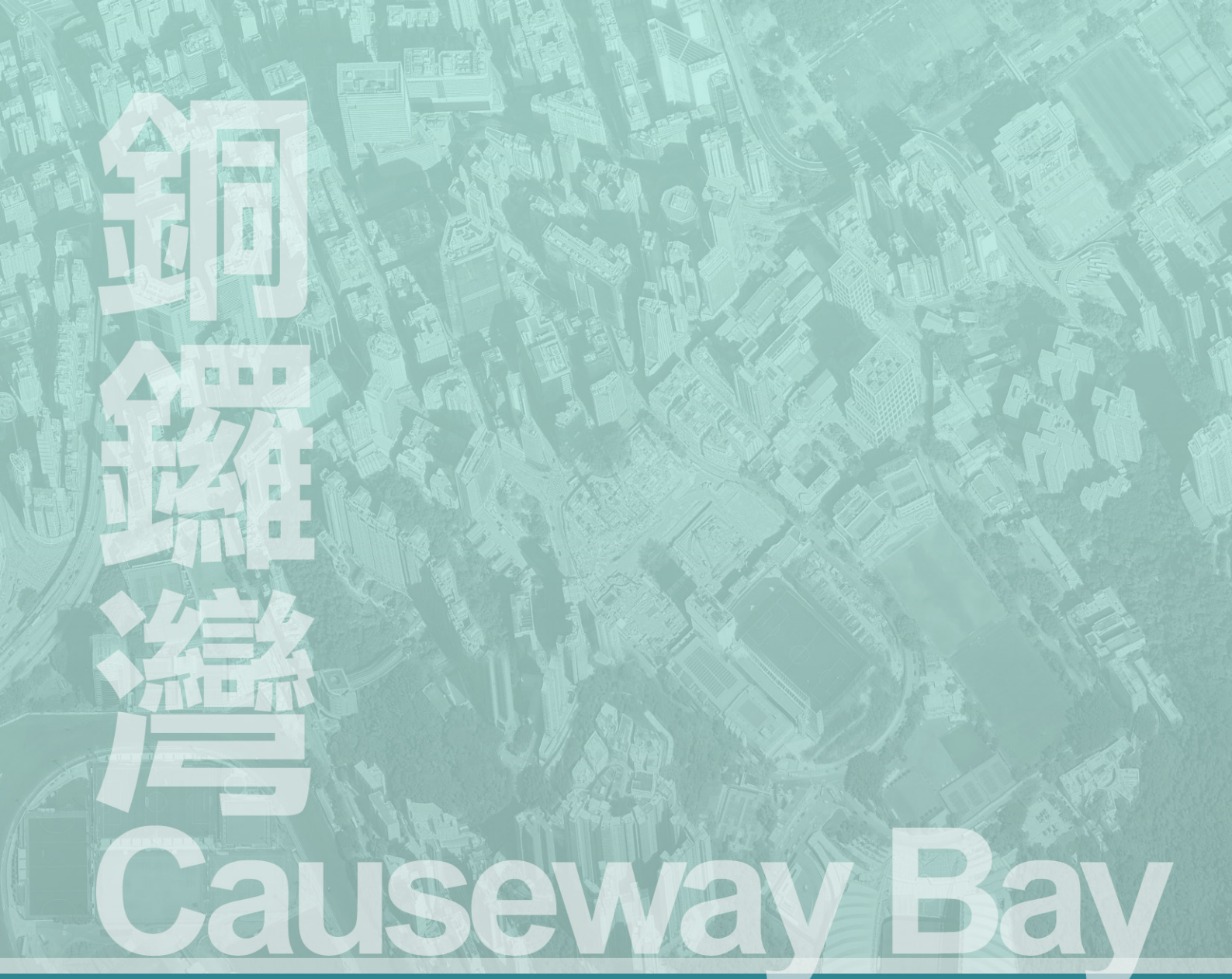

Replacement Pages of Annex A Traffic Impact Assessment

27/08/2026

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SECTION 16 PLANNING APPLICATION OF PROPOSED UNDERGROUND VEHICULAR TUNNEL T3 (CONNECTING LEE GARDEN THREE AND LEE GARDEN EIGHT)

TRAFFIC IMPACT ASSESSMENT

SYSTRA MVA

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1. INTRODUCTION

1.1 Background

1.1.1 To enhance the traffic condition in the Causeway Bay south area, two vehicle tunnels, namely Tunnel T1 and Tunnel T2 were proposed beneath Hysan Avenue and Yun Ping Road respectively. Tunnel T1 would connect the basement car parks at Lee Garden One (LG1) and Lee Garden Three (LG3), while Tunnel T2 would connect the basement car parks at Lee LG1 and Lee Garden Two (LG2). The latest Section 16 (S16) planning applications (nos. A/H6/93 and A/H6/94) for Tunnels T1 and T2 were approved by the Town Planning Board (TPB) in February 2025. The locations of the planned Tunnel T1 and Tunnel T2 are shown in **Drawing No. 1.1**.

1.1.2 A commercial development, namely Lee Garden Eight (LG8), is being constructed on Inland Lot No. 8945 at Caroline Hill Road, and its completion is anticipated in 2026. Given that LG8 is situated at close proximity of LG3, it offers an opportunity to further enhance the accessibility of underground car parks in the area by introducing another vehicular tunnel (Tunnel T3) to link up the basement car parks of LG3 and LG8. The location of Tunnel T3 is indicated in **Drawing No. 1.1**.

1.1.3 The improved accessibility to car parks via Tunnel T3 will reduce at-grade traffic circulation, further enhancing future traffic conditions in the area.

1.1.4 Since the proposed Tunnel T3 would run on Sunning Road and across Leighton Road, where are zoned as 'Road' in the Causeway Bay Outline Zoning Plan (OZP), S16 planning application for the proposed underground vehicular tunnel is required for obtaining permission from TPB.

1.1.5 MVA Hong Kong Limited (MVA) is commissioned as a traffic consultant to conduct a traffic study and prepare a Traffic Impact Assessment (TIA) in support of the proposed Tunnel T3 and the S16 planning application.

1.1.6 The purposes of this study are to review the current traffic conditions in the area, assess the traffic impacts and identify potential benefits to the local traffic due to Tunnel T3.

1.2 Study Objectives

1.2.1 The main objectives of the traffic review are as follows:

- to present the proposed scheme of the proposed Tunnel T3;
- to review the existing traffic arrangement and undertake manual classified count traffic surveys to determine the existing traffic conditions in the vicinity of LG3 and LG8;
- to identify further potential changes in traffic routing and reductions in at-grade traffic resulting from the proposed vehicle Tunnel T3, accounting for the implementation of planned Tunnels T1 and T2;
- to estimate the future traffic flows in the design year on the surrounding road network;
- to assess the traffic impacts and identify benefits to the local traffic due to the tunnel for the design year; and
- to present the proposed traffic arrangement and measures for the tunnel construction and review if any adverse traffic impact during the tunnel construction.

1.3 Structure of the Report

1.3.1 Following this introductory chapter, there are four further chapters.

- **Chapter 2** – *Proposed Tunnel T3*, which describes the details of Tunnel T3 and identifies its role in further diverting at-grade traffic underground.
- **Chapter 3** – *Existing Traffic Situation*, which reviews the existing road network and traffic arrangement in the vicinity of the proposed Tunnel T3, presents the findings from traffic count surveys and assesses the existing traffic conditions.
- **Chapter 4** – *Future Traffic Forecast*, which discusses the design year and the future scenarios for assessment in this study and presents the methodology for traffic forecasts.
- **Chapter 5** – *Traffic Impact Assessment*, which presents the assessment results and summarises the findings of the assessments.
- **Chapter 6** – *Expected Benefits*, which discusses the benefits to the local traffic due to the proposed Tunnel T3.
- **Chapter 7** –*Traffic Arrangement and Impact During Construction Stage*, which discusses the proposed traffic arrangement and the associated measures to facilitate the tunnel construction and review if any traffic impact during the tunnel construction.
- **Chapter 8 –** *Summary and Conclusion*, which summarizes the study findings and presents the conclusion for this TIA report.

2. PROPOSED TUNNEL T3

2.1 Tunnel Alignment

2.1.1 Tunnel T3 will branch from the southeast corner of LG3 underneath Sunning Road and run across Leighton Road. To avoid any encroachment into the adjoining private lots at Sunning Road while allowing the connection to serve both traffic directions, the tunnel is proposed with two levels serving private cars in one traffic direction at each level. The proposed alignment of Tunnel T3 is shown in **Drawing No. 1.1.**

2.1.2 The double-deck tunnel will connect from the south-east corner of basement levels 3 and 4 car park of LG3 to the northern side of basement levels 3 and 4 car park of LG8.

2.2 Traffic Arrangement

2.2.1 As mentioned in the above **Section 2.1,** the Tunnel T3 is proposed with two levels serving one traffic direction at each level for private cars use only. For compliance of the relevant standards/requirement, a minimum 4m clear width of driveway and a minimum clear headroom of 2.4m will be provided for the one-way driveway at each level within the tunnel. The B3/F and B4/F plans as well as the sectional design of Tunnel T3 are presented in **Drawing Nos. 2.1** and **2.2**. Swept path analysis has been conducted and demonstrated in **Appendix A**.

2.2.2 Tunnel T3 is proposed for vehicular traffic only, and no pedestrian passage will be provided at the entire Tunnel T3.

2.3 Tunnel Construction

2.3.1 To avoid excavation works on public roads and hence minimizing disturbance to the at-grade vehicular and pedestrian traffic of Sunning Road and Leighton Road during the construction, “Drill and Excavation Method” with launching from LG8 will be adopted.

2.3.2 In addition, construction of Tunnel T3 will be commenced not earlier than the construction works for the planned Tunnels T1 and T2.

2.3.3 Appropriate internal temporary traffic arrangement will be implemented within the car parks at LG3 and LG8 to maintain the operation during the construction works. Details of the proposed traffic arrangement during the construction stage of the tunnel are presented in **Chapter 7** of this report.

2.4 Further Diversion of At-grade Traffic to Underground by Tunnel T3

2.4.1 With the planned Tunnels T1 and T2, the availability of Tunnel T3 will further expand the connectivity of underground car parks and enable at-grade traffic to access the car parks via alternative underground routes, given that the diverted route would be shorter. Travel distances and travel time between the original at-grade access routes and some identified traffic diversion routes due to the proposed Tunnel T3 has been reviewed.

Ingress Route of LG8 Car Park from the West

2.4.2 Without the proposed Tunnel T3, traffic from the West, i.e. Percival Street and Leighton Road eastbound, will access LG8 with passing through Hysan Avenue, Hoi Ping Road and Caroline Hill Road (west), including two at-grade signalised junctions with Leighton Road and Link Road.

2.4.3 With the proposed tunnel, LG8 traffic can access via the existing run-in of LG3 at Hoi Ping Road. Although the travel distance of underground route (680m) would be slightly longer than the at-grade route (600m), vehicles would potentially wait for the green signals at the two at-grade signalised junctions, and increase the travelling time upto about 6 mins, compared with about 4 mins for the underground route. Therefore, diverting this ingress route to the underground is considered reasonable. The anticipated re-routing is illustrated in **Drawing No. 2.3.**

Ingress Route of LG8 Car Park from the East

2.4.4 Traffic from the East, i.e. Leighton Road westbound, will access LG8 with either passing through Caroline Hill Road (East) or Caroline Hill Road (West) without the planned tunnels.

2.4.5 Although the vehicular access of LG2 will provide the nearest entrance to the underground network, the travelling distance of this underground ingress route will be increased from 450m to 550m while drivers will spend more travelling time from 3 mins to 4 mins. Therefore, it is assumed that the route choice will not to be affected by the proposed Tunnel T3.

Ingress Route of LG3 Car Park from the South

2.4.6 Ingress traffic of LG3 from the Link Road or Caroline Hill Road (West) will pass through Leighton Road, Yun Ping Road, Hysan Avenue and Hoi Ping Road where the run-in situates, including three at-grade signalised junctions along the route. The approximate travelling distance and potential maximum travel time to the car park are 900m and 7.5 mins respectively.

2.4.7 The proposed Tunnel T3 will offer an alternative underground route for this ingress traffic via New Access Road, LG8 and Tunnel T3 at B4/F of the LG8's car park. The travelling distance and travelling time will be shorter with 520m and 4 mins respectively. Additionally, the underground route will bypass the two at-grade signalised junctions along Leighton Road, avoiding potential waiting time at the junctions. Therefore, diverting this ingress route to the underground has been taken into account in the study. The anticipated re-routing is illustrated in **Drawing No. 2.4.**

Ingress Route of LG1 Car Park from the South

2.4.8 Ingress traffic to LG1 originating from the South will route via Leighton Road, Yun Ping Road and Lan Fong Road to the run-in, passing through three at-grade signalised junctions. The approximate travel distance to the car park is 700m, with a potential maximum travel time of 6.5 mins.

2.4.9 Similar to the ingress traffic route of LG3, the proposed Tunnel T3 will enable this ingress traffic demand to access LG1 car park without passing through the at-grade signalised junctions. Although the travelling distance via underground route would be slightly longer with about 750m, drivers would spend less travelling time (6 mins) to access the car park.

Thus, it is still worth for LG1 car park traffic to access via LG8. The anticipated re-routing is also illustrated in **Drawing No. 2.4.**

Ingress Route of LG2 Car Park from the South

2.4.10 Ingress traffic route of LG2 from the South is relatively direct, with just passing Leighton Road and access at Pennington Street. Travelling distance will be doubled and travelling time will be significantly increased by 2 mins via the underground access route since it is necessary to traverse the proposed Tunnel T3 as well as the planned Tunnels T1 and T2. Therefore, the underground route choice may not be attractive for the concerned users.

Egress Route of LG8 Car Park to the West

2.4.11 Without the proposed Tunnel T3, LG8 traffic leaving the car park to the West will route through New Access Road, Caroline Hill Road (West) and Leighton Road beyond Percival Street with travelling distance of about 630m and travelling time upto 6.5 mins.

2.4.12 Although the underground tunnel connections will enable the westbound LG8 traffic to leave the car park via LG1 vehicular access at Lan Fong Road, this underground egress route will not be direct as compared with the at-grade route from drivers' perspective. Also, it is less attractive to travel a longer distance (860m) with similar travelling time (6.5 mins). In view of that, it is considered LG8 exiting traffic will follow their original route toward the West.

Egress Route of LG8 Car Park to the East

2.4.13 LG8 egress traffic to the East could route through Caroline Hill Road (East), Cotton Path, Eastern Hospital Road, Tung Lo Wan Road, Moreton Terrace and turning right at the junction with Causeway Road. Alternatively, the egress traffic could pass through Caroline Hill Road (West), Leighton Road, Pennington Street and Yee Wo Street to reach Causeway Road. Both routes will travel around 1km with 7.5 mins.

2.4.14 Although vehicles may possibly leave the car park via Tunnel T3 and LG3's exit, this underground route would need additional travelling distance (about 100m) without significant improvement in terms of travelling time. In view of that, the egress route of LG8 will be remained original as this would not be attractive for drivers.

Egress Route of LG3 Car Park to the South

2.4.15 For egress traffic of LG3 to the South, it has to circulate around via Leighton Road and local roads including Yun Ping Road, Hysan Avenue and Hoi Ping Road before approaching Caroline Hill Road (West). The approximate travelling distance is 720m and the journey time is about 7 mins.

2.4.16 Nevertheless, the proposed Tunnel T3 will allow a more direct route to bypass the at-grade local roads and junctions. It would reduce the travelling distance by about 260m and spend less travelling time by about 3 mins. Thus, this egress traffic is considered to be diverted via the underground route. The anticipated re-routing is shown in **Drawing No. 2.5.**

Egress Route of LG1 Car Park to the South

2.4.17 Egress traffic of LG1 to the South needs to route through local roads Lan Fong Road, Lee Garden Road, Hysan Avenue and Hoi Ping Road before reaching Caroline Hill Road (West). It could require approximate 720m travelling distance and 7 mins travelling time.

2.4.18 Once the proposed Tunnel T3 becomes available, together with the planned Tunnel T1, the southbound underground route will enable this egress traffic to bypass the local roads and the signalised junction at Leighton Road / Caroline Hill Road (West). Taken into account that the travelling distance (570m) and travelling time (4.5 mins) would be reduced, it is assumed that the egress traffic will be diverted as shown in **Drawing No. 2.5.**

Egress Route of LG2 Car Park to the South

2.4.19 Similar to the ingress route of LG2 from the South as mentioned in **paragraph 2.4.10**, the travelling distance of underground egress route via the three tunnels (approx. 650m) will be longer than that of the at-grade route (approx. 570m). Moreover, the travelling time will not be shorter even though the underground route will bypass the signalised junctions. Therefore, it is considered that this underground egress route will not be preferable for drivers.

2.4.20 To summarize, the identified ingress / egress routes to be diverted due to the proposed Tunnel T3 in this study will be:

a) Ingress route of LG8 car park from the West (**Drawing No. 2.3**)
b) Ingress route of LG3 car park from the South (**Drawing No. 2.4**)
c) Ingress route of LG1 car park from the South (**Drawing No. 2.4**)
d) Egress route of LG3 car park to the South (**Drawing No. 2.5**)
e) Egress route of LG1 car park to the South (**Drawing No. 2.5**)

2.5 Overall Traffic Management Strategy

2.5.1 Based on the findings from the traffic route analysis as discussed in **Section 2.4**, an overall traffic management strategy is formulated.

2.5.2 In order to clearly guide drivers on the routes to the other connected car parks via the corresponding tunnels and avoid any unreasonable traffic diversion, appropriate directional signages will be provided in the connected car parks and entrances of the tunnels. For example, names of the LG1, LG2, LG3 and LG8 would be provided on the directional signs at the entrances of the tunnels.

2.5.3 Apart from providing directions of the original exits of each car parks, new directional signages will provide destinations to guide drivers to exit the car parks via the identified underground egress routes as discussed in **Section 2.4**, which includes:

i. Vehicles leaving from LG3 heading the south via Tunnel T3 and LG8's western exit at the New Access Road; and
ii. Vehicles leaving from LG1 heading the south via Tunnel T1, LG3, Tunnel T3 and LG8's exit at the New Access Road.

2.5.4 Additionally, since the planned Tunnel T2 will facilitate the egress traffic of LG1 toward the East via LG2's exit, appropriate destinations will be provided in the new directional signages. Overall traffic management strategy is illustrated in **Drawing No. 2.6**.

2.5.5 With the proposed traffic management strategy, vehicles should leave the car parks via its original exit route or the anticipated diverted route, which will not cause adverse traffic impact in terms of traffic re-routing. Detailed traffic management plan will be further reviewed at a later stage before the commencement of the tunnel connection.

3. EXISTING TRAFFIC SITUATION

3.1 Existing Road Network

3.1.1 LG3 is bounded by Hysan Avenue to the north, Sunning Road to the east, Lippo Leighton Tower to the south and Hoi Ping Road to the west. It is served by the separated run-in and run-out at Hoi Ping Road and Sunning Road respectively. Besides, LG8 is served by the district distributor Leighton Road, the local distributor Caroline Hill Road and Link Road.

3.1.2 Hysan Avenue is a two-way road with a total carriageway width of some 9m wide. It connects Yun Ping Road to the east and Percival Street to the west, and it also provides the only access to Sun Wui Road, Hoi Ping Road and Sunning Road.

3.1.3 Both Sunning Road and Hoi Ping Road are one-way local roads in southbound traffic direction. The latter is also a key access route for traffic access to Caroline Hill Road from the west such as via Percival Street and Leighton Road eastbound.

3.1.4 Leighton Road serves the southern part of Causeway Bay as a major east-west connection. It connects Causeway Road and Tung Lo Wan Road to the east and Morrison Hill Road to the west. Leighton Road is generally a two-way road with one to three traffic lanes in each direction, except that the road section between Tung Lo Wan Road and Caroline Hill Road (East) is a one-way carriageway running along southbound direction.

3.1.5 Caroline Hill Road is a U-shaped local distributor serving the developments near Hong Kong Stadium. Its western section, i.e. road section connecting the junction of Leighton Road / Hoi Ping Road, is a single 2-lane carriageway running in north-south direction. Its eastern section, i.e. road section connecting the junction of Leighton Road / Pennington Street / Yun Ping Road, is mainly a one-way northbound road between Stadium Path and Cotton Path.

3.1.6 Link Road is a single-2 carriageway connecting Caroline Hill Road (West) with Broadwood Road to the south. It mainly serves the local residential developments and is one of the corridors leading to the Jardine's Lookout area.

3.1.7 The existing road network in the vicinity of the subject site is shown in **Drawing No. 3.1**.

3.2 Existing Traffic Conditions

3.2.1 As discussed in **Section 2.4**, ingress and egress routes for LG1, LG3 and LG8 would be further changed by the proposed Tunnel T3. The junctions with anticipated changes in traffic pattern due to Tunnel T3 are identified and indicated in **Drawing No. 3.1**.

3.2.2 To obtain the updated traffic flows for the review on the existing traffic condition, traffic count surveys have been conducted at the identified junctions for this study. The surveys were carried out during hours of 08:00 – 10:00, 11:30 - 13:30 and 17:30 - 19:30 on a typical weekday and 11:30 - 13:30 on a weekend (Saturday) in mid-October 2025. The surveyed road junctions are identified in **Drawing No. 3.1** and listed in below **Table 3.1**.

Table 3.1 Surveyed Junctions

Ref No.	Junctions	Method of Control	Drawing No.
J1	Caroline Hill Road (West) / Link Road	Priority	3.2
J2	Leighton Road / Caroline Hill Road (West) / Hoi Ping Road	Signal	3.3
J3	Leighton Road / Sunning Road	Priority	3.4
J4	Leighton Road / Yun Ping Road / Pennington Street / Caroline Hill Road (East)	Signal	3.4
J5	Hysan Avenue / Hoi Ping Road	Priority	3.5
J6	Hysan Avenue / Sunning Road	Priority	3.5
J7	Hysan Avenue / Hoi Ping Road	Priority	3.5

3.2.3 Observed traffic data indicated that the AM, Noon and PM peak hour flows occurred during hours of 08:15-09:15, 12:00-13:00 and 17:45-18:45 respectively on a typical weekday, and the weekend peak hour flows occurred during the hours of 11:45-12:45. The observed weekday and weekend peak hour traffic flows are shown in **Drawing No. 3.6**.

3.2.4 Apart from the traffic survey at junctions, vehicular Origin-Destination (O-D) surveys have also been conducted for the existing car parks at LG1, LG2 and LG3. The surveyed weekday and weekend peak hours O-D distributions of the car park related traffic of LG1, LG2 and LG3 are presented in **Drawing Nos. 3.7 – 3.9** correspondingly.

3.2.5 The operational performance of the identified road junctions was assessed with the observed traffic flows and existing layouts. The assessment results are summarised in **Table 3.2**.

Table 3.2 Year 2025 Operational Performance of Identified Road Junctions

Ref No.	Junctions	Method of Control	Year 2025 RC(1) / DFC(2)			
			Weekday			Weekend
			AM Peak	Noon Peak	PM Peak	Noon Peak
J1	Caroline Hill Road (West) / Link Road	Priority	0.36	0.44	0.29	0.38
J2	Leighton Road / Caroline Hill Road (West) / Hoi Ping Road	Signal	35%	36%	26%	29%
J3	Leighton Road / Sunning Road	Priority	0.25	0.36	0.32	0.36
J4	Leighton Road / Yun Ping Road / Pennington Street / Caroline Hill Road (East)	Signal	64%	38%	41%	22%
J5	Hysan Avenue / Yun Ping Road	Priority	0.23	0.50	0.40	0.50
J6	Hysan Avenue / Sunning Road	Priority	0.16	0.22	0.21	0.20
J7	Hysan Avenue / Hoi Ping Road	Priority	0.53	0.59	0.58	0.57

Notes: (1) RC = Reserve Capacity for Signal Junction
(2) DFC = Ratio of Flow to Capacity for Priority Junction

3.2.6 The above results indicated that all identified junctions are currently operating with adequate reserve capacities during the peak hours on weekdays and weekends.

3.2.7 Although surveyed traffic flows and junction assessments indicate that all road junctions are currently operating within capacity, it was frequently observed that the existing GMB termini and the on-street loading/unloading areas along Lan Fong Road were fully occupied by GMBs and illegally parked vehicles during peak hours. Consequently, necessary pick-up/drop-off activities for private cars and taxis had to occur on the carriageway. Together with the

weaving of GMB traffic in and out of the termini, this led to traffic queues extending from Lan Fong Road to Yun Ping Road.

3.2.8 Meanwhile, it was observed that illegal parking and prolonged vehicle waiting frequently occupy the nearside lane of Hysan Avenue during peak hours, reducing the effective road capacity. Combined with vehicle conflicts at the junctions along the road, traffic queues on Hysan Avenue extended to its junction with Percival Street during the critical peak periods.

3.2.9 Furthermore, traffic queues were also occasionally found on Hoi Ping Road, extending from the key access road junction heading Caroline Hill Road, i.e., the junction of Leighton Road and Caroline Hill Road (West). This further exacerbated the traffic issues along Hysan Avenue.

3.2.10 While the planned Tunnels T1 and T2 are measures proposed to reduce traffic circulation on the above-mentioned local roads and improve traffic conditions to a certain extent, it is worthwhile to explore other opportunities for further improvement. Consequently, Tunnel T3 is proposed.

4. FUTURE TRAFFIC FORECAST

4.1 Design Year and Future Scenarios to be Assessed

Design Year

4.1.1 Taking in consideration the necessary government submission/consultation procedures and the required construction periods, it is anticipated that Tunnel T3 would be completed by the end of 2033. Therefore, a design year of 2036 is adopted for assessment in this study.

4.1.2 According to the latest project programme of the planned Tunnels T1 and T2, their construction works would be completed by 2029. Therefore, the construction period of proposed Tunnel T3 will not overlap with that of Tunnels T1 and T2.

Future Scenarios to be Assessed

4.1.3 To evaluate the effect to the surrounding road conditions due to the proposed Tunnel T3, the below future scenarios will be assessed:

- Reference Scenario in Year 2036 – Future scenario under the planned traffic arrangement with the planned Tunnels T1 and T2 in place; and
- Design Scenario in Year 2036 – Future scenario under the planned traffic arrangement with the planned Tunnels T1 and T2 as well as the proposed Tunnel T3 in place.

4.2 Traffic Forecasts for Reference Scenario

4.2.1 To derive the year 2036 reference traffic flows, the background growth in traffic should be reviewed and identified for the area, which are made reference to the historical growth trend and the population and employment projections from Planning Department.

Historical Trend

4.2.2 Transport Department has traffic count stations on the road sections in the vicinity of the subject site. The Average Annual Daily Traffic (A.A.D.T.) data from year 2019 to 2024 as reported in the Annual Traffic Census (ATC) are summarized in **Table 4.1**.

Table 4.1 Average Annual Daily Traffic (A.A.D.T.) Data from ATC

Stn. No.	Road	AADT (Vehicle/Day)						Annual Growth Rate (% p.a.)
		2019	2020	2021	2022	2023	2024	
1212	Irving Street and Pennington Street (Leighton Rd – Yee Wo St)	12,290	11,730	12,250	11,690	10,590	11,620	-1.11%
1436	Percival Street (Hennessy Rd – Leighton Rd)	12,180	12,170	12,410	11,760	12,340	12,990	1.30%
1819	Hennessy Road and Yee Wo Street (Percival St – Pennington St)	18,530	16,700	17,240	16,980	17,910	17,740	-0.87%
2016	Yee Wo Street (Pennington St – Tung Lo Wan Rd)	16,390	14,770	15,240	14,820	15,870	15,720	-0.83%

Table 4.1 Average Annual Daily Traffic (A.A.D.T.) Data from ATC (cont'd)

Stn. No.	Road	AADT (Vehicle/Day)						Annual Growth Rate (% p.a.)
		2019	2020	2021	2022	2023	2024	
2035	Leighton Road (Wong Nai Chung Rd – Percival St)	27,830	26,470	27,000	21,860	23,770	23,550	-3.28%
2036	Leighton Road (Irving St – Percival St)	14,950	14,220	14,510	13,940	16,170	16,020	1.39%
2608	Caroline Hill Road (Leighton Rd – Yun Ping Rd)	4,550	4,800	4,610	4,890	5,330	5,780	4.90%
2623	Lee Garden Road (Hennessy Rd – Hysan Ave)	3,470	2,870	2,980	2,540	2,730	2,680	-5.04%
Total		**110,190**	**103,730**	**106,240**	**98,480**	**104,710**	**106,100**	**-0.75%**

Source: The Annual Traffic Census 2019 – 2024 as available on TD's website.

4.2.3 The A.A.D.T. flows in **Table 4.1** show that the overall average traffic growth on the road sections in the vicinity of the subject site decreased at the rate of -0.75% per annum for year 2019 to 2024.

Planning Data

4.2.4 Other than the historical trend, the population and employment estimates from Territorial Population and Employment Data Matrix (TPEDM) as available on Planning Department's website are also referred for the review on the background traffic growth. The population and employment estimates for Wan Chai in years 2026 and 2031 are presented in **Table 4.2**.

Table 4.2 Population and Employment Estimates from TPEDM

Planning Data for Wan Chai District	Year		Growth Rate (% p.a.)
	2026	2031	2031/2026
Population	156,000	145,700	-1.36%
Employment	301,700	287,250	-0.98%
Population + Employment	457,700	432,950	-1.11%

Source: 2021-based Territorial Population and Employment Data Matrix as available on Planning Department's website.

4.2.5 As presented in **Table 4.2**, the growth rates as derived from TPEDM estimates for Wan Chai District from year 2026 to 2031 are ranged from -1.36% to -0.98% p.a.

Adopted Background Growth Factor

4.2.6 Although both the historical trend and planning data have reflected the negative growths for the area, a nominal traffic growth rate of +0.1% is adopted in this review to reflect the background traffic growth in the area from year 2025 to 2036 for a conservative approach.

Planned / Potential Future Developments

4.2.7 Other than the background traffic growth, the potential traffic induced by the planned future developments in the vicinity of the tunnels are also taken into account in the traffic forecast.

The planning parameters of the identified planned developments are shown in the below **Table 4.3**.

Table 4.3 Planning Parameter for Planned Future Developments

Site Ref. No.	Planned Future Developments [1]	Use	Details
1	Lee Garden Eight [2]	Commercial	Total GFA: 102,000 m^2
2	District Court Building [3]	District Court	Total GFA: 70,000 m^2
3	Commercial Development in 8 Leighton Road [4] (A/H7/183)	Commercial	Total GFA: 14,945 m^2
4	Redevelopment of Po Leung Kuk Headquarters [5]	Social Services	The service quotas for social services will be increased by about 140 upon the completion of the redevelopment
5	SCAA Sports Link [6]	Recreation	Total GFA: 31,327.12 m^2

Notes: (1) Locations are indicated in **Drawing No. 4.1.**
(2) Refer to the latest development parameters in the approved GBP submission
(3) Refer to MPC Paper No.5/19 as available on Town Planning Board's website
(4) Refer to information on the approved application no. A/H7/183 as available from the Statutory Planning Portal 3 by Town Planning Board
(5) Refer to information in Po Leung Kuk Annual Report 2025 – 2026 as available from Po Leung Kuk's website
(6) Refer to the TIA of the approved application no. A/H7/189

4.2.8 The trip generations from the future developments as listed in **Table 4.3** are estimated with reference to the adopted trip rates in Traffic Review Report for LG8 with the latest development parameters. The adopted trip rates and estimated traffic generations of these future developments are summarized in **Tables 4.4** and **4.5**. The estimated car park related traffic flows and its distribution is shown in **Drawing No. 4.2**.

Table 4.4 Traffic Generation and Attraction of Future Developments at Caroline Hill Road

Development Component	Weekday						Weekend	
	AM Peak		Noon Peak		PM Peak		Noon Peak	
	GEN	ATT	GEN	ATT	GEN	ATT	GEN	ATT
Adopted Trip Rates								
Office [1] [2] (pcu/hr/100 m^2)	0.1703	0.2452	0.1835	0.1748	0.1573	0.1175	0.1431	0.1589
Retail [3] [4] (pcu/hr/100 m^2)	0.2296	0.2434	0.3617	0.5302	0.3100	0.3563	0.2821	0.4817
GIC - Performing Arts and Cultural Facilities [5] (pcu/hr/100 m^2)	0.0600	0.0920	0.0626	0.1024	0.1644	0.0569	0.1492	0.1723
Child Care Centre [6] (pcu/hr/100 m^2)	0.9434	1.0377	0.5660	0.6604	0.2830	0.2830	0.0943	0.0943
Day Care Centre for the Elderly [7] (pcu/hr/100 m^2)	1.5094	0.5660	0.2830	1.1321	1.1321	1.3208	0.3774	0.5660
District Health Centre [8] (pcu/hr/100 m^2)	0.1770	0.3540	0.5310	0.7965	0.0973	0.0973	0.0885	0.0885
Public Vehicle Park [9] (pcu/hr/parking space)	0.0929	0.5897	0.2340	0.2000	0.4619	0.1500	0.6000	0.3220
Lay-bys for Light Bus [10] (pcu/hr/layby)	21.50	21.50	15.75	15.75	16.50	16.50	15.00	15.00
District Court [11] (pcu/hr/100 m^2)	0.0606	0.0918	0.0483	0.0450	0.0466	0.0437	N/A[12]	N/A[12]

Table 4.4 Traffic Generation and Attraction of Future Developments at Caroline Hill Road (cont'd)

Estimated Traffic Generation and Attraction (pcu/hr)								
1. Lee Garden Eight – 102,000m² GFA								
Office (85,281.276 m²)	146	210	157	150	135	101	123	136
Retail (9,999.788 m²)	23	25	37	54	31	36	29	49
GIC - Performing Arts and Cultural Facilities (2,000 m²)	2	2	2	3	4	2	3	4
Child Care Centre (877.336 m²)	9	10	5	6	3	3	1	1
Day Care Centre for the Elderly (657.990 m²)	10	4	2	8	8	9	3	4
District Health Centre (1566.551 m²)	3	6	9	13	2	2	2	2
Public Vehicle Park – Private Car Parking Spaces (100 spaces)	10	59	24	20	47	15	60	33
Public Vehicle Park – Goods Vehicle & Coach Parking Spaces (25 spaces)	3	15	6	5	12	4	15	9
Lay-bys for Light Bus (4 Nos.)	86	86	63	63	66	66	60	60
Car Park Related Traffic (13)	**203**	**316**	**236**	**254**	**230**	**168**	**221**	**229**
Sub-total	**292**	**417**	**305**	**322**	**308**	**238**	**296**	**298**
2. District Court Building – 70,000m² GFA								
District Court (70,000m² GFA)	**43**	**65**	**34**	**32**	**33**	**31**	**5**(12)	**5**(12)
Grand Total	**335**	**482**	**339**	**354**	**341**	**269**	**301**	**303**

Notes:
(1) TPDM mean trip rates for office adopted for Weekday AM and PM Peaks
(2) Trip rates for weekday and weekend noon peaks are derived from the surveyed variance to the weekday PM peak trips of office development and applied onto the TPDM trip rates for office
(3) TPDM mean trip rates for retail/shopping complex
(4) Trip rates for weekday and weekend noon peaks are derived from the surveyed variance to the weekday PM peak trips of retail development and applied onto the TPDM trip rates for retail/shopping complex
(5) Trip rates derived from the consultant's surveyed highest trip rates from Yao Tsung-I Academy, Kwai Tsing Theatre and M+
(6) Trip rates derived from the consultant's surveyed trip rates from SIA Shaukiwan Day Creche
(7) Trip rates derived from the consultant's surveyed trip rates from T.W.G.Hs. Anita Mui Day Care Centre for the Elderly
(8) Trip rates derived from the consultant's surveyed trip rates from Central District Health Centre General Outpatient Clinic
(9) Trip rates derived from the consultant's surveyed trip rates from ex-Murray Road Multi-storey Car Park
(10) Trip rates derived from the consultant's surveyed average actual peak frequencies of green mini-bus services at Lan Fong Road.
(11) Trip rates derived from the consultant's surveyed trip rates from Wanchai Tower and Lands Tribunal
(12) Since the existing Wanchai Tower and Lands Tribunal are closed in weekend, a nominal trips of 5 pcu/hr is adopted
(13) For conservative assessment, LG8's car park related traffic includes all the traffic generation and attraction of the development excluding 25 nos. provisions of public vehicle park and lay-bys for light bus.

Table 4.5 Adopted Trip Rates and Estimated Traffic Generation of Other Planned Future Developments in the Vicinity

Other Planned Future Developments	Weekday						Weekend	
	AM Peak		Noon Peak		PM Peak		Noon Peak	
	GEN	ATT	GEN	ATT	GEN	ATT	GEN	ATT
3. Commercial Development in 8 Leighton Road – 14,945 m² GFA [1]								
Adopted Trip Rates [3] [4] (pcu/hr/100 m²)	0.1703	0.2452	0.1835	0.1748	0.1573	0.1175	0.1431	0.1589
Estimated Trips (pcu/hr)	26	37	28	27	24	18	22	24
4. Redevelopment of Po Leung Kuk Headquarters – Additional 140 Service Quotas [2]								
Adopted Trip Rates [5] (pcu/hr/quota)	0.0487	0.0200	0.0200	0.0243	0.0177	0.0222	0.0155	0.0200
Estimated Trips (pcu/hr)	7	3	3	4	3	4	3	3
5. SCAA Sports Link [6]								
Estimated Trips (pcu/hr)	13	28	34 [7]	25 [7]	34	25	22	26

Notes: (1) Refer to information on the approved application no. A/H7/183 as available from the Statutory Planning Portal 3 by Town Planning Board
(2) Refer to information in Po Leung Kuk Annual Report 2025 – 2026 as available from Po Leung Kuk's website
(3) TPDM mean trip rates for office adopted for Weekday AM and PM Peaks
(4) Trip rates for weekday and weekend noon peaks are derived from the surveyed variance to the weekday PM peak trips of office development and applied onto the TPDM trip rates for office
(5) Trip rates derived from the consultant's surveyed trip rates from the existing Po Leung Kuk
(6) Refer to the adopted traffic generation and attraction in the TIA of the approved application no. A/H7/189
(7) Since a scenario during weekday noon peak has not been assessed in the TIA of the approved application no. A/H7/189, trip generation during the most critical peak (i.e. the weekday PM peak) is adopted for conservative assessment

Re-routing of Traffic due to the Planned Tunnels T1 and T2

4.2.9 The planned Tunnels T1 and T2 will enable alternative ingress routes for LG1 via the existing vehicular entrances of LG2 and LG3 on Pennington Street and Hoi Ping Road respectively. As a result, vehicles coming from Percival Street, Leighton Road, Caroline Hill Road can avoid entering the busy road sections of Yun Ping Road and Lan Fong Road.

4.2.10 Besides, the existing vehicular access of LG2 will allow egress traffic of LG1 to the east directly with the proposed Tunnel T2. In other words, traffic circulation at Lan Fong Road, Lee Garden Road, Hysan Avenue and Sunning Road can be avoided.

4.2.11 The above-mentioned re-routing of traffic with the proposed Tunnels T1 and T2 are shown in **Drawing Nos. 4.3, 4.4** and **4.5**.

4.2.12 As mentioned in **Section 4.1**, the Tunnels T1 and T2 will be available before the construction works of the proposed Tunnel T3. Therefore, the traffic re-routing due to Tunnels T1 and T2 will be taken into account in the reference scenario. The estimated net differences of traffic due to these two tunnels are shown in **Drawing No. 4.6**.

Planned Road Scheme at Leighton Road and Caroline Hill Road

4.2.13 To support the new developments in Caroline Hill Road, including LG8 and the future District Court Building, a road scheme with improvement works at Caroline Hill Road, Link Road, Hoi Ping Road and Leighton Road will be implemented. It has included the conversion of existing priority to the proposed signal control arrangement at the junction of Link Road / Caroline Hill Road (West).

4.2.14 In addition, a new access road to connect both the eastern and western section of Caroline Hill Road will be formed to facilitate accesses to the CHR Developments. The overall road improvement scheme is presented in **Drawing No. 4.7**. The future junction layouts of Junctions J1 and J2 are shown in **Drawing Nos. 4.8** and **4.9** respectively.

Year 2036 Reference Traffic Flows

4.2.15 Given that there is no plan for any major road infrastructure in the vicinity by the design year 2036, the 2036 reference traffic flows are derived by:

(i) Applying a growth rate of 0.1% p.a. on the 2025 observed flows upto the design year 2036;

(ii) Superimposing the potential additional traffic as induced by the planned future developments in the vicinity of the subject site (**Table 4.3**); and

(iii) Superimposing the estimated net differences of traffic due to the planned Tunnels T1 and T2 (**Drawing No. 4.6**).

4.2.16 The anticipated year 2036 weekday and weekend reference traffic flows are presented in **Drawing No. 4.10**.

4.3 Traffic Forecasts for Design Scenario

4.3.1 To derive the year 2036 traffic flows for Design Scenario (i.e. with Tunnel T3), the changes in traffic flows in the local road network due to the proposed Tunnel T3 are quantified with reference to the anticipated re-routing of traffic as illustrated in **Drawing Nos. 2.3 – 2.5** and the demands and patterns of the car park related traffic of LG1, LG2, LG3 (**Drawing Nos. 3.7 – 3.9**) and LG8 (**Drawing No. 4.2)**. For a conservative assessment on potential impact due to the diversions, it is assumed that all the traffic flows of identified routes would be diverted. The overall estimated net difference of car park related traffic flows in the local network is presented in **Drawing No. 4.11**.

4.3.2 By superimposing the estimated net differences of traffic due to the proposed Tunnel T3 (**Drawing No. 4.11**) onto the year 2036 reference traffic flows (**Drawing No. 4.10**), the year 2036 future traffic flows for Design Scenario can be derived and presented in **Drawing No. 4.12**.

5. TRAFFIC IMPACT ASSESSMENT

5.1 Assessment for Year 2036 Reference Scenario and Design Scenario

5.1.1 The operational performances of the affected junctions identified in **Section 3.2** are assessed with the derived year 2036 reference and design traffic flows under the existing/planned junction layouts and method of control. The assessment results are summarised in **Table 5.1**, and the details of junction assessments are attached in **Appendix B**.

Table 5.1 Year 2036 Operational Performance of Affected Road Junctions

Ref No.	Junctions	Method of Control	Year 2036 RC(1)/DFC(2)							
			Reference Scenario (with Tunnels T1 & T2)				Design Scenario (with Tunnels T1, T2 & T3)			
			Weekday			Weekend	Weekday			Weekend
			AM Peak	Noon Peak	PM Peak	Noon Peak	AM Peak	Noon Peak	PM Peak	Noon Peak
J1	Caroline Hill Rd (West) / Link Rd	Signal	36%	54%	44%	38%	36%	54%	44%	38%
J2	Leighton Rd / Caroline Hill Rd (West) / Hoi Ping Rd	Signal	26%	33%	34%	32%	35%	41%	41%	41%
J3	Leighton Rd / Sunning Rd	Priority	0.26	0.37	0.32	0.36	0.25	0.35	0.30	0.35
J4	Leighton Rd / Yun Ping Rd / Pennington St / Caroline Hill Rd (East)	Signal	56%	34%	37%	19%	58%	37%	39%	21%
J5	Hysan Ave / Yun Ping Rd	Priority	0.21	0.44	0.34	0.45	0.21	0.44	0.34	0.45
J6	Hysan Ave / Sunning Rd	Priority	0.16	0.21	0.21	0.19	0.16	0.21	0.20	0.19
J7	Hysan Ave / Hoi Ping Rd	Priority	0.78	0.83	0.80	0.79	0.78	0.82	0.78	0.78

Notes: (1) RC = Reserve Capacity for Signal Junction
(2) DFC = Ratio of Flow to Capacity for Priority Junction

5.1.2 Assessment results in **Table 5.1** show that Tunnel T3 will not cause any adverse impact to the local road network, and all the assessed junctions would operate within capacities during peak hours on both weekday and weekend in both Reference and Design Scenarios.

5.1.3 Even though the magnitude of the traffic diversion due to the proposed Tunnel T3 is less than the estimated, the traffic conditions will only tend to the Reference Scenario (i.e. the scenario without the proposed Tunnel T3). Therefore, no adverse traffic impact will be caused.

5.1.4 In the contrary, improvements in operational performances of all the identified junctions would be witnessed since the proposed Tunnel T3 would further divert traffic away from the at-grade roads to the underground levels.

5.1.5 As discussed in **Section 3.2.8**, the existing illegal parking and prolonged vehicle waiting on Hysan Avenue have reduced the effective road capacity. If this issue persists, the DFC of Junction J7, as presented in **Table 5.1**, would potentially increase. This potential issue would, however, be subject to further traffic improvement or management measures. Nevertheless, the assessment results indicate that the proposed Tunnel T3 would help reduce traffic on the concerned road section, thereby improving conditions compared to the reference scenario.

5.2 Queue Length Analysis for Junction J1

5.2.1 As discussed in **Section 2.4**, the ingress and egress routes of LG1 and LG3 to and from the south would be diverted to access via LG8 due to the proposed Tunnel T3. As a results, those ingress traffic would be diverted from the Caroline Hill Road northbound at Junction J2 to the right-turn lane to Caroline Hill Road southbound at J1, and those egress traffic would be diverted from Hoi Ping Road and Caroline Hill Road southbound to the new access road westbound at Junction J1.

5.2.2 To evaluate the effects on queue lengths in the planned layout of Junction J1 due to the above traffic diversions, queue length analysis is conducted to assess with the derived year 2036 reference and design traffic flows. The assessment results are summarised in **Table 5.2**, and the details of assessment are attached in **Appendix C**.

Table 5.2 Average Queue Length of Junction J1 in Year 2036 Reference and Design Scenarios

Junction Approach	Capacity (m)	Average Queue Length (m)							
		Reference Scenario (with Tunnels T1 & T2)				Design Scenario (with Tunnels T1, T2 & T3)			
		Weekday			Weekend	Weekday			Weekend
		AM Peak	Noon Peak	PM Peak	Noon Peak	AM Peak	Noon Peak	PM Peak	Noon Peak
Link Road Northbound	100	44	39	42	43	44	39	42	43
New Access Road Westbound (farside lane)	140	60	57	53	46	64	62	62	53
New Access Road Westbound (nearside lane)	140	4	6	6	5	4	6	6	5
Caroline Hill Road Southbound (farside lane)	40	33	32	33	32	28	28	29	28
Caroline Hill Road Southbound (nearside lane)	40	30	29	30	29	25	26	27	26
Right-turn Lane	25	25	19	18	20	25	21	20	22

5.2.3 As shown in **Table 5.2**, the results have indicated that available queue lengths provided at the junction under the planned layout will be sufficient to cater for average vehicle queues during the peak hours in both the reference and design scenarios of year 2036.

6. EXPECTED BENEFITS

6.1 Further Reduce At-grade Traffic on Local Roads

6.1.1 As discussed in **Section 2.3**, Tunnel T3 will enable an alternative underground ingress route for LG8 from Percival Street and Leighton Road eastbound via the existing run-in of LG3 at Hoi Ping Road. Additionally, ingress and egress traffic of LG1 and LG3 from / to the south would enter the basement level via LG8 and Tunnel T3.

6.1.2 It was estimated that the traffic flows on Hoi Ping Road at Junction J2 would be reduced upto 103 pcu/hr (about 32% of existing traffic flows on Hoi Ping Road), while the traffic flows on Caroline Hill Road (West) would be reduced upto 23 pcu/hr (about 4% of existing traffic flows on northbound of Caroline Hill Road (West)). The RC of this junction would be improved as shown in **Table 5.1**.

6.1.3 Apart from the Junction J2, majority of the identified junctions would be improved with the Tunnel T3. It will not only help on reduction of at-grade traffic on some key road links such as Leighton Road (reduced upto 29 pcu/hr, about 3% of existing eastbound traffic flows), but also divert away the car park related traffic from the local roads including Yun Ping Road (reduced upto 18 pcu/hr, about 3% of existing traffic flows), Hysan Avenue (reduced upto 18 pcu/hr, about 10% of existing westbound traffic flows), Hoi Ping Road, Sunning Road, Lan Fong Road and Lee Garden Road.

6.1.4 Furthermore, the air quality and pedestrian safety in the area will be improved with minimizing unnecessary vehicle circulation.

6.2 Maximize Accessibility of Car Parks for Efficient Use of Available Parking Spaces

6.2.1 With the basement car parks further linked by the Tunnel T3, the available car parking spaces within LG1, LG2, LG3 and LG8 can be shared used for the vehicles. The accessibility of the car parks will be improved without the need of any additional vehicular access points. As a result, utilizations of available car parking spaces can be maximized while the way-finding of vacant spaces can take place internally. Thus, vehicle queuing at car park entrances and traffic circulation on public roads will be minimized.

6.3 Better Balanced Use of Roads/Junctions' Capacities

6.3.1 The Tunnel T3 will further provide more route choices for drivers to enter or leave the car parks in different traffic situation on the surrounding roads, and hence a more balanced use of spare capacities of the surrounding roads and junctions can be achieved.

6.4 More Flexible for Access and Traffic Management

6.4.1 With the Tunnel T3, alternative ingress and egress points can be available for the car parks, which allows flexibility for the car park operators to manage ingress and egress of vehicles to suit with different traffic conditions in the area. Besides, the proposed vehicle tunnels will provide opportunities to implement short-term or temporary traffic management schemes for special events without affecting the vehicular accesses.

7. TRAFFIC ARRANGEMENT AND IMPACT DURING CONSTRUCTION STAGE

7.1 No Excavation Work on Public Road for Tunnel Construction

7.1.1 As discussed in **Section 2.3**, "Drill and Excavation Method" with launching from LG8 is proposed for the construction in order to avoid any excavation work on the at-grade public roads and hence minimize disturbance to the at-grade vehicular and pedestrian traffic. The works areas for the tunnel construction will be situated at the basements of LG3 and LG8**.**

7.2 Suspension of Parking Spaces during and after the Construction

7.2.1 With the proposed tunnelling construction method to avoid any work to be carried out on the public roads, it is unavoidable that some of the existing car parking spaces have to be temporarily suspended to facilitate tunnel construction works at the basement levels. Nevertheless, the extents of the works areas at the car parks will be well planned to ensure the daily operation of the car parks can be maintained throughout the construction period and to minimize the impact to parking provision.

7.2.2 LG8 will provide 612 nos. car parking spaces, 5 nos. public medium/heavy goods vehicles parking spaces and 5 nos. public coach parking spaces. It is preliminarily reviewed that about 24 nos. car parking spaces would be temporarily suspended (approx. 4% of total LG8 provision) for the working areas and equipment storage on B3/F and B4/F. Meanwhile, working space and a floor opening on B2/F would be required for internal lifting and delivering the major plant, equipment (e.g. the tunnelling machine) and materials from B2/F to B3/F, since the headroom on B3/F is designated for private cars only and is insufficient for construction vehicles to access the works area on B3/F and B4/F. If the public goods vehicles and/or coach parking spaces on B2/F are affected during construction stage, the ancillary loading bays would be temporarily converted into the spaces for re-provisioning of the affected public parking spaces to maintain the 24-hr provision for the public needs, if necessary. On the other hand, 6 nos. car parking spaces in LG3 (approx. 3% of LG3 provision) will be temporarily suspended for the working areas. The indicative works area and the affected parking spaces at the tunnel connection points at LG3 and LG8 are shown in **Drawing No. 7.1.** Besides, the car park provision rates are summarized in **Table 7.1**.

Table 7.1 Car Park Provision Rates in Lee Gardens Area

Commercial Development	GFA (m^2)	Private Car Parking Space [(1)]	Provision Rate (1 space per GFA)
LG1	83,600	187	447
LG2	58,200	163	357
LG3	43,300	195	222
LG3 (During T3 construction)		195 – 6 = 189	229
LG8	102,000	612	167
LG8 (During T3 construction)		612 – 24 = 588	173

Note: (1) Car parking provision upon the completion of works for Tunnels T1 and T2

7.2.3 As shown in **Table 7.1**, the provision rate of LG8 is much higher than the existing car parks in Lee Gardens Area, even though the temporary suspension of parking spaces during the construction stage of Tunnel T3 has been considered. Therefore, the temporary reduction is considered acceptable.

7.2.4 Furthermore, as reviewed the latest car park utilization rates of LG3, it would be 94% for weekdays and 96% for weekends during the most peak period upon completion of Tunnels T1 and T2 (i.e. 195 nos. private car parking spaces). Therefore, the remaining surplus can still be able to absorb the temporary suspension of parking spaces. Together with the high car park provision rates in LG8, the temporary suspension will not affect the operation of LG3 car park.

7.2.5 In addition, the car park operators would dedicate staffs for patrolling traffic at the car park entrances and guiding the motorists to park their cars at other car parks in the vicinity with vacant spaces when necessary.

7.2.6 After the completion of tunnel construction, the temporarily suspended car parking spaces will be reinstated except for 6 spaces in LG3 and 5 spaces in LG8 which are considered necessary to be permanently suspended for the opening of accesses for the tunnels.

7.2.7 As the suspended car parking spaces, including those in LG3, account for not more than 2% of the total provision at LG8, the traffic impact of their suspension should be negligible. This is especially the case as the future parking provision rate of LG8 is already significantly higher than that in the surrounding developments. Nevertheless, the possible reprovision of these affected spaces will be reviewed further at the detailed design stage.

7.2.8 On the other hand, the available car parking spaces within the LG1, LG2, LG3 and LG8 can be shared used for the vehicles upon the car parks to be linked by the tunnels, and the accessibility of the car parks will also be improved without the need of any additional car park ingress and egress points. As a result, the utilizations of available car parking spaces can be maximised while the way-finding of vacant spaces can be taken place internally, therefore minimizing queuing at car park entrances.

7.3 Access Arrangement and Management during Construction

7.3.1 Given that the works areas required for the tunnel construction are all within the basement car park of LG3 and LG8, it is proposed that the accesses of construction traffic to the works areas will be via the vehicular accesses of LG3 and LG8 which can avoid any new opening of construction access on the public roads. The access routes of construction traffic would be similar to the those of the car park traffic. The proposed access arrangement for construction traffic is shown in **Drawing No. 7.2**.

7.3.2 To avoid traffic queueing for car park at public road, car park vacancy information signs will be erected at the car park entrances of LG1, LG2, LG3 and LG8 to guide the drivers to use the adjacent car parks with vacant parking spaces.

7.3.3 Furthermore, as mentioned in **paragraph 7.2.5,** the car park operators would dedicate staffs for patrolling traffic at the car park entrances and guiding the motorists to park their cars at other car parks in the vicinity with vacant spaces when necessary to prevent any obstruction at the car park entrances leading to adverse impact to the operation of public transportation and the traffic on public roads. Besides, the loading/unloading activities for the buildings would be well coordinated and managed by the car park operators to avoid such activities to

be carried out during the peaks of the car parks and/or during the access periods of construction traffic.

7.4 Review on Construction Traffic Impact

7.4.1 To minimize traffic impact, the overall construction traffic (including dump trucks) demand of the two tunnels will be kept minimal and limited to 20 vehicles per day only. Taking into consideration the necessity of maintaining the daily operation of the car parks as well as the headroom constraints at the car park floors, it is planned that only small-sized trucks will be adopted for the tunnel construction.

7.4.2 Besides, time management for construction traffic will be implemented, by which the access of construction traffic will only be arranged outside the communal weekday's peak periods of 08:00-10:00, 12:00-14:00 and 16:00-20:00 except General Holidays in order to further minimize traffic impact to the surrounding road network during the communal peak periods.

7.4.3 With the above proposed time management for accesses of construction traffic, the hourly construction traffic demand will be kept at 5 vehicles per hour only. Therefore, the traffic impact to the surrounding roads caused by the construction traffic of the proposed tunnel would be very minimal.

7.5 Construction Traffic Management Scheme

7.5.1 To minimize traffic impact on the surrounding road network, a Construction Traffic Management Scheme (CTMS) which to be reviewed and approved by Transport Department will be implemented during the tunnel construction.

7.5.2 The CTMS shall include but not limited to:

- The tunnel construction works shall only be carried out underground without at-grade excavation works leading to any closure of public road;
- The overall construction traffic demand shall be kept minimal and limited to 20 vehicles per day. The construction vehicles shall access to/from the underground construction site via the existing vehicular access of LG3 and future vehicular access of LG8;
- The access of construction traffic shall only be arranged outside peak period of 08:00-10:00, 12:00-14:00 and 16:00-20:00 during weekdays except General Holidays;
- The car park operators of LG3 and LG8 shall deploy staff for patrolling traffic at the car park entrance and guiding the motorists to park their cars at other car parks in the vicinity with vacant spaces when necessary;
- The suspension of car parking spaces at LG3 and LG8 shall be minimised as far as possible;
- Loading/unloading activities of LG3 and LG8 shall be well coordinated and managed by the car park operators to avoid carry out during access period of construction traffic;
- Adequate car park vacancy information signs shall be erected at the car park entrance to alert motorists;
- The tunnel construction works for Tunnel T3 shall not commence earlier than the construction of Tunnels T1 and T2, provision of covered walkway and footbridge at the area and full provision of private car parking spaces of LG8; and
- Such other measures as stipulated in the approved CTMS.

8. SUMMARY AND CONCULSION

8.1 Summary

8.1.1 In order to enhance the traffic condition in the Causeway Bay south area, Tunnels T1 and T2 were proposed beneath Hysan Avenue and Yun Ping Road respectively. Tunnel T1 would connect the basement car parks at LG1 and LG3, while Tunnel T2 would connect the basement car parks at Lee LG1 and LG2.

8.1.2 With the completion of LG8 in 2026, it offers opportunities to further enhance the accessibility of underground car parks in the area by introducing Tunnel T3 running on Sunning Road and across Leighton Road to link up LG3 and LG8.

8.1.3 Since the proposed Tunnel T3 would run on 'Road' zone in the Causeway Bay OZP, S16 Planning Application for the proposed underground vehicular tunnel is required for obtaining permission from TPB. MVA was commissioned as a traffic consultant to conduct a traffic study and prepare a TIA in support of the proposed Tunnel T3 and the S16 planning application.

8.1.4 Tunnel T3 will branch from the southeast corner of LG3. To avoid any encroachment into the adjoining private lots at Sunning Road while allowing the connection to serve both traffic directions, the tunnel is proposed with two levels serving private cars in one traffic direction at each level.

8.1.5 The availability of Tunnel T3 will enable an alternative underground ingress route for LG8 from Percival Street and Leighton Road eastbound via the existing run-in of LG3 at Hoi Ping Road. In addition, the ingress and egress traffic of LG1 and LG3 from/to the South would also benefit from Tunnel T3.

8.1.6 As a traffic management strategy, appropriate directional signages will be provided in the connected car parks and entrances of the tunnels to clearly guide drivers on the routes to the other connected car parks as well as the exits via a shorter and more direct alternative routes as enabled by the tunnels.

8.1.7 To obtain the updated traffic flows for the review on the existing traffic condition, traffic count surveys and O-D surveys at the identified junctions have been conducted.

8.1.8 The identified junctions under existing traffic conditions have been assessed and the results indicated that they are currently operating with adequate reserve capacities during the peak hours on weekdays and weekends.

8.1.9 Although the assessment results showed adequate reserve capacities at the surrounding road junctions under existing conditions, and Tunnels T1 and T2 were planned for traffic enhancement, exploring measures to further improve nearby car-park circulation and minimize at-grade road traffic is worthwhile, given the opportunity offered by the development of LG8. Consequently, Tunnel T3 is proposed.

8.1.10 Taking in consideration the Tunnel T3 would be completed by the end of 2033, a design year of 2036 was adopted for assessment in this study. Two future scenarios were reviewed: (i) Reference Scenario – with the planned Tunnels T1 and T2; (ii) Design Scenario – with the planned Tunnels T1 and T2 and the proposed Tunnel T3.

8.1.11 Traffic forecasts for Reference Scenario in the design year 2036 were derived with reference to the historical traffic data and planning data, future traffic induced by the future developments in the vicinity as well as the anticipated traffic re-routing due to the planned Tunnels T1 and T2.

8.1.12 Traffic forecasts for Design Scenario in the design year 2036 were derived by superimposing the estimated net differences of traffic due to the proposed Tunnel T3 onto the year 2036 reference traffic flows.

8.1.13 Operational traffic impact assessments have been conducted for the two forecasted scenarios, and the results demonstrated that the Tunnel T3 would not cause adverse traffic impact to the local road network, and all the assessed junctions would operate within capacities during peak hours.

8.1.14 Even though the magnitude of the traffic diversion due to the proposed Tunnel T3 is less than the estimated, the traffic conditions will only tend to the Reference Scenario. Therefore, no adverse traffic impact will be caused.

8.1.15 Apart from the operational assessment, the traffic arrangement and impact during the construction stage of the tunnels were also reviewed. To avoid any excavation work on the at-grade public roads and hence minimize disturbance to the at-grade vehicular and pedestrian traffic, "Drill and Excavation Method" with launching from LG8 was proposed. The works areas for the tunnel construction would be situated at the basements of LG3 and LG8. The accesses of construction traffic to the works areas would be via the vehicular accesses of LG3 and LG8.

8.1.16 It would be unavoidable that some of the existing car parking spaces would be temporarily suspended to facilitate tunnel construction works at the basement levels; however, the extents of the works areas at the car parks would be well planned and minimized for the daily operation throughout the construction period. Besides, the ancillary provision would be temporarily converted into public vehicle park for the affected parking spaces, if necessary, during the construction of the tunnels so that the 24-hr provision for the public can be maintained.

8.1.17 Besides, the overall construction traffic demand of the two tunnels would be kept minimal, and time management for construction traffic would be implemented, by which the access of construction traffic would only be arranged outside the communal weekday's peak periods of 08:00-10:00, 12:00-14:00 and 16:00-20:00 except General Holidays. With the proposed time management, the hourly construction traffic demand would be kept at 5 vehicles per hour only. Therefore, the traffic impact to the surrounding roads caused by the construction traffic of the tunnel would be very minimal.

8.1.18 Furthermore, a CTMS which to be reviewed and approved by Transport Department would be implemented during the tunnel construction to ensure minimized traffic impact on the surrounding road network.

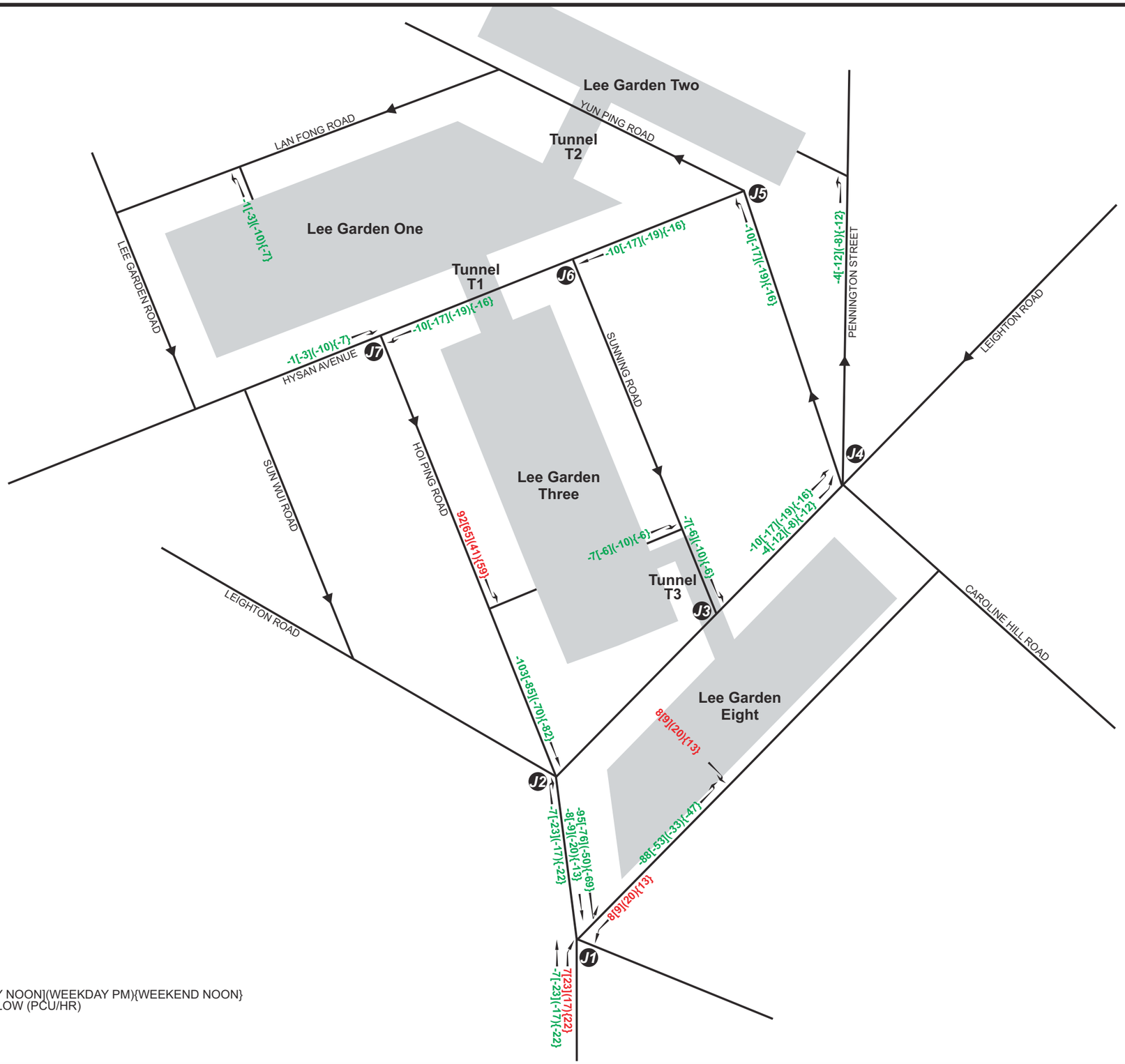
8.2 Conclusion

8.2.1 In conclusion, the proposed Tunnel T3 will not cause adverse traffic impact to the local road network. With the proposed CTMS, impact on the surrounding road conditions will also be minimized.

8.2.2 Besides, the proposed Tunnel T3 is supported from a traffic engineering point of view as it is considered beneficial to the local area with the following expected benefits:

- Overall at-grade traffic volume on some key roads and local roads would be reduced, which also help to improve the air quality and pedestrian safety in the area;
- Accessibility of car parks would be maximized for efficient use of available car parking spaces, and the wayfinding of vacant parking spaces can be taken place internally, and thus vehicle queuing at car park entrances and traffic circulation on public roads would be minimized;
- Available of route choices for vehicles would help to achieve better balanced use of roads/junctions' capacities under different road traffic situations; and
- Access and traffic management would be more flexible for car park operators to manage the ingress and egress of vehicles to suit different traffic conditions in the area.

Drawings



LEGEND :

-10[-15](-20){-15} WEEKDAY AM[WEEKDAY NOON](WEEKDAY PM){WEEKEND NOON}
PEAK HOUR TRAFFIC FLOW (PCU/HR)

Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	RESPONSE TO TD'S COMMENTS	CHC	27AUG26

Project Title

SECTION 16 PLANNING APPLICATION OF
PROPOSED UNDERGROUND VEHICULAR TUNNEL T3
(CONNECTING LEE GARDEN THREE AND LEE GARDEN EIGHT)
- TRAFFIC IMPACT ASSESSMENT

Drawing Title

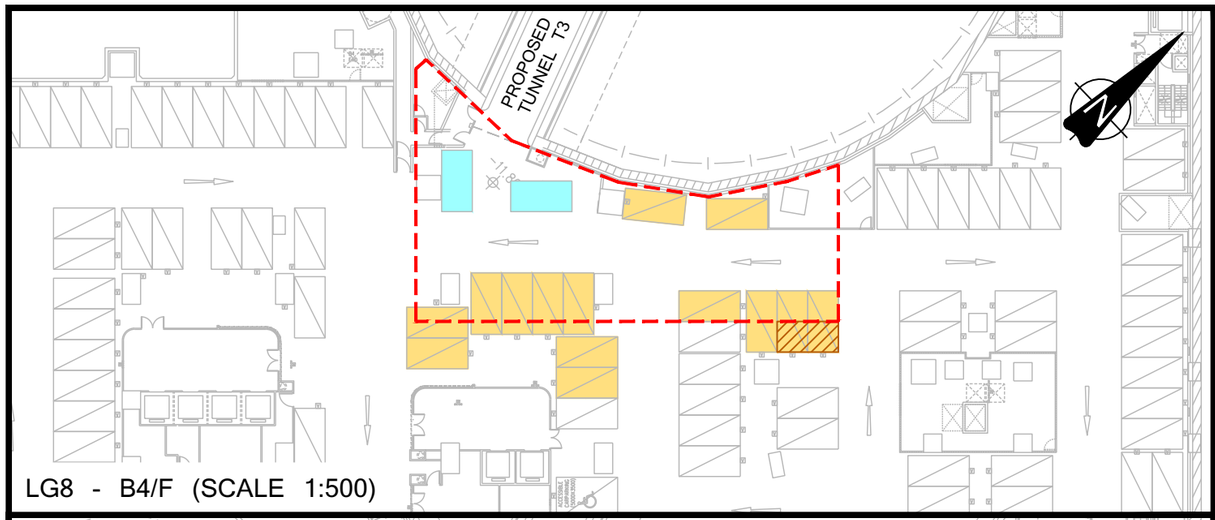
NET DIFFERENCES IN TRAFFIC FLOWS DUE TO TUNNELS T3

Designed	Checked	Scale	Date	Drawing No.	Rev.
CNM	CHC	NTS	APR 2026	4.11	A

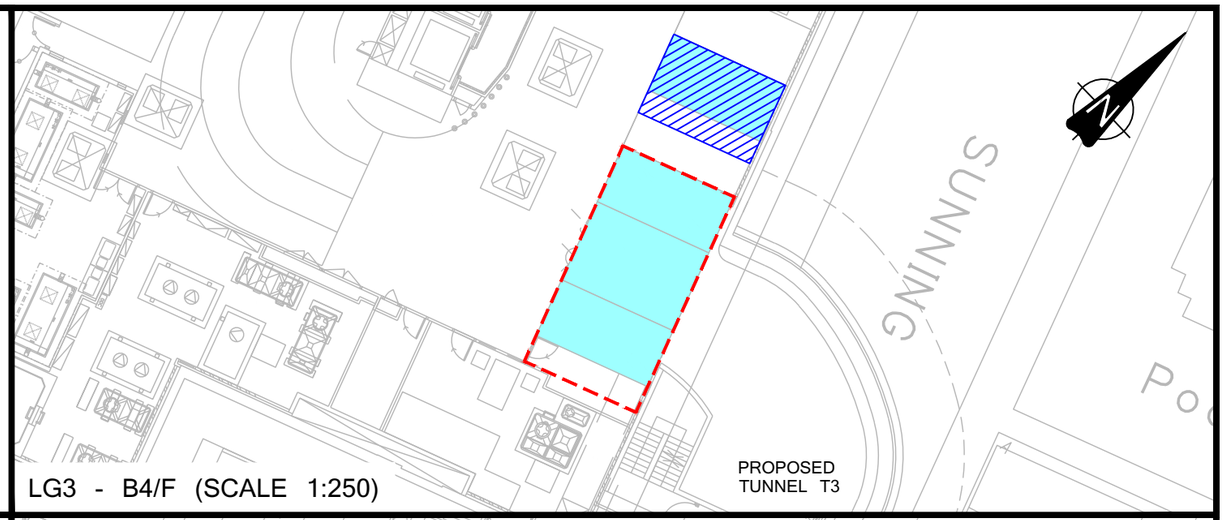
SYSTRA MVA

CHK50865910/TIA/F411.CDR/LLH/8APR26

Original Size : A3



LG8 - B4/F (SCALE 1:500)



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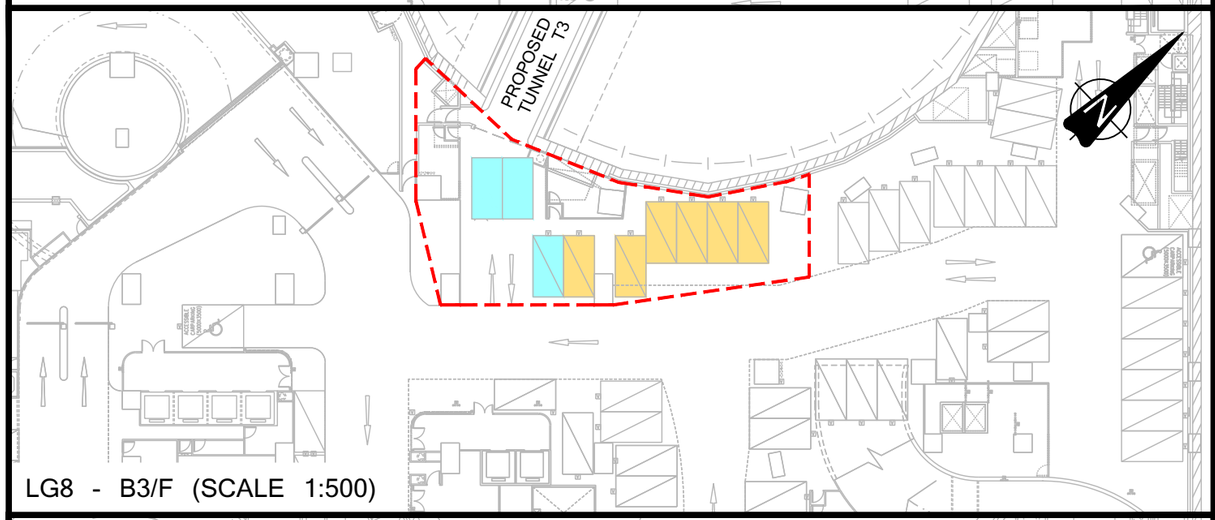
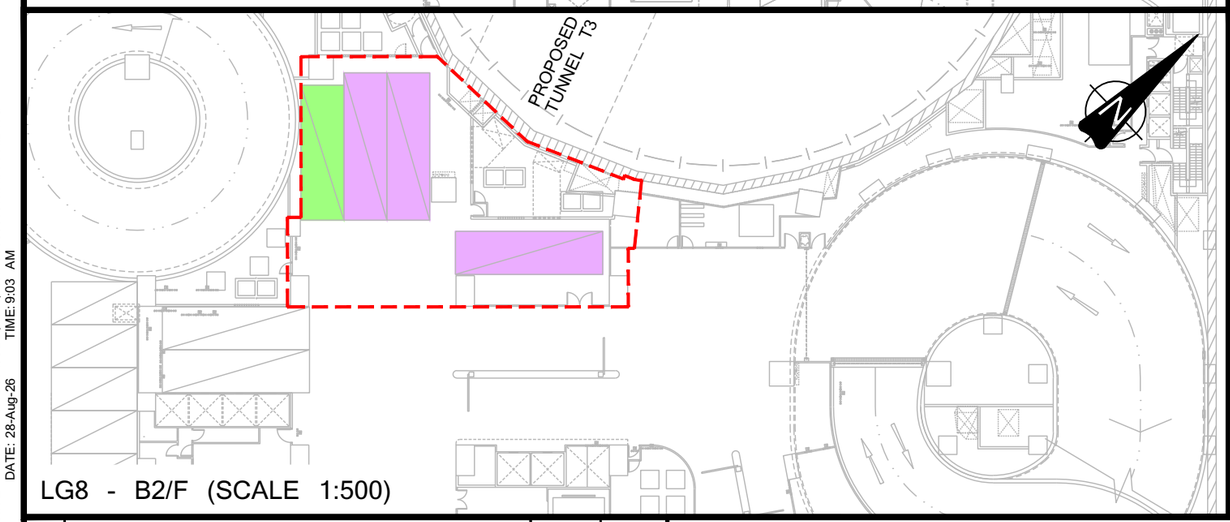


LG8 - B3/F (SCALE 1:500)

LG3 - B3/F (SCALE 1:250)



LG8 - B2/F (SCALE 1:500)

LEGEND:

- WORK AREA (INDICATIVE ONLY)
- CAR PARKING SPACE TO BE PERMANENTLY REMOVED
- CAR PARKING SPACE TO BE TEMPORARILY SUSPENDED DURING CONSTRUCTION
- CAR PARKING SPACE TO BE PERMANENTLY RE-PROVIDED
- CAR PARKING SPACE TO BE TEMPORARILY RE-PROVIDED DURING CONSTRUCTION
- PUBLIC MGV / HGV PARKING SPACE TO BE TEMPORARILY RELOCATED DURING CONSTRUCTION
- PUBLIC COACH PARKING SPACE TO BE TEMPORARILY RELOCATED DURING CONSTRUCTION

NOTE:
EXTENT OF WORK AREA AND AFFECTED PARKING SPACES ARE SUBJECT TO FURTHER REVIEW AT DETAILED DESIGN.

Rev.	Description	Checked	Date
-	-	-	-
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-	-	-	-
A	RESPONSE TO TD'S COMMENT	TCW	28AUG26

Project Title

SECTION 16 PLANNING APPLICATION OF
PROPOSED UNDERGROUND VEHICULAR TUNNEL T3
(CONNECTION LEE GARDEN THREE AND LEE GARDEN EIGHT)
- TRAFFIC IMPACT ASSESSMENT

Drawing Title

INDICATIVE WORKS AREA FOR TUNNEL CONSTRUCTION AT LEE GARDEN EIGHT AND LEE GARDEN THREE

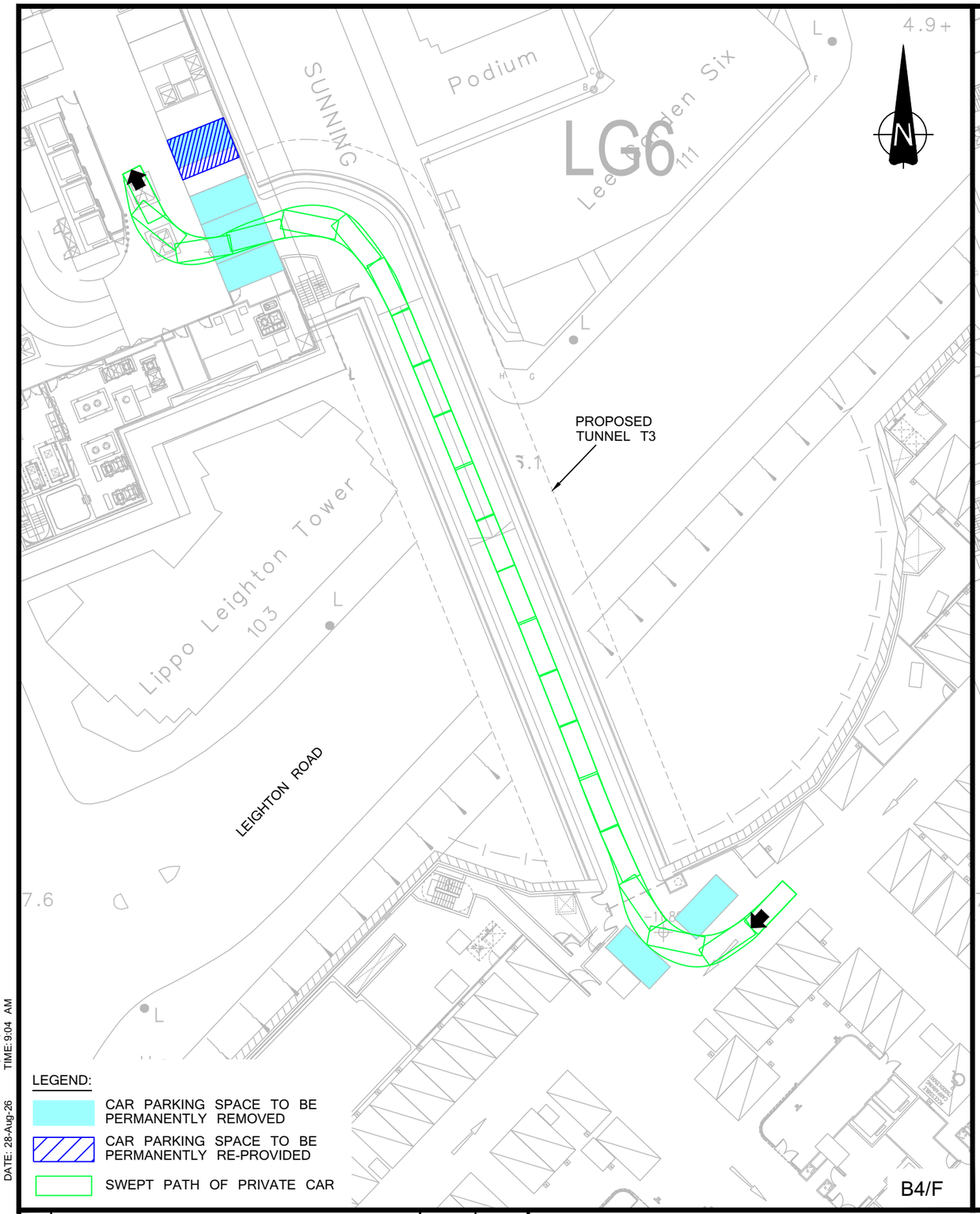
Designed	Checked	Scale	Date	Drawing No.	Rev.
MHC	TCW	As Shown(A3)	JUL 2026	7.1	A

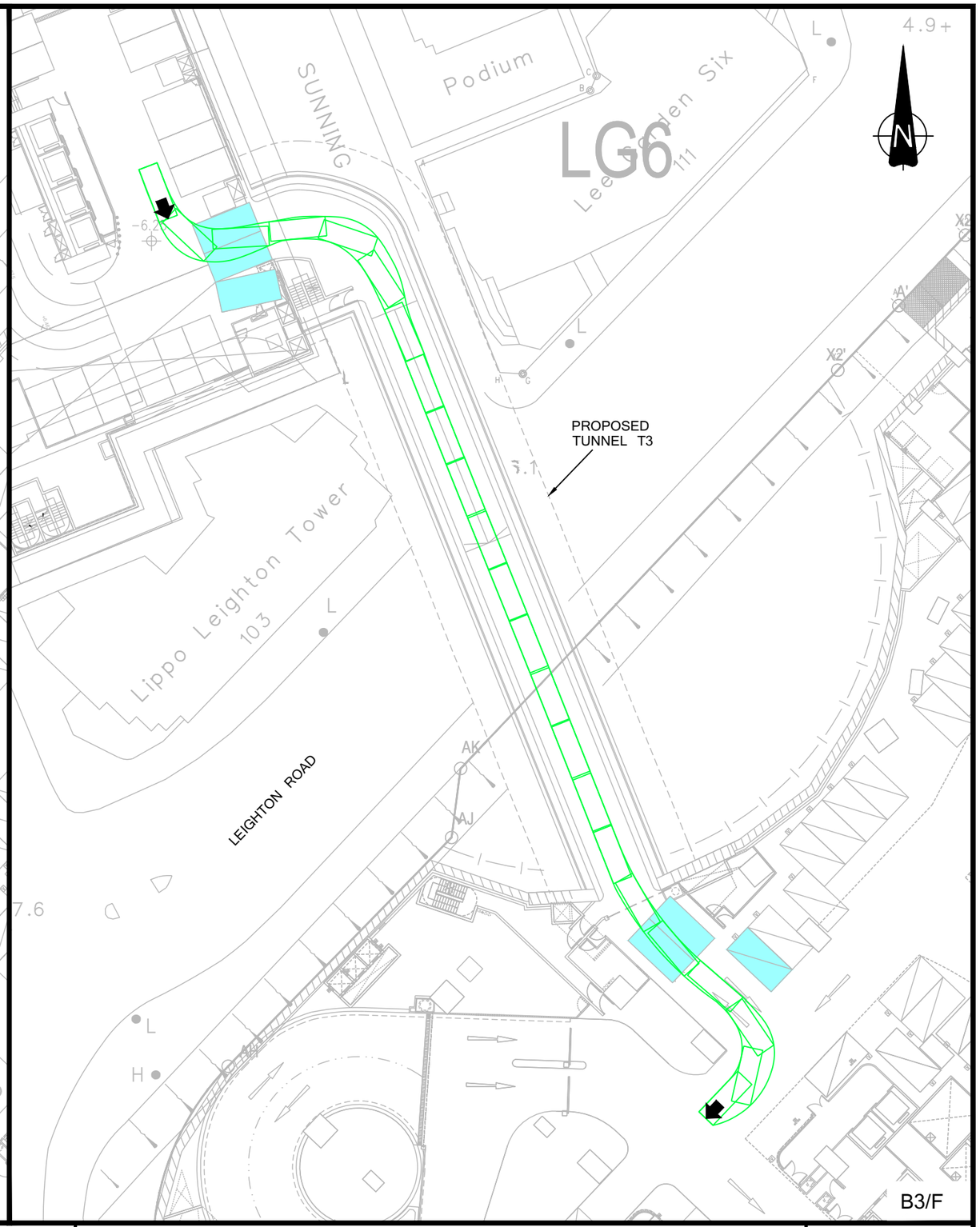
SYSTRA MVA

Original Size : A3

FILENAME: D:\ONEDRIVE - SYSTRAGROUP\JOBS(NEW)\CHK50865910\TIA\F71-A.DWG
PRINTED BY: CCHAN DATE: 28-Aug-26 TIME: 9:03 AM

APPENDIX A – Swept Path Analysis





LEGEND:

- CAR PARKING SPACE TO BE PERMANENTLY REMOVED
- CAR PARKING SPACE TO BE PERMANENTLY RE-PROVIDED
- SWEPT PATH OF PRIVATE CAR

Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	RESPONSE TO TD'S COMMENT	TCW	28AUG26

Project Title

SECTION 16 PLANNING APPLICATION OF
PROPOSED UNDERGROUND VEHICULAR TUNNEL T3
(CONNECTION LEE GARDEN THREE AND LEE GARDEN EIGHT)
- TRAFFIC IMPACT ASSESSMENT

Drawing Title

SWEPT PATH AT BASEMENT LEVEL 3 AND 4 WITH TUNNEL T3

Designed	Checked	Scale	Date	Drawing No.	Rev.
MHC	TCW	1:500 (A3)	JUL 2026	**A1**	A

SYSTRA MVA

Original Size : A3

FILENAME: D:\ONEDRIVE - SYSTRAGROUP\JOBS(NEW)\CHK50865910\TIA\A1-A.DWG
PRINTED BY: CCHAN DATE: 28-Aug-26 TIME: 9:04 AM

APPENDIX C - QUEUE LENGTH ANALYSIS

Queue Length Analysis

MVA Hong Kong Ltd.

Job No.	CHK50603110	Description	2036 Reference Flows
Job Title	ed Commercial Development on Inland Lot No. 8945, Causeway Bay, Hor	Design Year	2031
Junction Name	Caroline Hill Road (West) / Link Road / New Access Road (J1)	Designed By	TCW
Approach		Checked By	CHC
Probability(1% / 5%)?	5%		

		Unit	Weekday AM						Weekday Noon					
			Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB	Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB
Cycle time	c	sec	105	105	105	105	105	105	105	105	105	105	105	105
Effective green time	g	sec	61	12	12	35	35	36	61	12	12	35	35	36
		pcu/hr	775	275	30	371	329	280	685	270	50	361	324	215
Design flow	q	veh/sec	0.166	0.059	0.006	0.079	0.070	0.060	0.146	0.058	0.011	0.077	0.069	0.046
		pcu/hr	1980	2120	1800	2120	1915	1625	1980	2120	1800	2120	1945	1625
Saturation flow	Q	veh/sec	0.423	0.453	0.385	0.453	0.409	0.347	0.423	0.453	0.385	0.453	0.416	0.347
PCU factor	f	pcu/veh	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
No. of lanes	n	lane	1	1	1	1	1	1	1	1	1	1	1	1
Length of a vehicle	L	metre	6	6	6	6	6	6	6	6	6	6	6	6
Queue duration	t	hr	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Ratio of effective green	g/c		0.581	0.114	0.114	0.333	0.333	0.343	0.581	0.114	0.114	0.333	0.333	0.343
Degree of saturation	x		0.674	1.135	0.146	0.525	0.515	0.503	0.596	1.114	0.243	0.511	0.500	0.386
	M		17.388	6.170	0.673	8.324	7.381	6.282	15.369	6.058	1.122	8.099	7.269	4.824
	y		0.391	0.130	0.017	0.175	0.172	0.172	0.346	0.127	0.028	0.170	0.167	0.132
	Qt	veh/sec	147.473	31.062	26.374	90.598	81.838	71.429	147.473	31.062	26.374	90.598	83.120	71.429
	x<1													
	A	sec/veh	0.144	0.451	0.399	0.269	0.268	0.261	0.134	0.449	0.403	0.268	0.267	0.249
	B	sec/veh	0.696	-4.771	0.012	0.290	0.274	0.254	0.438	-5.428	0.039	0.267	0.250	0.121
	C	sec/veh	1.466	28.099	0.629	1.565	1.584	1.557	0.869	27.134	1.664	1.442	1.429	0.696
Average Queue Delay	D	sec/veh	18	-62	43	30	30	30	16	-74	44	30	30	28
	x>x'													
	Z		-0.326	0.135	-0.854	-0.475	-0.485	-0.497	-0.404	0.114	-0.757	-0.489	-0.500	-0.614
	X'		0.713	0.679	0.678	0.696	0.694	0.691	0.713	0.679	0.678	0.696	0.694	0.691
	No	veh	-0.182	4.472	-1.028	-0.556	-0.569	-0.587	-0.442	4.194	-0.952	-0.584	-0.601	-0.772
Average Queue Delay	D	sec/veh	14	134	19	25	24	22	12	128	21	24	24	20
Average Delay		**sec/veh**	**18**	**134**	**43**	**30**	**30**	**30**	**16**	**128**	**44**	**30**	**30**	**28**
Average Queue	N = q(r/2+d)	veh	6.605	-0.909	0.575	5.183	4.604	3.864	5.594	-1.588	0.971	5.025	4.512	2.875
Average Queue Length	NL/n	metre	40	-5	3	31	28	23	34	-10	6	30	27	17
Average Queue	N=qr	veh	7.286	5.465	0.596	5.549	4.921	4.128	6.440	5.365	0.994	5.400	4.846	3.170
Average Queue Length	NL/n	metre	44	33	4	33	30	25	39	32	6	32	29	19
Average Queue	N=qr+No	veh	7.104	9.937	-0.432	4.993	4.352	3.541	5.998	9.560	0.041	4.815	4.246	2.398
Average Queue Length	NL/n	metre	43	60	-3	30	26	21	36	57	0	29	25	14
Average Queue Length		**metre**	**44**	**60**	**4**	**33**	**30**	**25**	**39**	**57**	**6**	**32**	**29**	**19**

*Note SG = Signal Group

Queue Length Analysis

MVA Hong Kong Ltd.

Job No.	CHK50603110	Description	2036 Reference Flows
Job Title	ed Commercial Development on Inland Lot No. 8945, Causeway Bay, Hor	Design Year	2031
Junction Name	Caroline Hill Road (West) / Link Road / New Access Road (J1)	Designed By	TCW
Approach		Checked By	CHC
Probability(1% / 5%)?	5%		

		Unit	Weekday PM						Weekend Noon					
			Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB	Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB
Cycle time	c	sec	105	105	105	105	105	105	105	105	105	105	105	105
Effective green time	g	sec	60	13	13	33	33	37	61	12	12	35	35	36
		pcu/hr	730	275	50	356	324	210	760	245	40	357	323	230
Design flow	q	veh/sec	0.156	0.059	0.011	0.076	0.069	0.045	0.162	0.052	0.009	0.076	0.069	0.049
		pcu/hr	1980	2120	1800	2120	1915	1625	1980	2120	1800	2120	1945	1625
Saturation flow	Q	veh/sec	0.423	0.453	0.385	0.453	0.409	0.347	0.423	0.453	0.385	0.453	0.416	0.347
PCU factor	f	pcu/veh	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
No. of lanes	n	lane	1	1	1	1	1	1	1	1	1	1	1	1
Length of a vehicle	L	metre	6	6	6	6	6	6	6	6	6	6	6	6
Queue duration	t	hr	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Ratio of effective green	g/c		0.571	0.124	0.124	0.314	0.314	0.352	0.581	0.114	0.114	0.333	0.333	0.343
Degree of saturation	x		0.645	1.048	0.224	0.534	0.538	0.367	0.661	1.011	0.194	0.505	0.498	0.413
	M		16.378	6.170	1.122	7.987	7.269	4.712	17.051	5.497	0.897	8.010	7.247	5.160
	y		0.369	0.130	0.028	0.168	0.169	0.129	0.384	0.116	0.022	0.168	0.166	0.142
	Qt	veh/sec	145.055	33.651	28.571	85.421	77.161	73.413	147.473	31.062	26.374	90.598	83.120	71.429
	x<1													
	A	sec/veh	0.145	0.441	0.395	0.283	0.283	0.241	0.142	0.443	0.401	0.267	0.266	0.252
	B	sec/veh	0.587	-11.503	0.032	0.307	0.314	0.106	0.643	-45.637	0.023	0.258	0.247	0.145
	C	sec/veh	1.260	22.923	1.262	1.821	1.992	0.558	1.349	22.550	1.088	1.394	1.416	0.855
Average Queue Delay	D	sec/veh	18	-172	43	32	32	27	18	-848	44	30	30	29
	x>x'													
	Z		-0.355	0.048	-0.776	-0.466	-0.462	-0.633	-0.339	0.011	-0.806	-0.495	-0.502	-0.587
	X'		0.712	0.680	0.678	0.695	0.693	0.691	0.713	0.679	0.678	0.696	0.694	0.691
	No	veh	-0.287	3.475	-0.961	-0.532	-0.516	-0.796	-0.233	2.870	-0.993	-0.596	-0.603	-0.736
Average Queue Delay	D	sec/veh	14	108	21	26	26	19	14	102	20	24	24	20
Average Delay		**sec/veh**	**18**	**108**	**43**	**32**	**32**	**27**	**18**	**102**	**44**	**30**	**30**	**29**
Average Queue	N = q(r/2+d)	veh	6.282	-7.426	0.953	5.163	4.725	2.741	6.427	-41.946	0.772	4.962	4.496	3.097
Average Queue Length	NL/n	metre	38	-45	6	31	28	16	39	-252	5	30	27	19
Average Queue	N=qr	veh	7.019	5.406	0.983	5.477	4.985	3.051	7.145	4.869	0.795	5.340	4.831	3.391
Average Queue Length	NL/n	metre	42	32	6	33	30	18	43	29	5	32	29	20
Average Queue	N=qr+No	veh	6.732	8.881	0.022	4.945	4.469	2.255	6.912	7.739	-0.198	4.744	4.228	2.655
Average Queue Length	NL/n	metre	40	53	0	30	27	14	41	46	-1	28	25	16
Average Queue Length		**metre**	**42**	**53**	**6**	**33**	**30**	**18**	**43**	**46**	**5**	**32**	**29**	**20**

*Note SG = Signal Group

Queue Length Analysis

MVA Hong Kong Ltd.

Job No.	CHK50603110	Description	2036 Design Flows
Job Title	ed Commercial Development on Inland Lot No. 8945, Causeway Bay, Hor	Design Year	2031
Junction Name	Caroline Hill Road (West) / Link Road / New Access Road (J1)	Designed By	TCW
Approach		Checked By	CHC
Probability(1% / 5%)?	5%		

			Weekday AM						Weekday Noon					
		Unit	Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB	Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB
Cycle time	c	sec	105	105	105	105	105	105	105	105	105	105	105	105
Effective green time	g	sec	61	12	12	35	35	36	61	12	12	35	35	36
		pcu/hr	775	285	30	313	282	285	685	280	50	314	286	240
Design flow	q	veh/sec	0.166	0.061	0.006	0.067	0.060	0.061	0.146	0.060	0.011	0.067	0.061	0.051
		pcu/hr	1980	2120	1800	2120	1915	1625	1980	2120	1800	2120	1945	1625
Saturation flow	Q	veh/sec	0.423	0.453	0.385	0.453	0.409	0.347	0.423	0.453	0.385	0.453	0.416	0.347
PCU factor	f	pcu/veh	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
No. of lanes	n	lane	1	1	1	1	1	1	1	1	1	1	1	1
Length of a vehicle	L	metre	6	6	6	6	6	6	6	6	6	6	6	6
Queue duration	t	hr	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Ratio of effective green	g/c		0.581	0.114	0.114	0.333	0.333	0.343	0.581	0.114	0.114	0.333	0.333	0.343
Degree of saturation	x		0.674	1.176	0.146	0.443	0.442	0.512	0.596	1.156	0.243	0.444	0.441	0.431
	M		17.388	6.394	0.673	7.022	6.327	6.394	15.369	6.282	1.122	7.045	6.417	5.385
	y		0.391	0.134	0.017	0.148	0.147	0.175	0.346	0.132	0.028	0.148	0.147	0.148
	Qt	veh/sec	147.473	31.062	26.374	90.598	81.838	71.429	147.473	31.062	26.374	90.598	83.120	71.429
	x<1													
	A	sec/veh	0.144	0.453	0.399	0.261	0.261	0.262	0.134	0.452	0.403	0.261	0.261	0.253
	B	sec/veh	0.696	-3.924	0.012	0.176	0.175	0.268	0.438	-4.290	0.039	0.178	0.174	0.163
	C	sec/veh	1.466	30.077	0.629	0.940	0.998	1.643	0.869	29.080	1.664	0.949	0.983	0.973
Average Queue Delay	D	sec/veh	18	-47	43	29	29	30	16	-53	44	29	29	29
	x>x'													
	Z		-0.326	0.176	-0.854	-0.557	-0.558	-0.488	-0.404	0.156	-0.757	-0.556	-0.559	-0.569
	X'		0.713	0.679	0.678	0.696	0.694	0.691	0.713	0.679	0.678	0.696	0.694	0.691
	No	veh	-0.182	5.038	-1.028	-0.702	-0.699	-0.569	-0.442	4.753	-0.952	-0.700	-0.700	-0.710
Average Queue Delay	D	sec/veh	14	145	19	23	22	23	12	139	21	23	22	21
Average Delay		**sec/veh**	**18**	**145**	**43**	**29**	**29**	**30**	**16**	**139**	**44**	**29**	**29**	**29**
Average Queue	N = q(r/2+d)	veh	6.605	-0.027	0.575	4.285	3.872	3.943	5.594	-0.409	0.971	4.300	3.925	3.246
Average Queue Length	NL/n	metre	40	0	3	26	23	24	34	-2	6	26	24	19
Average Queue	N=qr	veh	7.286	5.663	0.596	4.682	4.218	4.202	6.440	5.564	0.994	4.697	4.278	3.538
Average Queue Length	NL/n	metre	44	34	4	28	25	25	39	33	6	28	26	21
Average Queue	N=qr+No	veh	7.104	10.701	-0.432	3.980	3.519	3.633	5.998	10.318	0.041	3.997	3.577	2.828
Average Queue Length	NL/n	metre	43	64	-3	24	21	22	36	62	0	24	21	17
Average Queue Length		**metre**	**44**	**64**	**4**	**28**	**25**	**25**	**39**	**62**	**6**	**28**	**26**	**21**

*Note SG = Signal Group

Queue Length Analysis

MVA Hong Kong Ltd.

Job No.	CHK50603110	Description	2036 Design Flows
Job Title	ed Commercial Development on Inland Lot No. 8945, Causeway Bay, Hor	Design Year	2031
Junction Name	Caroline Hill Road (West) / Link Road / New Access Road (J1)	Designed By	TCW
Approach		Checked By	CHC
Probability(1% / 5%)?	5%		

		Unit	Weekday PM						Weekend Noon					
			Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB	Link Road NB	New Access Rd WB (farside lane)	New Access Rd WB (nearside lane)	CHR SB (farside lane)	CHR SB (nearside lane)	U-turn NB
Cycle time	c	sec	105	105	105	105	105	105	105	105	105	105	105	105
Effective green time	g	sec	60	13	13	33	33	37	61	12	12	35	35	36
		pcu/hr	730	295	50	318	292	225	760	260	40	313	287	250
Design flow	q	veh/sec	0.156	0.063	0.011	0.068	0.062	0.048	0.162	0.056	0.009	0.067	0.061	0.053
		pcu/hr	1980	2120	1800	2120	1930	1625	1980	2120	1800	2120	1940	1625
Saturation flow	Q	veh/sec	0.423	0.453	0.385	0.453	0.412	0.347	0.423	0.453	0.385	0.453	0.415	0.347
PCU factor	f	pcu/veh	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
No. of lanes	n	lane	1	1	1	1	1	1	1	1	1	1	1	1
Length of a vehicle	L	metre	6	6	6	6	6	6	6	6	6	6	6	6
Queue duration	t	hr	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Ratio of effective green	g/c		0.571	0.124	0.124	0.314	0.314	0.352	0.581	0.114	0.114	0.333	0.333	0.343
Degree of saturation	x		0.645	1.124	0.224	0.477	0.481	0.393	0.661	1.073	0.194	0.443	0.444	0.449
	M		16.378	6.619	1.122	7.135	6.551	5.048	17.051	5.833	0.897	7.022	6.439	5.609
	y		0.369	0.139	0.028	0.150	0.151	0.138	0.384	0.123	0.022	0.148	0.148	0.154
	Qt	veh/sec	145.055	33.651	28.571	85.421	77.766	73.413	147.473	31.062	26.374	90.598	82.906	71.429
	x<1													
	A	sec/veh	0.145	0.446	0.395	0.277	0.277	0.243	0.142	0.447	0.401	0.261	0.261	0.255
	B	sec/veh	0.587	-5.097	0.032	0.218	0.223	0.127	0.643	-7.875	0.023	0.176	0.177	0.183
	C	sec/veh	1.260	26.290	1.262	1.312	1.432	0.691	1.349	25.252	1.088	0.940	1.003	1.102
Average Queue Delay	D	sec/veh	18	-60	43	31	31	28	18	-120	44	29	29	29
	x>x'													
	Z		-0.355	0.124	-0.776	-0.523	-0.519	-0.607	-0.339	0.073	-0.806	-0.557	-0.556	-0.551
	X'		0.712	0.680	0.678	0.695	0.693	0.691	0.713	0.679	0.678	0.696	0.694	0.691
	No	veh	-0.287	4.549	-0.961	-0.643	-0.631	-0.764	-0.233	3.650	-0.993	-0.702	-0.696	-0.682
Average Queue Delay	D	sec/veh	14	128	21	25	24	19	14	117	20	23	22	21
Average Delay		**sec/veh**	**18**	**128**	**43**	**31**	**31**	**28**	**18**	**117**	**44**	**29**	**29**	**29**
Average Queue	N = q(r/2+d)	veh	6.282	-0.903	0.953	4.548	4.195	2.957	6.427	-4.087	0.772	4.285	3.941	3.398
Average Queue Length	NL/n	metre	38	-5	6	27	25	18	39	-25	5	26	24	20
Average Queue	N=qr	veh	7.019	5.799	0.983	4.892	4.492	3.269	7.145	5.167	0.795	4.682	4.293	3.686
Average Queue Length	NL/n	metre	42	35	6	29	27	20	43	31	5	28	26	22
Average Queue	N=qr+No	veh	6.732	10.348	0.022	4.249	3.861	2.506	6.912	8.817	-0.198	3.980	3.596	3.003
Average Queue Length	NL/n	metre	40	62	0	25	23	15	41	53	-1	24	22	18
Average Queue Length		**metre**	**42**	**62**	**6**	**29**	**27**	**20**	**43**	**53**	**5**	**28**	**26**	**22**

*Note SG = Signal Group